Role of Ballistic Missile Defense in the US Nuclear Deterrence Discourse: A study of Post-Cold war Debates

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DECLARATION

I declare that the dissertation entitled "**Role of Ballistic Missile Defense in the United States Nuclear Deterrence Discourse: A study of Post Cold War Debates**" submitted by me, for the reward of the degree for **Master of Philosophy** of Jawaharlal Nehru University, is my own work. This dissertation has not been submitted for any other degree of this University or any other university.

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CERTIFICATE

We recommend that this dissertation to be placed before the examiners for evaluation.

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Dedicated to my Parents

Contents

Chapter 1
Introduction

Deterrence has dominated the debates in international relations since the end of World War II. During the period between World War II and the end of Cold War, US and Russia continued to threaten each other with the use of nuclear weapons but never used them. It was clearly understood that mutual nuclear deterrence was largely responsible for this 'long-peace' between the two superpowers (Record 2004: 5). Nuclear weapons have been regarded as instruments for prevention of war rather than for destruction.

The credibility of nuclear deterrence depends on their effective delivery ideally via ballistic missiles (Kenyon and Simpson 2006: 1). Here emerges the issue of Ballistic Missile Defence (BMD) which aims at destroying ballistic missiles carrying Weapons of Mass Destruction (WMD) before they reach their destination. This means a massive reduction in the credibility of adversary's nuclear deterrence. As a result, the adversary tries to develop offensive weapons or countermeasures to strengthen its deterrence. This has led to the debate on whether BMD stabilizes or destabilizes the deterrence.

1.0 - Defining 'Deterrence'

The term 'Deterrence' could be defined as discouraging the enemy from taking action by proposing various military and economic incentives as well as threats. Deterrence is relevant in both peace and war and is aimed at prevention of escalation of conflict. It has been defined by the US Department of Defence (DoD) as "Prevention of action by fear of the consequences. Deterrence is a state of mind brought about by the existence of credible threats of unacceptable counteraction" (DoD Dictionary of military terms 2003). In military parlance, it means preventing the enemy from taking armed action by giving similar kinds of military threats. Deterrence means to compel the enemy in a situation of conflict and to act or react in the light of the existing dispositions, which constitute an effective threat.

Thomas Schelling defines deterrence as, "persuading a potential enemy that he should in his own interest avoid certain course of activity" (Schelling 1968: 1). Deterrence

assumes a cost-benefit analysis, and works by convincing the enemy that the cost of taking action will outweigh the benefits. The decision to either go to war or maintain peace is taken keeping in view the consequences involved in a particular action, and any government is not likely to go to war unless it foresees considerable advantage by doing so (Schelling 1968: 1).

Deterrence therefore depends on the credibility of threat. This means the enemy should be capable enough to retaliate under given conditions. This capability should be combined with communication, and adversaries must be able to exchange clear messages about how the threats could be unleashed.

During the Cold War, deterrence was believed to have prevented the escalation of conflict between two nuclear superpowers. Soviet Union feared that if it carried out an attack on the US, retaliation by the US forces could cause large-scale unrest and possible dissolution of Soviet empire. Any aggression by the Soviet Union could also bring the Western Alliance together or mobilize the West, which could either reduce its own security or greatly increase the cost of maintaining its position in the arms race. The same was feared by the US. This is believed to have prevented a nuclear war between the US and the Soviet Union during the Cold War years (Snyder 1960: 37).

1.1- Deterrence: Pre and Post Nuclear Era

The concept of 'deterrence' is not new. The concept of 'balance of power', which was adopted in the 18th and 19th centuries, was similar to the concept of 'deterrence'. The core logic of the balance of power was that the military capabilities available to any combination of power should be sufficiently balanced so that full-scale conflict will appear profitless (George and Smoke 1974: 14). The root idea of the balance of power was that only force could counter the effect of force and that stability, predictability and regularity could only occur when the forces were in equilibrium. This concept of 'balance of power' could be compared with the concept of 'chandelier' propounded by George and Smoke which remains stable if the weights attached to it are distributed in such a way that the forces they exert are in equilibrium. The chandelier would lose stability if one of its weights became heavier without being compensated for it. This could be compared to a state that becomes stronger due to economic or

military advantages. The chandelier would also become unstable if two weights move together without any compensatory movement elsewhere. Therefore, marginal conflicts were fought during this period so as to achieve marginal adjustments in the balance of power, something which diplomacy has failed to secure (George and Smoke 1974: 14).

The difference between pre-nuclear era and post -nuclear era is that earlier deterrence was stabilized not by technological weapons but by shifting of diplomatic alliances. During this period, the aim was to ensure that a state had as many players with it as it were numbered against. Nevertheless, this concept failed and resulted in World War I and World War II. The reason for its failure was the limited nature of destruction by potential armed conflict. Countries were willing to take that kind of risks during this period due to small amount of destruction involved in war (Jindal 1987: 28-29). The concept of 'deterrence' had changed with the introduction of air power. Politicians and military heads realized the importance of air power and the possibility of strategic bombing towards deterring the enemy. During the 1920s and 1930s, it was felt that directly attacking and destroying the population center of the enemy could prevent the disastrous event of World War I (Parrington 1997).

British Prime Minister David Lloyd George once said "the bomber will always get through, unstoppable by any defensive measures, causing immense damage to physical infrastructure and public morale" (Freedman 2005:9). This reinforced the concept of 'deterrence'. The fear of immense danger to infrastructure and civilian life proved far more potent in preventing the enemy while considering the option of war. However, these assumptions proved wrong during World War II and excessive attacks on population centers increased the enemy's will to resist attacks. This proved that the use of bombers was insufficient to deter the enemy.

The advent of nuclear weapons transformed the entire discourse on war since nuclear weapons were only regarded as a "means to deter" and not "means to achieve victory" in war (Triphathi 1970:19). The nuclear bombings on Hiroshima and Nagasaki witnessed complete destruction of life and property within a few minutes, which was not possible by the use of conventional weapons. Nuclear weapons were different from any other weapons used during the Cold War because of their large-scale impact

and the speed at which destruction was caused. Conventional weapons took large amounts of time to inflict damage and gave politicians ample time to review the situation and start negotiations for damage control or to terminate the war before irreparable damage was done. On the other hand, nuclear weapons threatened complete destruction within a few seconds, causing irreparable damage. Therefore, there was little scope for political negotiations in the case of a nuclear war. The aim of the war such as territoria! limits of the aggressor and aggressed or freedom become meaningless in the advent of large scale of destruction caused by thermonuclear weapons (Triphathi 1970:19).

Nuclear weapons were used by the US as it dropped atomic bombs on the Japanese cities of Hiroshima and Nagasaki during August 1945. Also, during the initial years when nuclear weapons were first used, hardly anything was known about their actual impact and implications. The reasons given for the use of nuclear weapons on Japan are:

1. The US was the only nuclear country at that point of time and therefore there was no fear of retaliation or question of deterrence.
2. The nuclear bomb was used mainly as a warning signal to Soviet Union rather than to defeat Japan. Scholars like Alprovitiz said that Japan was almost defeated at that time and would have surrendered even if nuclear weapons were not used (Jindal 1987: 19).

When the Soviet Union acquired nuclear weapons in October 1949, the equations changed completely. Now there was a fear of retaliation by the Soviet Union against the US, which could cause large-scale destruction. Nuclear weapons had also raised the costs of war. This led to the introduction of the concept of 'nuclear deterrence', which made war obsolete.

Bernard Brodie in his famous book, *The Absolute Weapon* wrote, "The chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can have no other useful purpose" (Brodie 1946:76). Henry Kissinger wrote, "The nuclear age turned strategy into deterrence, and deterrence into exotic exercise" (Jindal 1987: 19). Similarly, Kenneth Waltz came up with his

famous theory of 'more may be better'in his monograph *The spread of Nuclear Weapons: More may be Better* he said:

> Nuclear weapons and an appropriate doctrine for their use may make it possible to approach the defensive-deterrent ideal, a condition that would cause the chances of war to dwindle. Concentrating attention on destructive power of nuclear weapons has obscured the important benefits they promise to states trying to coexist in a self-help world. If weapons are not well suited for conquest, neighbors have more peace of mind. According to the defensive-deterrent ideal, we should expect war to become less likely when weaponry is such as to make conquest difficult, to discourage pre-emptive and preventive war, and to make coercive threats less credible (Waltz 1981).

Waltz mentioned four ways in which nuclear weapons made war totally obsolete:

> First, wars can be fought in the face of deterrent threats, but the higher the stakes and the closer a country moves toward winning them, the more surely that country invites retaliation and risks its own destruction. States are not likely to run major risks for minor gains. Wars between nuclear states may escalate as the loser uses larger and larger warheads. Fearing that states will want to draw back. Not escalation but de-escalation becomes likely. War remains possible. But victory in war is too dangerous to fight for. If states can score only small gains because large ones risk retaliation, they have little incentive to fight.
>
> Second, states act with less care if the expected costs of war are low and with more care if they are high. In 1853 and 1854, Britain and France expected to win an easy victory if they went to war against Russia. Prestige abroad and political popularity at home would be gained if not much else. The vagueness of their plans was matched by the carelessness of their acts. In blundering into the Crimean War they acted hastily on scant information, pandered to their people's frenzy for war, showed more concern for an ally's whim than for the adversary's situation, failed to specify the changes in behavior that threats were supposed to bring and inclined towards testing strength first and bargaining second. In sharp contrast, the presence of nuclear weapons makes States exceedingly cautious. Think of Kennedy and Khrushchev in the Cuban missile crisis. Why fight if you can't win much and might lose everything?
>
> Third, the question demands a negative answer all the more insistently when the deterrent deployment of nuclear weapons contributes more to a country's security than does conquest of territory. A country with a deterrent strategy does not need the extent of territory required by a country relying on a conventional defence in depth. A deterrent strategy makes it unnecessary for a country to fight for the sake of increasing its security, and this removes a major cause of war.
>
> Fourth, deterrent effect depends both on one's capabilities and on the will one has to use them. The will of the attacked, striving to preserve its own territory, can ordinarily be presumed stronger than the will of the attacker striving to annex someone else's territory. Knowing this, the would-be attacker is further inhibited. (Waltz 1981)

Therefore, the presence of nuclear weapons on the international conflict scenario brought about a major shift in war policies. Possession of nuclear weapons made wars limited. Deterrence strategies that created caution all around the globe, thus reducing the possibility of wars, were formed.

Nuclear weapons also affected the prospective damage inflicted on the enemy: it was proportionate to adversary expected gains in war, after those gains discounted for the many uncertainties of war. The US developed nuclear weapons so as to win World War II and then used them to gain strategic advantage over their perceived enemies. This led to the outcome of war or negotiations for it in the favor of the US. The fear of irreparable damage prevented war and escalation of conflict in the Cold War period.

1.2- Weapons of Mass Destruction and Missiles

The use of missiles to deliver nuclear weapons or WMD was to further re-enforce the credibility of nuclear deterrence. Missiles were found to be capable of delivering WMD far and wide into the territories of the enemy state. The importance of missiles was realized by the use of V-2 rockets by Germany during World War II. The German V-1 and V-2 programs against the United Kingdom resulted in approximately 1,450,000 people evacuating London. The British Air Ministry conducted studies in 1944 which stated that the costs incurred by the allies to defend against the V-1 threat were four times greater than those incurred by Germans to carry out the defensive attacks (Mackenzie and Stephens 1993:4). The introduction of missiles changed the war scenario. Nations could now strike deep inside the enemy territory. Missiles had the capability to destroy civilian and industrial installations within minutes.

In evaluating V-2 rockets, R.V. Jones, Chief of British Royal Air Force scientific intelligence during World War II said:

> Our own politicians had been carried away with the threat: for some psychological reason, they seemed far more frightened by one tone of explosive delivered by rocket than by five tons delivered by aircraft. The reason was that no weapon yet produced has a comparable romantic appeal. Here is a 13 ton missile which traces out a flaming ascent to heights hitherto beyond the reach of man, and hurls itself 200 miles across the stratosphere at unparallel speed to descent with lunch on a defend less target. One of the greatest realizations of human power is the ability to destroy at distance (Karp 1996: 48).

Initially, it was believed that there was no escaping a missile attack, and no way to defend industrial and civilian population from missile attacks. WMD, especially nuclear weapons, were only of limited use unless states developed capabilities to carry them on missiles. Missiles were revolutionary because even if they did not carry any WMD, they could inflict large-scale damage by creating psychological fear and causing damage on enemy territories by its debris. This created the dilemma of

choosing between deterrence or defence. The question that arose was: what would be the consequences in case of failure of deterrence?

Before such technological developments, there were three important functions of military: to punish the enemy, to deny it territory, and to mitigate damage. Deterrence was accomplished by convincing the enemy that its territorial plans would be frustrated and costs inflicted on it during the course of war would be more than gains achieved. (Snyder 1960: 36). However, nuclear weapons along with missiles increased the relative importance of prospective cost in deterring the enemy and reduced the importance of frustrating the aggressor. As a result, nuclear powers now had to exercise the choice between the objectives of deterrence and defence, since the relative proportion of 'punishment capacity' to 'denial capacity' had become a matter of choice (Snyder 1960: 36). As a result, the US realized the importance of BMD, preserving itself against ballistic missiles and thus strengthening its deterrence in the missile age. Throughout the Cold War, strategic debated continued to highlight the negative and positive relationships established between BMD and deterrence.

Let us began by outlining what is BMD. At the most simple level, the aim of BMD is to identify approaching missiles and to destroy them before they reach their target. In doing so, the BMD works in three phases. BMD systems have their unique set of leverages and limitations at each of these three phases, which are:

1.2 A- *Boost Phase Defences*

Boost Phase is the first phase of missile flight when the booster rocket motors are burning and accelerating the missile to high altitude and speed. In case of ballistic missiles, this phase lasts for 3-5 minutes and in the case of short-range missiles, it lasts for 1-2 minutes. The advantage of destroying approaching missiles in this phase is that it would destroy the missiles before they have time to dispense with their warheads, especially if these are multiple warheads. The debris of missiles will also fall in the territory of hostile state (Aldridge 2002:1).

After initial detection and tracking by the radar, kinetic kill vehicle is launched which would collide with the approaching missile. Powerful lasers, such as air borne lasers, could also be used for this purpose. Several such programs are under development

(Panofsky and Wilkening 2006: 238). The advantage during this phase is that this is the only phase during which ballistic missile motors are burning, leaving distinct signature plume, which makes detection and interception easier (Missile Defense, Deterrence and Arms Control 2002:6). The problem with the boost phase is that it must be located near the enemy missile launch and in its very initial stage because the boost phase lasts only for 3-5 minutes. Therefore, the interceptor does not have much time to cover distance. This shortcoming makes it impossible to prepare defences against states which are not located near the border (Lindsay and O' Hanlon 2001: 45). Detection during boost phase would be difficult if rockets were launched from remote locations or on cloudy days because infrared detection satellites may not detect their heat signatures immediately (Lindsay and O' Hanlon, 2001: 48).

1.2 B- Midcourse Phase Defences

Midcourse is the period when warheads start separating from the missile structure. For chemical and biological weapons, the canisters separate from the deployment forum. It is the longest phase of missiles and lasts for up to 20 minutes in ballistic missiles (Aldridge 2002: 1). To kill missiles during this phase would require Exoatmospheric Kill Vehicle (EKV), which consists of a miniaturized package of sensors, computers and thrusters. It is launched on top of the interceptors, travels up to 140 miles and destroys warheads through sheer collusions (Basics of Ballistic Missile Defense 2007). During this phase, intercepts take place outside the earth atmosphere and provide the largest opportunity to intercept missiles. As this phase lasts for 20 minutes, few interceptors are needed to defend larger areas. However, the long period of time also provides attacker to deploy countermeasures (Martin 2002:1). The detection and discrimination of decoys from the actual warhead represent the problem in mid course defence (Panofsky and Wilkening 2006: 242).

1.2 C- Terminal Phase Defences

Terminal phase is the period when the warheads start re-entering the earth atmosphere. It lasts for as little as 30 seconds. The re-entry of the missile bodies, warheads and decoys are of course slowed down due to air resistance (Lindsay and O'Hanlon, 2001: 35). Terminal defences are useful in protecting small or high value targets and are not suitable for larger countries like the US. Since these defences work only in the last minutes of missile stage, they must be based near the city or small

region which they intend to protect (Lindsay and O' Hanlon, 2001:43). The premium here remains on time. Therefore, such a defence would require large and impractical number of terminal defence sites (Panofsky and Wilkening 2006:243).

1.3- Relationship between BMD and Deterrence

Ever since the emergence of the concept of 'nuclear deterrence', the US has adopted many variants of the policy, such as massive retaliation, flexible response and Mutual Assured Destruction (MAD) so as to maintain the credibility of its nuclear deterrent. These are often combined with the concept of BMD in the negative and positive sense so as to strengthen deterrence posture of the US. James Schlesinger, former Secretary of Defence for President Ford, said that the goal of military might of the US and its allies during the Cold War period was to create effective posture of deterrence that precluded outright military assault by the Soviet Union. He remarked that at the heart of the deterrence theory laid the credibility of the strategies and forces to respond in the event of direct military assault. He said that without credibility, deterrence would be nothing more but a façade (Durr 2002: 2). The following table illustrates the ends, ways and means of deterrence during the Cold War:

Table 1.1: Cold war strategies: Ends-ways and means

ENDS	WAYS	MEANS
U.S. Security European Security Stop Soviet Aggression	Massive Retaliation Mutually Assured Destruction Treaty Diplomacy: SALT, START I, and ABM Treaty	Atomic and Thermonuclear Weapons Delivery Triad: Bombers, ICBMs and Submarines

Source: http://www.iwar.org.uk/military/resources/nuclear/Durr_C_W_02.pdf:3

All these deterrence policies had positive and negative relationships with BMD (see Annexure I). During the period of Cold War, this evaluation of their relationship can be divided into four phases:

Phase 1

Negative relationship between Massive Retaliation and BMD, 1954-1961

Phase II:

Positive relationship between Flexible response and BMD, 1961-1972

Phase III

Restricting deployment of BMD and establishment of MAD, 1972-2001

Phase IV

Revival of relationship with President Regan's strategic Defence Initiative, 1983

1.4- Negative Relationship between Massive Retaliation and BMD, 1954-1961

Massive Retaliation was the first systematic nuclear doctrine of deterrence that was evolved at the end of World War II. The Eisenhower administration decided to take a 'New Look' towards the security problems of the US. Former US President Harry Truman had viewed the nuclear weapons as instruments of terror and weapons of last resort while President Eisenhower viewed nuclear weapons as weapons of first resort (Paulsen 1994: 4). He approved a new planning document (NSC-162/2) and announced the policy of Massive Retaliation (Jindal 1987: 85). According to this policy, the US would not constrain itself to meet communist military probe with the local conventional counterforce, as it had done during the war in Korea. President Eisenhower and Secretary of State John Foster Dulles were convinced that threat to use nuclear weapons had ended the stalemate. Therefore, the same policy could be applied to prevent future conventional wars. Instead, the US would retaliate instantly and massively against the major communist powers, even if it had limited communist aggression. This meant that the US would not rest on conventional weapons so as to stop Soviet aggression and instead would retaliate with nuclear weapons. Secretary of Defence for President Kennedy, Robert McNamara, explained this in the following words:

> The cornerstone of our strategic policy continues to be to deter deliberate nuclear attack upon the US or its allies. We do this by maintaining a highly reliable ability to inflict unacceptable damage upon any single aggressor or combination of aggressor at any time during the course of a strategic nuclear exchange, even after absorbing a surprise first strike. This can be defined as assured destruction capability. Assured Destruction is the very essence of the whole deterrence concept. We must possess an actual assured destruction capability, and that capability also must be credible...If the US is to deter a nuclear attack, on itself or on its allies, it must possess an actual and a credible assured destruction capability (McNamara 1968: 52-53).

To formulate such a capability, the US had to possess second-strike forces which would be able to absorb the first-strike of the enemy and in turn inflict damage on the enemy forces. Such capabilities would make the enemy first-strike capability suicidal (Record 2004: 4). McNamara said:

> When calculating the force required, we must be conservative in all our estimates of both a potential aggressor's capabilities and his intentions. Security depends upon assuming a worst plausible case, and having the ability to cope with it. In that eventuality we must be able to absorb the total weight of nuclear attack on our country_- on our retaliatory forces, on our command and control apparatus, on our industrial capacity, on our cities, and on our population and still be capable of damaging the aggressor to the point that his society would be simply no longer viable in 20th century terms. That is what deterrence of nuclear aggression means. It means certainty of suicide to the aggressor, not merely to his military forces, but also to his society as a whole (McNamara 1968: 52-53).

The aim of massive retaliation was to reduce the dependence of the US on the ground forces and conventional weapons and to replace it by nuclear threat. The author of the US policy of containment, Secretary John Foster Dulles, outlined the heart of Massive Retaliation on 12 January 1954 before the Council of Foreign Relations. He said "The US would deter communist aggression by depending primarily upon great capacity to retaliate instantly by means and places of our own choosing" (Snow 1981: 52). A column in *New York Times* on 16 January 1954 said that the US was saying to China and USSR as clearly "as governments ever say that in the event of another proxy war or bushfire war in Korea, Indochina, Iran or elsewhere, the US would retaliate instantly with atomic weapons against the USSR and Red China."(Freedman 1989:87). Thus, massive retaliation raised the cost of war which outweighed the gains from aggression (Freedman 1989: 87). The concept of massive retaliation appeared as a strategic component of a new US national security policy, the rationale for force structure of the New Look Policy and the guiding principle of the American nuclear strategy for almost a decade (George and Smoke 1974: 27).

According to Samuel Wells, there were three reasons for the adoption of the US strategy of massive retaliation: (Wells 1981:38)

1) The President believed that nuclear weapons presented real and usable military options.

2) The members of the President Administration publicized their willingness to use nuclear weapons in any conflict in the belief that this would deter large and small-scale communist aggression.

3) Concentration on nuclear weapons would decrease the military spending on other weapons which President Eisenhower considered necessary for economic well- being (Wells 1981:38).

The nascent formulation of BMD was opposed to the concept of Assured Destruction. The concept of assured destruction was based on the first-strike capability. However, BMD would degrade the first-strike capability of the Soviet Union. The BMD would destabilize the relationship of the USSR and the US by undermining assumed Soviet intention to maintain Americans as hostage for deterrence purposes. The Soviet Union would always react to these damage limitation programs by enhancing its offensive capabilities. In such a case, the US BMD program would provide dynamics for offensive-defensive arms race (Payne 1986:30).

1.5- Flexible Response and its Positive Relationship with BMD: 1961-1972

The strategy of massive retaliation came under criticism by several proponents of limited war and the Kennedy administration decided to introduce the doctrine of "Flexible Response." During 1960s, the US strategic nuclear deterrence policy was to deter an attack against the US and its allies by having the capability to wipe out the enemy's first-strike capability (Davis 1982: 42). It was felt that it was impractical for the US to use its nuclear weapons against the limited attack by the Soviet Union. If the US chose to do so, it would be followed by the Soviet Union inflicting a nuclear attack on the US. Thus, the US would risk its own cities by launching a nuclear war in response to a relatively smaller nuclear probe. The doctrine of Massive Retaliation was regarded as politically and military inflexible as it did not reserve nuclear weapons for response to a direct Soviet nuclear attack. As a result, in case of the Soviet Union aggression, the US was left with only two options: whether to respond massively or to do nothing. Nuclear response was very unlikely to be regarded as legitimate, especially against small military attacks of the Soviet Union (Davis 1982:46).

The doctrine of massive retaliation could not be applied if both the adversaries had second-strike capability. Carrying out nuclear attack in case of limited attacks by the Soviet Union would mean one's own destruction. Under such conditions, the cost of implementing threat was greater than the cost of not doing so, thus making threat incredible (Powell 1989:508). On the other hand, if the US could respond in a controlled manner against the military targets of an adversary, the enemy calculations might be altered (Davis 1982:46).

The underlying assumption was that there was a stable nuclear balance between the US and Soviet Union. Therefore, nuclear war was very unlikely and both sides were deterred by each other by simply possessing nuclear weapons. As nuclear war was out of the question, enemies would try to gain ground by initiating limited war. Under limited war, the US would be hesitant to use nuclear weapons because the Soviet Union could then retaliate with its nuclear weapons. Therefore, there was a need to change the doctrine so as to prevent the US from 'suicidal policies' (Halperin 1968:178). President Kennedy was opposed to this doctrine of US massive retaliation and said:

> Under every military budget submitted by this administration, we have been preparing primarily to fight the one kind of war we least want to fight and are least likely to fight. We have been driving ourselves into a corner where the only choice is all-or-nothing-at-all, world devastation or submission, a choice that necessarily causes us to hesitate on the brink and leaves the initiation in the hands of our enemies (Kennedy 1960: 41).

The other criticism of the massive retaliation doctrine was that it ignored the importance of conventional weapons and ground forces in deterring attack. Moulton said:

> The most serious consequence of the Dulles manifesto of massive retaliation probably was the major deemphasize on adequate conventional ground forces to deal with conflict situations which would likely emerge once mutual deterrence become recognized fact of international life. Official policy had involved training and equipping local forces to provide the first line of defense, with American nuclear forces as second line (Snow 1981:57).

The other reason for the shift in policy was the launch of Sputnik on 4 October 1957, which alarmed the US about threats of ballistic missiles. Although the US was trying to possess a Intercontinental range of Ballistic Missiles (ICBM) since the end of World War II, the first US ICBM missile was not operational till 1958 (Paulsen 1994: 7). The Gaither Committee was appointed to look into the matter of 'missile gap' and

it stated that unless the US stepped up its program of intercontinental strategic forces, the Soviet Union would have a large strategic force and would have the capability to carry out first-strike attack and would be able to destroy all American strategic capability (Halperin 1968:179). This was to provide a new boost to the concept of combining BMD and deterrence. Specially, the US Air Force said that the US should have the capability to destroy the Soviet ICBM. It was said that finite deterrence does not offer sufficient forces to deter limited acts of aggression, attacks on the US allies and surprise attack on the US (Paulsen 1994: 7).

As a result of the technological development in weaponry and delivery vehicles, it was feared that the US could be actually inferior to the Soviet Union. In a famous article, published in *Foreign Affairs* in 1959, Albert Wohlstetter questioned the ability of the US to respond to the Soviet Union surprise attack. It was felt that having powerful deterrence posture was not enough and that there must be ability to survive first-attack and to retaliate accordingly. The capability of the US to survive first-attack was doubted as the American strategic forces and bombers were dangerously exposed to the Russian attack and survivability became an important concern of the US. Thus, it was realized that it was important to combine BMD with deterrence posture of the US to limit the damage (Flexible response and general purpose forces, 1961-64:73).

Gradually, the doctrine of flexible response replaced the 'suicide or surrender dilemma' of Eisenhower massive retaliation strategy by providing a genuine alternative to nuclear retaliation in case of a Soviet Union conventional attack (Stromseth 1988:3). A flexible response was expected to help the US to maintain strategic nuclear forces so as to meet with conventional threats. The idea of this doctrine was to combine the basic tenant of massive retaliation with the flexibility of the overall defence posture. To quote Donald Snow:

> First in order to serve as a maximum deterrent to nuclear war, US strategic retaliatory forces must be visibly capable of fully destroying the Soviet society under all conditions of retaliation. Second, in the event that war was forced on the US, its strategic offensive and defensive forces should have the power to limit the destruction to the nation's cites and population to the maximum extent possible (Snow 1981: 63).

The flexible response was expected to reduce the US dependence on nuclear weapons and introduce multiple options to deal with the conflict. According to President Kennedy, the idea of flexible response was:

> to deter all wars, general or limited, nuclear or conventional, large or small - to convince all potential aggressors that any attack would be futile – to provide backing for the diplomatic settlement of disputes- to insure the adequacy of our bargaining power for an end to the arms race (Slantchev 2004: 4).

Flexible response assisted the US to prepare and fight a wide variety of wars. This doctrine accepted the ground rules laid down by the enemy for any given conflicting situation and to answer its move by a wide variety of options available. It was thought that the nuclear war would not be beneficial to the US (Freedman 1989: 233). The aim of initiating flexible response in the US deterrence policy was to have various options so that the US could pick up the tactics which were best suited for the given conflicting situation.

McNamara had done a remarkable work by introducing 'no cities doctrine'. This doctrine meant that the US would not attack Soviet cities. Instead, it would attack Soviet military capabilities. Flexible response/ No Cities doctrine consisted of offensive and defensive strategies. Offensive Strategy meant destroying Soviet military installations and to disable most of its forces before they could be used. McNamara said Americas should respond by attacking the Soviet Union strategic forces, such as bomber bases, missile sites and other installments associated with long-range nuclear forces so as to limit Soviet power. Defensive strategies involved defending the US from Soviet weapons that might escape counterforce attack. As a result, the US started building such weapons that could intercept and destroy incoming bombers and missiles (Salantchev 2004:6). There were two steps taken to reduce the causalities. The first was to strengthen the civil defence program of the country so as to minimize civilian causalities. Installing blast shelters did this. Secondly, there was an effort to provide active defense to the US by installing BMD (Singh 1994:87). Thus, flexible response/No cities doctrine established a positive relationship between deterrence and BMD. Prominent nuclear expert Kahn said:

> It was the purpose of surveying US forces to limit destruction of the US targets such that projected losses were within a theorical realm of acceptability, thus allowing for the maintenance of the US retaliatory capabilities. Defensive systems mean ABM

> systems, air defense and civil defense. Offensively the doctrine called for a portion of the US retaliatory capabilities to be targeted against Soviet strategic systems-be they bombers, submarines or missile sites. (Kahn 1961: 63)

1.6- From Flexible Response to MAD: Return to Negative Relationship

It was hoped that the combination of offensive and defensive strategies by the US would prove to be destabilizing and would speed up the offensive-defensive race of weapons. The Soviet Union might think that the defensive capabilities of the US endangered its deterrence and might result in first-strike by the US. Presuming this, the combination of the US defensive and offensive forces gave the US the capability to strike first and to destroy many Soviet nuclear forces and defences. Under such conditions, USSR would take preemptive actions and would decide to strike first (Payne 1986: 30). US Secretary of Defence Harlond Brown said in 1979:

> In the interests of stability, we avoid the capability of eliminating the other side deterrent, insofar as we might be able to do so. In short, we must be quite willing- as we have been for some time-to accept the principle of mutual deterrence, and design our defense posture in light of that principle (Payne 2003: 415).

The ABM system led to action-reaction phenomenon and arms race. McNamara said, "If we were to deploy a heavy ABM system throughout the US, the Soviets would clearly be motivated to so increase their offensive capability as to cancel out our defensive advantage"(Freedman 1989: 254).Therefore, each side would become conscious for maintaining its first- strike capability

Another reason for giving away the idea of defence was that if the US deployed defence to protect its territories, it would be followed by the Soviet Union. The circumstances in which both the superpowers had defences would create a lot of dilemma. First, any improvement in offensive forces would provide coercive power to the state. The country that first obtained the technology to penetrate the defence of the other side would be at an advantage. Second, defences could increase the feasibility of conventional wars. Superpowers would fear conventional warfare as it could escalate into nuclear warfare. However, if such fear was removed, they would not hesitate to go to war. World War I and II demonstrated that these conventional wars could be very devastating. Therefore,

defences would increase the probability of conventional war while neutralizing the possibility of nuclear war (Glaser 1984:122).

This led to a shift of the US deterrence policy from flexible response to MAD and its codification in the ABM treaty. The ABM treaty formally established deterrence as the underlying strategic policy of the US and Soviet Union. Both the countries adhered to not deploying ABM systems for defending their territories, thus establishing a state of mutual deterrence (Scoville 1974:165).

The ABM treaty of 1972 permitted the US and Soviet Union to deploy two ABM systems. This number was further reduced to one ABM system in 1974. Both sides could deploy one ABM system either at its national capital or at the ICBM silo launcher site. This treaty banned development, testing and deployment of sea-based, air-based, mobile land-based ABM systems. The pretext behind this treaty was that neither side would be capable of protecting itself from nuclear attacks by using ABM systems. Therefore, both sides would retain high confidence in their retaliatory capacity. The assumption was that attack by one side could lead to escalation of conflict and ultimately, use of nuclear weapons. The use of nuclear weapons would produce catastrophic results for both the US and USSR. This is known as the concept of Mutual Assured Destruction (MAD) and has remained the basis of the US deterrence policy till 2001 (Freedman 1986: 259). Lawrence Freedman has skillfully explained the concept of MAD:

> The underlying assumptions of the theory of MAD were that, for the foreseeable future, the offence would be able to maintain the advantage over the defense. Because of this, all one could do to prevent the other from inflicting crippling devastation was to threaten retaliation. The lesson drawn form this assumption for the purpose of force planning was that one need only ensure a sufficiency of offensive forces to assure destruction after allowing for all feasible improvements in the first-strike capabilities of either side. The lesson drawn for arms control was that, every improvement in one side's defense provided no extra security but merely a spurt to the offence of the other, once both sides ceased making defensive moves forces could stabilize at current levels (Freedman 1986: 259).

1.7- Revival of Relationship with the coming of Star Wars: 1983

The above study concludes that the concept of MAD was introduced in the US nuclear deterrence policy by placing restrictions on the development and deployment of BMD systems. However, President Reagan again suspected this

arrangement in his Star War speech. President Reagan had expressed his doubts on the effectiveness of deterrence, under MAD, in preventing war. He had supported introduction of the BMD so as to strengthen deterrence. President Reagan began the whole debate again, which was subsequently settled by the ABM treaty. President Reagan sought to reformulate the concept of deterrence by proposing Strategic Defence Initiative (SDI). He said:

> What if free people could live secure in the knowledge that their security did not rest upon the threat of instant US retaliation to deter a Soviet attack, that we could intercept and destroy strategic ballistic missile before they reached our own soil or that of our allies (Reagan 1983).

If we closely analyze, it were the circumstances prevailing at during the time which drove the US to abandon the MAD doctrine. The US regarded the USSR as an 'untrustworthy adversary.' Reagan administration felt that USSR was using arms control as means to provide a false sense of security to west. Despite, arms control treaties; Soviet Union continued to develop its military forces. Also, they could easily cheat West as Soviets never agreed for intrusive-onside inspections (Lakoof 2008:35). The US was also gathering information that Soviet Union was developing hit and kill capabilities which would threaten the survivability of the US silo based ICBMs (Lawrence 1987: 60).

President Regan said:

> For 20 years the Soviet Union has been accumulating enormous military might. They didn't stop when their forces exceeded all requirements of a legitimate defensive capability. And they haven't stopped now. During the past decade and a half, the Soviets have build up a massive arsenal of new strategic nuclear weapons that can strike directly at the US. As an example, the US introduced its last new intercontinental ballistic missile, the Minute Man III in 1969, and we're now dismantling our even older Titan missiles. But what has the Soviet Union done in these intervening years? Well, since 1969 the Soviet Union has build five new clases of ICBM's and upgraded these eight times. As a result, their missiles are much more powerful and accurate that they were several years ago, and they continue to develop more, while ours are increasingly obsolete.(Lakoff 2008: 44-45)

Therefore, the US felt that its offensive forces were not effective in maintaining deterrence. This concern led the US President to question: What if deterrence collapsed? The answer was that if the deterrence failed without any shield, it would cause the death of millions of the US population (Gray 1985:18). It was thought that the SDI would provide a shield to the US and would protect the US from the aftereffects of the nuclear attack.

However, the reality is different. The technologies of SDI were too ambitious and it would not have been possible for SDI to defend an attack. Hoffman provided the answer for this. He said there could be range of strategic Soviet attacks on the US military targets that were co-located with population centers. He said that if SDI were sufficiently effective to prevent the Soviets from hitting the military targets, and if the US retained the capability to hit back at Soviet cities in retaliation, it would deny the USSR to achieve specific military targets and would contribute powerfully in deterring attack (Hoffman 1985:6). Therefore, SDI was considered essential for the preservation of US deterrence. The SDI again sought moving away from the MAD posture, which was earlier established by the ABM treaty. Nevertheless, the improved relationship between the US and USSR led to a new interpretation of the ABM treaty in which space-based and mobile ABM systems and components could be tested and developed but could not be deployed (Anti-Ballistic Missile Treaty Chronology 2007).

Therefore, BMDs continued to prevail in the debates of the US nuclear issues during the Cold War but deterrence continued to be the centre of the US nuclear strategy. The Cold War deterrence theory was quite effective because the US and Soviet Union acquired nuclear systems that would withstand the attacks while the planned missile defence systems seemed too porous to reduce significantly the other side second-strike capability. Under such conditions, MAD was the concept used to describe the reality of the Cold War period (Freedman 2003: 109).

The reasons for such a strong dependence on deterrence were that leaders of both sides were rational and were governed by the cost-benefit analysis. President John Kennedy and National Security Adviser McGeorge Bundy mention in a 1969 *Foreign Affairs* (New York) article:

> In the light of certain aspects of retaliation there has been literally no chance at all that any sane political authority, in either the US or in Soviet Union, would consciously choose to start a nuclear war. The proposition is true for the past, present and future. For sane men on both sides, the balance of terror is overwhelmingly persuasive (Bundy 1969: 10).

As the nuclear balance of terror became an important part of maintaining strategic stability, the question was how to maintain this strategic stability throughout the

cold war period. The answer to this was to maintain strategic nuclear retaliatory capability and to eschew strategic offensive or defensive capabilities that could destabilize the balance of terror by limiting the damage that might result from nuclear power exchange. Such capabilities included BMD. Thus, Cold War concepts remained mainly against the deployment of BMD and relied on deterrence posture (Payne 2005: 137).

MAD also remains the center feature of the US deterrence policy, even much after the end of Cold War. However, after the Cold War, the US faced new challenges in the form of rogue states and terrorist groups. The US feels that these rogue states are impossible to deter by any conventional form of deterrence. After the 9/11 attacks, it becomes crystal clear that new threats are coming not from the states but from non-state actors. As a result, the US has begun to revise its debates and decisions to deploy BMD so as to preserve deterrence and to deal with these new threats. However, debate has also started whether these are really threats, and how they have promoted the deployment of US BMD, or whether these threats have been exaggerated.

Another concern is that the US withdrawal from the ABM treaty in December 2000 has led to the fall of MAD strategy, which was basis of the US deterrence policy. The questions raised are whether BMD has supplemented the US deterrence posture, complemented deterrence or will it lead to complete degradation of the US deterrence policy due to the countermeasures employed by other states keeps BMD as integral to post-Cold war BMD debates amongst strategic communities. These questions are addressed in the next chapters.

Chapter 2
Post-Cold War Challenges

The fall of USSR resulted in the end of cold war. The threat paradigm of the US shifted from known enemies during the Cold War to more generalized, global set of potential competitors, adversaries and circumstances which did not fix into the traditional pattern of nation-states. Therefore, the traditional concept of deterrence could not be applied to them (Hughes 1997). It was felt that the US's Cold War deterrence policy could no longer prevent two new threats: rogue states and non-state actors such as terrorists.

There were three watershed events in the post-cold War period, which raised doubts on the credibility and reliability of US deterrence doctrines. This resulted in the US policies on deterrence being reviewed and the need to include BMD as integral to their deterrence posture. These three events were:

1. Persian Gulf War I and the use of missiles by Iraq
2. 9/11 terrorist attacks on the US
3. Proliferation of WMD to rogue states

In September 2002's *National Security Strategy*, the Bush administration acknowledged that the threat environment was radically different, and had changed the complete scenario as compared to the Cold War period. Bush administration declared:

> New deadly challenges have emerged from rogue states and terrorists. None of these contemporary threats rival the sheer destructive power arrayed against us by the Soviet Union. However, the nature and motivations of these new adversaries, their determination to obtain destructive power hitherto available only to the world's strongest states, and the greater likelihood that they will use weapons of mass destruction against us, make today's security environment more complex and dangerous (The National Security Strategy of the US of America 2002:13).

2.0- Reasons for Proliferation of Ballistic and Cruise Missile

There are various reasons why states get attracted towards developing missiles:

1.Clearly, the US has advanced, high-tech air-power as compared to other states. This was obvious during the Persian Gulf War I and in the Kosovo war. As a result, other states considered missiles as the counter-option. Countries like Egypt and Syria invested many dollars on traditional air power weapons but could not compete with the US. On the other hand, missiles required less investment and research as compared to air power. Missiles also offered political leverage as they could damage the economic infrastructure of developed nations and result in large number of causalities.

2.Precision strike missiles could strike high value military targets without creating much damage to the civilian population. Hence, these could be important instruments to deter an enemy.

3.There has been no effective defence established against these missiles. The performance of Patriot missiles was not very satisfactory during the 1991 Gulf War. Even today, the technology of BMD is not fully reliable (Mackenzie and Stephens 1993:2).

Due to these reasons, US adversaries regard missiles as an important instrument to deter the US and European states.

2.1- Missile Threats to the US

The National Intelligence Estimate Report (NIE) 1995 acknowledged that developing of ballistic missiles was in its mature stages. It was said that states that had already acquired ballistic missiles were in the process of modernizing their arsenals. On the other hand, emerging ballistic missile states continued to increase the range, reliability and accuracy of their missile systems, posing a threat to US forces, allies and interests throughout the world. Earlier, the US has faced threat from Short Range Ballistic Missile (SRBM), especially from Scud (NIE 1995).

The US considers the following points to gain access and to determine the threat levels from other states and their missiles:

2.1A- Current Missile Capabilities of Other States: These capabilities include assessment of range, payload of deployed systems as well as availability of missile launchers. (TEL or MEL). It is also important to have the knowledge of system reliability, system response time and TEL/MEL range.

2.1B- Estimates of Warhead types: It includes information about warheads available to the adversaries like chemical, nuclear or biological weapons. Absence of such warheads does not mean absence of threats. Conventional warheads could also be used to cause considerable damage to densely populated areas.

2.1C- Missile Infrastructure: Information about missile infrastructure will provide clues about objectives of program and how quickly these could be achieved. It includes information about direct support facilities such as those intended for design, production and testing as well as supporting industries and infrastructure.

2.1D- Missile related Exports or Imports: Information on exported material would help to comprehend the success and failure of programs. Information about the type and scope of foreign technical and service imports, the ability of program to assimilate these imports and shift in resources towards a particular program is useful, too.

2.1E-Military and Operational Factors: This includes training for missile units, combat experience of missile and supporting units and command and control systems and the impact of deployed system on military operations.

2.1F- Threat Assessment: Beyond technical factors, political motives and intentions of states should be kept in mind. This analysis would include state missile behavior, its use or threat to use missile systems and use of flight tests to send missile signals (MacCarthy 2001:12-13).

Based on this assessment, Defence Intelligence Agency (DIA), Central Intelligence Agency (CIA) and the Rumsfeld Commission formulated the following ballistic missile threats for the US. In 1999, DIA observed that there was strategic nuclear threat from Russia, China and rogue states. Russia continued to rely on nuclear weapons to upset the conventional balance. China was prioritizing its modernization program. This report said that China had invested massively in several nuclear programs and upgraded its command and control structure. This report also mentioned that rogue states like North Korea and Iran would develop ICBM capability in a few years. DIA also said that all these missiles could be armed with WMD (Hughes 1999). Similarly, CIA, in 2000, acknowledged that there was a missile threat from Russia, China, North Korea and Iran (Walpole 2000). Missile threats to the US are discussed here in detail:

2.2- Persian Gulf War I and use of Missiles by Iraq

The Persian Gulf War I in 1990 was the first post-Cold War challenge to the US deterrence. During this period, Iraq invaded Kuwait despite US threats of retaliation. This was the true manifestation of the 'missile war'. During 17 January 1991 to 26 February 1991, Iraq fired about 90 modified Scud missiles at its targets in Israel. This represented the fundamental change in the nature of war and domination of the missile power (Said 2001: 49). The US realized missiles were no longer the property of big and industrialized states. It was found that missiles could be accumulated and used by technologically and economically backward countries like Iraq, too. The absence of any rational calculation on the part of these states has made the situation worse. Even after the US made it clear that it would not tolerate territorial aggression in the region, Saddam Hussein was not at all deterred (Nitze and McCall 1997: 78). Iraq did not hesitate to attack Israel with ballistic missiles despite of full knowledge about possible US's immediate retaliation (NACD: Correlation between deterrence and missile defense 2003). After Persian Gulf War I, Saddam Hussein was widely depicted as a foe. During the Persian Gulf War I, it was believed that deterrence had failed from the outset as Iraq seized Kuwait despite of US warning. Saddam Hussein represented the class of 'non deterable threats' (Pike 1997:160). Thus, it was thought that the US needed more strategies with better technologies to deter rogue states (Nitze and McCall 1997: 81).

Thus, Persian Gulf War I made it clear that some countries in the Middle East were trying to acquire WMD. After Persian Gulf War I, a spokesman from Iran declared, "No country in the world has the right to come here and to make decision about the future of Islamist countries" (Paulsen 1994: 102). To prevent interference in the region, WMD were regarded as 'the poor man's nukes', providing third world countries with weapons of terror. These weapons are inexpensive and less technologically complex. Persian Gulf War I also saw the importance of missiles (Paulsen 1994: 102). Barry Schneider and Larry Fink said: "Mobile missiles can avoid detection even when a superpower trains all its intelligence gathering capabilities on the task of finding and counting them." (Paulsen 1994:104).

It was the Persian Gulf War I which altered the thinking of the US. The new concept of "Rogue State" emerged in the mind of the US. According to the US, these states

possess a large military establishment, a sustainable supply of modern weapons and a desire to accumulate WMD. They could have hegemonic inclinations towards states in their regions or could harbor ambitions that could jeopardize the US interests. The US list of rogue states consists of North Korea, Iran, Iraq, Syria and Libya. The purpose of identification of rogue states was not to prepare full-scale war against them but to prepare the US to deal with these new threats (Klare 1995: 130).

It was felt during Persian Gulf War I that these states would not use WMD for revenge or war. Rather, these states will try to obtain intercontinental ballistic missiles as 'strategic weapons of deterrence and coercive diplomacy'. Rogue States assumed that if the US becomes vulnerable to direct attacks by WMD, they could limit the US freedom of action in its regions of interests. Even the US accepted that if Iraq possesses ICBM and nuclear facility, they might have adopted a different way to deal with them (Cimbala and Scouras 2002: 48). According to one scholar writing in *Proliferation Threat and Response*:

> From the perspective of the leader of a state, ballistic missiles are an effective instrument- and weapon of choice- to threaten the rear of the US and coalition forces in the face of the US air superiority. Missiles are much less expensive than acquiring and maintaining a world class air force competitive with the US military aviation; missiles with low profile infrastructure and mobile launchers are much less vulnerable than aircraft to US offensive operations; missiles are easier to control than other means of deep strike; and when armed with high explosive, missiles have considerable psychological effect when used against urban targets (Cooper 1999: 197).

The Persian Gulf War I resulted in a renewed emphasis on BMD. BMD were introduced for the first time in combat during the Persian Gulf War. US Patriot TMD engaged Scud missiles launched by Iraq at Israel and Saudi Arabia. During war, Patriot was assessed as the most effective way to deal with Scud missiles but later it was discovered that it is not as effective as it was believed to be. After war, the US intensified its efforts to improvise and build BMD (Cimbala and Scouras 2002: 50).

2.3- The Rumsfeld Commission

A Commission was appointed under Secretary of Defence Donald Rumsfeld to assess the ballistic missile threat to the US. The report published by this commission concluded that proliferation of missiles was increasing throughout the world and there could be near term threat to the US homeland, the US forces deployed abroad and the US friends and allies. The report published by Rumsfled commission noted that three

states- North Korea, Iraq and Iran possess accurate short-range cruise or ballistic missiles. If these missiles are launched from ships on coastal cities armed with nuclear or biological payloads, it may cause major damage to the US and its allies. The report also mentioned about arsenals of Russia and China. In case of civil or political strife or a breakdown of the chain of command in Russia, there is a risk of accidental attack. Although the relationship between the US and China are becoming more cooperative but Taiwan remained a potential flashpoint along with other conflicts resulting from Chinese tensions with several of its neighbors, which could also embroil the US. China had also become "significant proliferators for WMD and missiles." (Lakoff 2007:134) There are four main conclusions drawn by the Rumsfeld Commission are as follows:

1. Concerted efforts by the number of overtly or potentially hostile nations to acquire ballistic missiles with biological and nuclear payloads pose a growing threat to the US, its deployed forces, and its friends and allies.
2. The threat is broader, more mature and evolving more rapidly than has been reported in estimates and reports by the intelligence community.
3. The intelligence community's ability to provide timely and accurate estimates of ballistic missile threats to the US is eroding.
4. The warning times the US can expect of new, threatening ballistic missile deployment are being reduced. Under some plausible scenarios...the US might have little or no warning before operational deployment (Cambone 2000: 7).

The Rumsfeld Commission said:

> Newer ballistic missile and weapons of mass destruction development programs no longer follow the pattern initially set up by the US and Soviet Union. These newer programs require neither high standards of reliability, missile accuracy and safety nor large number of missiles and therefore can move ahead more rapidly (Cambone 2000:7).

The testing of the North Korea Taepo-Dong missile affirmed the claims of the Rumsfeld Commission that rogue states were serious in developing ballistic missile capabilities. Although the test was a failure, it showed that North Korea was engaged in the development of long-range missiles. North Korea is estimated to have 750 ballistic missiles, including some 600-800 Scud missiles and approximately 150-200 medium range ballistic missiles (Executive Summary of the Report of the

Commission to Assess the Ballistic Missile Threat to the US 1998). South Korean intelligence indicated that DPRK is developing rocket engines that could have a range of 6,700 kms (Wall 2007).

Similarly, Iran has made concrete progress in ballistic missiles and it claims to have conducted a successful missile test of Shahab-3. Iran also claimed to have conducted a successful test of a long-range missile on 27 November 2007 called 'Aurosh'. The ballistic missile programs of other states like Syria and Libya are also of great concern to the US (Wall 2007).

As a result, the US nuclear deterrence policy is in danger. The reason is that under the control of the rogue states, these weapons have become tools of intimidation and military aggression against the US and its allies. These weapons will allow rogue states to blackmail the US and its allies. Such states view these weapons as the best means to overcome conventional superiority of the US (The National Security Strategy of the United States of America 2002:15).

Even long after the end of the Cold War, world is still under threat of WMD. The danger of nuclear weapon proliferation is greater than before. Threats from rogue states are also greater than the threats from Soviet Union. In the Cold War period, nuclear states took some responsibility for nuclear weapons and it was known that neither superpower was going to make a nuclear strike against the other. However, today, weapons lie in the hands of dangerous states that will not hesitate in using these weapons against the US (Newhouse 2001:99).

It is hardly expected that the Cold War doctrines of deterrence will be effective in the post-Cold War period due to the complexity of the situation, such as presence of many actors, deep-rooted conflicts with long history and asymmetric confrontation involving non-state actors such as terrorist groups. The Cold War nuclear confrontation was dichotomous, symmetrical and ideological, based on thorough calculation and rigorous logic and both the US and Soviet Union shared some responsibility of superpower and fear of global catastrophe, which enabled highly technical and rigorous handling of the deterrence situation. However, the post-Cold War conflict is fought over all kinds of issues such as territory, personality cult and

religion. In such a situation, the logic of mutual deterrence is replaced by human factors such as distrust, revenge, pride, miscalculation and misinterpretation (Ikegami 2003:1). The basic concept has totally changed, creating more fear and chaos in the international arena.

Therefore, after Cold War, it was said that the US could not deter rogue states. Whenever these states fear fall of their regime, they may also use all weapons available to them. This shows failure of deterrence (Lindsay and O' Hanlon 2001: 112). The US deterrence would be debilitating because nuclear weapons or missile capabilities of rouge states would alleviate the US capability to interfere in regional conflicts. Let us examine this in the present political situation. North Korea could deter the US from interfering in a future Korean War by threatening attacks on South Korea or places crucial to reinforcement operation. Fear of large number of causalities for the US would be sufficient to deter the US from interference. Threat of nuclear weapons to US allies would deny the US forces basing rights (Wilening and Watman 1995:33). The post-Cold War crisis with Iraq, Serbia and North Korea proves that the US deterrence policy did not work. Deterrence of regional challengers may not follow the same pattern as that of the Cold War. Rouge states have unfamiliar goals and values. Under such conditions, deterrence may fail (Payne 1999: 178). This show that US deterrence power is under attack by rouge states and therefore it needs BMD to deter its adversaries

2.4- 9/11 terrorists attacks on the World Trade Center

On 11 September 2001, the post-Cold War security bubble finally burst. It made it clear that the US and its allies have failed to invest in an 'A list' of security problems, which could affect their way of life, position in the world and survival. This 'A list' of future security challenges contained the following four major items: (Carter 2001:5)

1. Collapse of Soviet Union
2. Growth of China military and economic power
3. Proliferation of weapons of mass destruction
4. Prospect of growing terrorism (Carter 2001:5)

After taking charge of his office, Bush administration strategy revolved around the first two. However, in the aftermath of the attacks on the World Trade Center and Pentagon on 11 September 2001, terrorism occupied the center stage in the US policies (Carter 2001:5). The 9/11 attacks on the US have reinforced question marks on deterrence as it has demonstrated to the US that they will have to deal with people that cannot be deterred by conventional methods of deterrence. Large-scale military capabilities of the US do not deter the Al Qaeda. Even after 9/11, Al Qaeda continues to attack the US allies around the world. The US has tried regime change in the case of Afghanistan by its military force, but could not eliminate terrorists. To put it simply, the Al Qaeda and other terrorist groups have not been deterred by anything that the US has done so far (Wirtz and Russell 2003:115).

Since 11 September 2001, the US has learnt that the world has many actors who conceivably do things which civilized nations may term unthinkable, such as destruction with the use of WMD. The danger posed by these weapons, particularly, when in the hands of terrorist groups or rogue states, means that the US must adapt to the security capabilities to meet the threats of today and tomorrow. The time has come to move beyond the framework of MAD, and to evolve deterrence with defensive and offensive measures as well (Mathis 2005:2).

The events of 9/11 have proven that international terrorists are more organized, more capable and ruthless. They are willing to sacrifice themselves and are indifferent to the killings of innocent people (Walt 2001:60). President Bush asserted that while the Iron curtain no longer existed, it was still a dangerous world, particularly with WMD in the hands of the world's least responsible states. For the first time in the history of modern terrorism, by their suddenness, the scale of destruction, the disorganization and the cost caused; the attacks on the WTO and Pentagon unleashed a level of violence comparable in their affects to military operations. Over 30 years, international terrorism has caused the death of 500 people annually. The 9/11 marked the arrival of mass terrorism with destruction capability hitherto thought to belong with states (Andreani 2004:32).

The dilemma of credibility of deterrence in case of non-state actors is that these groups are willing to attack civilian populations and to escalate this to the level of

high conflict. These groups are motivated by the ideologies of religion and apocalyptic beliefs. For example, the Al Qaeda is acting in the name of religion. They think in suicidal terms and are willing to endure significant costs and destruction to achieve their objective (Bowen 2004: 65). Traditional concepts of deterrence are not seen as working against terrorists whose avowed tactics are wanton destruction and the targeting of innocents; whose so-called soldiers seek martyrdom in death and whose most potent protection is statelessness. The overlap between states that sponsor terror and those who pursue WMD themselves compel the US to take action (The National Security Strategy of the United States of America 2002:15).

The other problem is that terrorism embodies many instruments, many groups and no central command. During the Cold War, there was only one state which the US had to deter, i.e., USSR. As a result, there was one single ideology which was successful to deter them. On the other hand, there is no single method to deter various unorganized terrorist groups who have different means and ideologies to achieve their objectives (Davis and Jenkins 2002:7).

Some experts believe that not only states but also terrorist groups have the wherewithal to launch ballistic missile attacks. This may not be true for long-range missiles but can be true for short-range missiles. There have been reports of well-organized terrorist groups who are trying to acquire short-range missiles, especially those terrorists that are sponsored by rogue states. For example, the Hezbollah used anti-ship cruise missiles (ASCMs) during the conflict in Lebanon in 2006.

Following the 9/11 attack, the US made it clear that it would also hold accountable any state that harbors and supports terrorists responsible for their act. If such states have ballistic missiles in their arsenals, they conceivably could retaliate against a unilateral or multilateral action by launching a missile attack on the US territory, especially when the US were distracted by a major conflict in another area of the world. Military prudence dictates that the US should have a missile defence capability to defend America (Spring 2001).

2.5- Missile threats from China and Russia

Besides the threat coming from rogue states and terrorist groups, the US also faces missile threats from China and Russia. These countries are also accused of advancing proliferation of missiles technology to countries of the Middle East such as Iran, Syria, Libya, Pakistan etc. China has been active in modernization of its forces since a decade. The relationship between China and the US is also not very good over the issue of Taiwan. China acquired 30 DF-5 and DF-31 intercontinental missiles, approximately 100 intermediate range ballistic missiles and 100 short-range rockets. (The Military Balance 2004-2005: 170). The Office of the Secretary of Defence of the US said that between 650-730 SRBMs are deployed opposite to Taiwan and one hundred missiles would be added every year (Annual Report on the Military Power of the People Republic of China 2005:4).

As a part of modernization of ballistic missiles, China is developing DF-31A which would be able to reach the US continent. These missiles will be mobile and thus require less launch preparation time as compared to old liquid fuel missiles possessed by China. The effort of the US to develop BMD has further provided a push for China's ballistic missile program. China is trying to develop multi-independent missile warhead. China is also developing Julang 2 SLBMs. (Annual report on the Military Power of the People Republic of China 2005:4). The US feels that Chinese missiles could limit the US's pursuit of interests in Asia. Further, China also has a record of proliferation of missiles, which is not conductive to the interests of the US.

The relationship between Moscow and Washington is not as tense as it was during the Cold War. However, the poor command and control system of Russia add to fear of accidental attacks on the US. Russia is also against the BMD program of the US. As a result, Russia began development of new missiles like Topol M. Russia has also claimed to develop RS-24 missile, which is MIRV and capable of penetrating missile defence of the US. Thus, the US is facing threat from Russia.

2.6- The growing threat of Missiles

In 1972, only nine states possess ballistic missiles. In 1990, 16 states possess ballistic missiles. By the end of 2006, 25 states possess ballistic missiles which may be passed on to terrorist groups due to weak command and control structure.

Similarly, the number of states that possess medium, intermediate or intercontinental ballistic missiles has increased from five to nine. The states like North Korea and Iran continue to develop ballistic and cruise missiles. These states are getting technological and financial assistance from Russia and China. The US Intelligence community said that with the continued foreign assistance, Iran could be able to develop ICBM, capable to reach towards the US and all regions of Europe before 2015 (Proposed US Missile Defense Assets in Europe 2007: 1-2). Thus, it is essential to take adequate steps so as to deal with threat coming from missiles.

2.7- Measures taken by the US to deal with Missile threats

Clearly, proliferation of WMD represents a threat to the US deterrence policy. The US felt that the Cold War concepts of deterrence and containment are insufficient to deal with rogue states and terrorist groups seeking WMD. According to President George W.Bush:

> For much of last century, America's defense relied on the Cold War doctrines of deterrence and containment. In some cases, those strategies still apply. But new threats also require new thinking. Deterrence-the promise of massive retaliation against nations- means nothing against shadowy terrorist networks with no nation or citizens to defend. Containment is not possible when unbalanced dictators with WMD can deliver those weapons on missiles or secretly provides them to terrorists groups (Record 2004:10).

Therefore, the US brought an effective strategy to counter WMD as a part of its National Security Strategy. (National Strategy to Combat Weapons of Mass Destruction 2002:1). The US strategy against WMD proliferation consists of three pillars: "Counter proliferation to combat WMD use; strengthening non proliferation regimes; and ability to respond to WMD attacks." The main constituents of counter proliferation are: interdiction, deterrence and defence (US unveil National Strategy to Combat WMD 2003). The idea was that such a joint exercise for interdiction will act as deterrence against the proliferators (Yamazaki 2006:20).

The following initiatives have been introduced by the US as the part of its interdiction strategy.

2.7 A- Proliferation Security Initiative (PSI)

PSI is a loose consortium of about 80 states dedicated to interdict the transportation of WMD and ballistic missiles. Each member commits itself for

interdicting transport of WMD to states and non-states actors, to exchange information about suspected proliferation activity and to act appropriately against suspected transportation of WMD at sea, ashore and aloof (Holmes 2007: 315). The objective and working of PSI is mentioned in "Statement of Interdiction" issued by 11 states in September 2003 (Winner 2005: 130).

The US suspects that in 2002, a North Korean freighter, *So San,* was transporting WMD from East Asia to Middle East. As *So San* approached the coast of Yemen, the US asked Spain to stop the ship and to request the board to inspect it. During inspection, Spain found that parts of Scud missiles were hidden in the ship. Later, Yemen admitted that missile parts were scheduled to be delivered to it (Winner 2005:131). This shows proliferation of WMD through various channels of sea and air and absence of any international measures to deal with it. PSI was formed particularly to check on transfers of WMD from rogue states or terrorist groups which are not part of any proliferation regime.

2.7 B- Regional Maritime Security Initiatives (RMSI)

After 9/11, the US was alarmed about ungoverned maritime trade. It was acknowledged that sheer number of cargos, and the speed and efficiency of its international nature could be easily utilized by terrorist groups for their nefarious purposes and for proliferation of WMD (Wohlschlegel, Turner and Butts 2004: 3). It was also detected that unguarded seas could lead to 'maritime terrorism' which would not be conductive to international peace and security. It was found that liquefied petroleum gas could be employed by the terrorists as floating bombs which can disable ports. It was also feasible for terrorists and rogue states to smuggle 'dirty bombs' and 'dirty nukes' through container ships. Terrorists could also target commercial ships in the seas, leading to havoc and loss of life and properties (Morada 2006:1).

To solve the problem of ungoverned seas, United States made a proposal to the international community of RMSI. It was made to look after maritime security initiatives. It emphasizes on information sharing, providing cueing of emerging threats contributing security of the seas and creating an environment hostile to the terrorist and other criminal activity (Winner 2005:132).

2.7 C- UN Security Council Resolution 1540

UN Security Council Resolution 1540 was adopted in 2004 so as to enforce effective measures against the proliferation of WMD and their means of delivery into the hands of the non-state actors or terrorist groups. There was a concern about 'system of abstinence' and to strengthen them by norms and instruments. All states have the three primary obligations under UNSCR 1540 relating to such items: to prohibit support to non-State actors seeking such items; to adopt and enforce effective laws prohibiting the proliferation of such items to non-State actors, and prohibiting assisting or financing such proliferation; and to take and enforce effective measures to control these items, in order to prevent their proliferation, as well as to control the provision of funds and services that contribute to proliferation (UN Security Council Resolution 1540) .

There are three important aspect of the UN Resolution 1540. First, it considers state as a legitimate holder of WMD and mentions that non- state actors have no such rights and they must be denied access to such things. Even the state which does not have respectable expertise, technology and materials is problematic. Secondly, the resolution states that all countries should follow norms of non-proliferation and should be parts of multilateral arms control regimes. Thirdly, in order to ensure compliance, the resolution mentions that the states are requested to submit report on implementation of new founded Committee of the UN Security Council, which would further report to the UNSC. (Walker 2004:74-75).

Therefore, the main aims of introduction of these regimes are to deter rogue states' and terrorist states' proliferation of WMD. This indicates that the US has clearly understood that the main threats to its national interests and the challenge to its deterrence strategies that are now coming from non-state actors.

2.8- Limitations of these measures and the US move towards the BMD Program

It was found that PSI and RMSI faced several limitations and it has been difficult to stop proliferation of missiles. Such types of regimes require universal participation of states, which is not practical. The aim of such a regime is to stop transfer of WMD by ships or aircrafts. The success depends on universal participation. Both PSI and RMSI are 'informal non-organizational', acting on

partial intelligence, with no independent budget or coordinating principles (Prosser and Scolville 2004: 1). Therefore, these regimes have met with limited success in regard to proliferation of WMD to rogue states or to non-state actors.

Similarly, UN resolution 1540 has several limitations. The state adhering to UN resolution 1540 must strengthen its domestic laws so as to stop proliferation of WMD. However, there has been lack of such provisions and efforts on the part of states. Besides this, there has been absence of enforcement measures (Crail 2006:355). As a result of this, the US felt that there have been limitations in the international control on ballistic missiles and other WMD, and therefore it is necessary to move towards BMD so as to deal with the problem of ballistic missile proliferation.

2. 9-Difference between Old and New Threats and withdrawal of the US from ABM treaty

From the above analysis, we can see that there are the following differences in dealing with these new threats:

- Leaders of rogue states and terrorist groups may feel less constrained in their use of force and may be more prone to taking risks, as compared to the adversaries of the Cold War period. Rogue states and non-state actors have shown such willingness to take substantial risks, even if such gambles involved a major sacrifice of the lives of their people and affecting the treasure of their nation's adversary.
- Past deterrence postures were dependant on the mutually understood diplomatic vocabulary and established communication channels; this may not exist with rogue states and non-state actors. The miscalculations, misinterpretations and misunderstandings might result in potential catastrophic destruction during the acute regional crisis.
- The US and its allies may not understand the fundamental political and military values within the potential aggressive governments well enough to implement effectively deterrence by offensive threats alone (Kartchner 2005:274).

During the Cold War, the US developed secure, effective and reliable communications with the USSR so as to control accidents which could lead to escalation. Both sides developed mutual understanding by negotiating arms control treaties, and developed mutually agreed deterrence strategies such as, MAD. The conditions of effective communication developed with adversaries could not be established with rogue states like North Korea or with terrorist groups (Joseph 2000:42).

Another reason given that deterrence would not be effective against terrorist groups is because they do not have any 'return address' against which the US could retaliate or they may completely miscalculate the consequences of their own actions so as to make the deterrence threat ineffective. Besides, terrorist groups want to provoke political authorities to take drastic actions so as to 'expose' them and to underdetermine their popular support. In such a case, terrorist groups might want to retaliation harshly, and use nuclear weapons (Whiteneck 2005:194). President Bush. during his West Point speech in 2004, declared:

> For much of the last century, America's defense relies on the Cold War doctrines of deterrence and containment. In some cases, those strategies still apply. But new threats also require new thinking. Deterrence-the promise of massive retaliation against nations-means nothing against shadowy terrorist networks with no nation and citizens to defend. Containment is not possible when unbalanced dictators with WMD can deliver those weapons on missiles or secretly provide them to terrorist allies. We cannot defend America and our friends by hoping for the best. We cannot put our faith in the words of tyrants, who solemnly sign non- proliferation treaties, and than systematically breaks them (Record 2004:10).

Therefore, there exist a large number of differences in the Cold War and post-Cold War deterrence strategies. In its effort to deter an adversary use of force against regional neighbors, the US will be met with the adversary use of those same weapons as a deterrent to the US intervention in the third party. WMD is likely to become the weapon of choice in the hands of its adversary which counters conventional superiority of the US (Joseph 2000:44).

This has led to withdrawal of the US from the ABM treaty and declaration to develop BMD. In the wake of 9/11 President Bush stated that, "I have concluded that the ABM treaty hinders our government ability to develop ways to protect our people from future terrorist or rogue state attacks." (US quit ABM treaty 2001).

He further said:

> The 1972 ABM treaty was signed by the US and the Soviet Union at a much different time, in a vastly different world. One of the signatories, Soviet Union, no longer exists and neither does the hostility that once led both our countries to keep thousands of nuclear weapons on hair-trigger alert, pointed to each other. The grim theory was that the neither side would launch nuclear attack because it knows that other side would respond, thereby destroying both.
>
> Today, events of September 11 made all too clear, the greatest threat to both our countries came not from each other, or any big power in the world, but from terrorist groups who strike without warning or rogue states who seek WMD. Therefore, we must have flexibility to develop effective defense against those attacks. Defending America is my biggest priority and as commander-in-chief, I cannot and will not allow the US to remain in the treaty that prohibits us from developing effective defenses (Remarks by President Bush on NMD, White House Transcript 2001).

The US has adopted a mix of offensive and defensive forces in order to deter regional aggressors. The US policy for deterring regional aggressors is based on the US combination of policy of deterrence through denial of benefits and deterrence through the threat of retaliation. The goal of the US is not to replace the policy of deterrence of retaliation by deterrence of denial but rather to add another tool for preserving its deterrence (Grant 2000: 58). Therefore, the US amalgamates the policy of defence so as to prevent itself from these new threats.

The US feels that there is need to devalue missiles as tools of extortion and aggression, undermining the confidence of adversary that threatening missile attack would blackmail the US. Thus, missile defence would add critical dimensions to the US deterrence (National Policy on Ballistic Missile Defense Fact Sheet 2003). Some scholars still believe that the development of BMD would not add to the US deterrence or protect the US homeland against the terrorist attacks. The reason is that terrorist will find some other

way to attack the US. The terrorist needs to kill few people and to frighten large population (Talmadge 2007: 23). George W. Bush claims that the BMD is a system designed to defend against 'rogue states' and terrorists. However, the efficacies of a BMD for such purposes are negligible. It would not have prevented the 9/11 attacks (Common Ground Staff 2004). How an attack that did not involve ballistic missiles perpetrated by people who do not have ballistic missiles underscored the threat of ballistic missile is hard to say. No rogue states have missiles capable of hitting the continental United States. The missile test of North Korea was a failure and shows that technology is not developed to strike the US (Yglesias 2006).

There are other arguments also like development of countermeasures, offensive-defensive weapons race etc which would not help in strengthening of the US deterrence policy. The other questions raised are whether terrorist groups and rogue states possess the capability to launch attack on the US, as successful missile attacks require successful technologies. This has given rise to the debate whether the logic of deterring terrorist attacks and rogue states missile attacks is really strengthening the US deterrence policy or not.

The withdrawal of the US from ABM treaty gave rise to new debates on deterrence. It was feared that in reaction to the US withdrawal, other countries like Russia, China, India and Pakistan are likely to upgrade or expand their own nuclear weapons missile delivery capabilities. Rogue states will also develop countermeasures to harm the US interests. Therefore, under the above conditions, the US deterrence will remain in danger (Brown 2002). In the opinion of the US Admiral Richard Mies "Deterrence alone won't be sufficient in this unpredictable, multi polar world...how do you deter a non state actor who has no return address...How do you deter or dissuade someone whose reward is in after-life ?" (Durr 2002: 13). This has given rise to debate on positive and negative relationship between BMD and deterrence. These are discussed in detail in the next chapter.

Chapter 3
BMD and Deterrence

The withdrawal of the ABM treaty and the decision to develop a BMD system so as to prevent the US from new threats has led to a debate on the continued linkage between BMD and deterrence. The ABM treaty has established the concept of MAD, which made an equation of mutual vulnerability as the basis of the deterrence policy of the US during whole the Cold War period. US withdrawal has led to a complete fall of MAD strategy and it was thought that the BMD would now help in reviewing the credibility of deterrence in 21st century. According to the US, BMD would provide more credibility to deterrence. President Bush's speech in the White House last year summarizes the rationale behind the building BMD by the US:

> A terrorist regime that can strike America or our allies with a ballistic missile is likely to see this power as giving them free rein for acts of aggression and intimidation in their own neighborhoods. But with missile defenses in place, the calculus of deterrence changes in our favor. If this same terrorist regime does not have confidence in their missile attack would be successful, it is less likely to engage in acts of aggression in the first place. We would also have more options for dealing with their aggression if deterrence fails...Missile defense also strengthens our counter-proliferation efforts...By deploying effective defenses, we reduce incentives to build ballistic missiles--because rogue regimes are less likely to invest in weapons that cannot threaten free nations...Missile defense also helps us dissuade nations from developing nuclear weapons. Through our missile defense partnerships with nations in Asia and Europe and the Middle East, we can help friends and allies defend against missile attack. These defenses will build their confidence. And these defenses will make it less likely that they will feel the need to respond to the nuclear ambitions of Iran and North Korea by developing nuclear weapons of their own (President Bush Remarks at National Defense University 2007).

It is important here to clarify the difference between deterrence and defence. Deterrence means discouraging the enemy from taking military action by posing costs and risks which would outweigh its gains. Defence means reducing one's own costs and risks in the event of deterrence failure. Deterrence works on the intentions of the enemy whereas defence reduces the ability of the enemy to inflict damage (Snyder 1960: 33).

Some experts in this field say that BMD could make deterrence more volatile. This chapter tries to look at how BMD could affect the 21st century deterrence of the US.

3.0 Three basic schools of BMD debate:

Sean Clark has classified three schools of BMD debate (Clark 2003: 4-5):

3.0A- Opposed School

This school is totally opposed to the development and deployment of BMD systems due to four main reasons. Firstly, This school is completely opposed to the BMD program as it believes that withdrawal from the ABM treaty would completely upset the strategic balance. This school believes that the ABM treaty allowed each side to have enough nuclear weapons so as to ensure their opponent's termination. Thus, the ABM treaty preserved a strategic balance. With the deployment of the BMD, this equilibrium would get upset and will bring strategic stability to end, endangering further the US deterrence policy in further danger.

Secondly, this school believes that the deployment of BMD would result in the proliferation of nuclear weapons and offensive missiles. Offensive weapons are less expensive than BMD and could be accumulated in large numbers so as to overwhelm defensive systems. This school is also unconvinced that BMD would be effective given the previous performance of the Patriot missile defence. As a result, US deterrence would be reduced by deployment of offensive weapons and would not add to its security.

Thirdly, this school is opposed to BMD program due to its technical failures. In 1991, Patriot system fared poorly against Iraqi Scud missiles. Several operational tests of BMD also faced failures. Also, BMD is unable to deal with the countermeasures technology.

Fourthly, this school is opposed to BMD program as they believe that BMD deployments bring heavy expense and danger of cost inflation. The deployment of the two-site, 250 interceptors, and GMD system will alone cost an estimated $58 billion. The Congressional Budget Office (CBO) estimates that a Space-Based

Laser (SBL) constellation of 24 laser-armed satellites would cost up to $100bn US over the years 2002 to 2025.

3.0C- Limited BMD Program

This school supports limited BMD program which would prevent the US and its allies from the 'rogue states' missile attack and would also prevent the concept of MAD between the major powers. This school believes that removing strategic stability among superpowers would result in strained relations between China and Russia which would not add to the US deterrence. Most of the America's allies and soft conservatives belong to this school.

3.0D- Unilateralist BMD

This school rejects the core logic of the ABM treaty and concept of MAD. They believe that rogue states are risk prone, willing to use WMD and could not be deterred. This has been proved by North Korea *No-Dong* missile test in 1998. This school believes that the US should go for BMD program despite of all technological hurdles and international political ramifications (Clark 2003: 4-5).

3.1 Various Deterrence Relationships

Deterrence relationships between the various states and the US could be divided into three parts:

3.1A- Established Deterrence Relationships

An established relationship is characterized by a high level of institutionalization (formal or informal), primarily between two states or alliances. This kind of relationship could lead to estimation of future actions between the states, like, the relationship between the US and Russia or the US and China. History suggests no failure of deterrence in this category.

3.1B- Semi-established Deterrence Relationships

Under this, the competition and mutual understanding among the states are in their formative stages. Some institutional measures have been established but the learning curve has not yet generated nuclear regulatory rules and procedures that are acceptable to all parties. The failure of deterrence is very less in such cases.

3.1C- Non-established Deterrence Relationships

This is a situation in which there are different types of capabilities that could establish deterrence relationships but there is absence of historical and procedural interactions between the parties about the meaning of stability or regulatory rules for relationship. Such as relationship between Iran and the US. Such relationships are prone to failure (Howlett 2001: 21).

3.2- The positive relations between BMD and Deterrence

President George W Bush has stated on 1 May 2001 in National Defense University:

> We need new concepts of deterrence that rely both on offensive and defensive forces. Deterrence could no longer base on threat of nuclear retaliation. Defenses can strengthen deterrence for reducing the incentive of proliferation. (President Bush Remarks at National Defense University 2001).

Similarly, Secretary of State Powel said, "You keep enough weapons so that you will be able to deter anyone else who is planning strike against you" (Wolf 2001:3). According to the US, BMD could play two important roles for the US deterrence. First, BMD might discourage an enemy to acquire ballistic missiles, which could threaten the US and its allies. Some states have acquired or are trying to acquire ballistic missiles because they know that the US has no defence against them and they expect that if they have capability to threaten the US with limited capability. Missile Defence would undermine this calculus by removing free ride to ballistic missiles. Second, even if these states acquire ballistic missiles, the US would be in a position to deter their use in conflict. A national leader would decide whether to threaten or to attack the US by balancing the costs and benefits of such action. The offensive weapons in the hands of the US would only allow it to raise the costs of such actions by threatening the cost of unacceptable damage on the adversary, if it attacked with ballistic missiles. But with the missile defence, the US could also reduce the potential benefits of such actions by intercepting attacking missiles. Even an imperfect defence could raise doubt in the mind of the enemy so as to discourage attacks (Wolf 2001:4).

The effectiveness of the NMD in preventing deterrence is explained beautifully with the help of 'challenger-defender' model which was proposed by Stephen L

Quackenbush. There are two players in international conflicts, the challenger and the defender. NMD could be effective only under following condition: when the defender is soft, i.e., prefers concessions to war, and the challenger is hard, i.e., prefers war to concessions. If the defender's missile defence is effective, its costs in war get reduced, as a result it would not prefer to back out from war. This means that the threat of the defender is credible. In such a situation, the defender would not suffer costs while the challenger will have to do so. Classical deterrence theory states that high costs of war make nuclear wars obsolete. In such a way, effective BMD would be effective in preventing war and thus strengthening deterrence. NMD would have a stabilizing effect on deterrence by reducing the cost of the defender, thereby improving the defender's credibility (Quackenbush 2006: 535).

Deployment of BMD would have an effect on the extended deterrence also. President George W Bush has called for a new framework, based on deterrence that relies both on offensive and defensive forces, the strategic adjustment of extended deterrence and US-Japan relationship (Jimbo 2000: 36). BMD would give complete security to the US. Therefore, the US would be more willing to interfere in regional conflicts. By reducing the risk of retaliation against United States, missile defence would increase the credibility of extended deterrence (Harknett 2004:55). BMD capability would give the US a much better chance to intervene in regional conflicts.

The US fears death and destruction wrought by even small nuclear attacks on itself as being far worse than the consequences of not intervening in conflicts. During the Cold War, MacGeorge Bundy had said that a decision that could lead to attack leading to even one bomb in one would be a 'catastrophic event'. Charles Glaster and Fetter observe that the US interests in the regional disputes "are not truly vital, making it hard to justify pursuing foreign policies that increase the probability of attacks with weapons of mass destruction of the US cities" (Powell 2003:101). Due to this, NMD deployment has been favored as it would not only strengthen the US extended deterrence but also prove important for the achievement of the US vital interests in the regional affairs (Powell 2003:101).

Some military experts state that NMD would strengthen the credibility of the US extended deterrent, which would give its allies to give the issue close attention

(Funabashi 2000:138). Under Secretary for Defence Walter Slocombe once said that US Missile defence would further complement deterrence by enhancing US ability to fulfill its global security commitments to its allies by rendering useless any ballistic missile equipped with WMD, thereby reinforcing US commitments to its allies (Remarks by Under Secretary of Defense Walter B. Slocombe to CSIS Statesman's forum 1999). US National Policy documents also mention the concern of meeting these new threats in their Ballistic Missile Defence Fact Sheet, 2003:

> The deployment of effective missile defenses is an essential element of the US broader efforts to transform our defense and deterrence policies and capabilities to meet the new threats we face. Defending the American people against these new threats is the Administration highest priority (National Policy on Ballistic Missile Defense Fact Sheet 2003).

It is said that deployment of missile defence and protection of NATO cities and allies would strengthen US nuclear deterrence. It would give the US a greater chance to navigate crisis with more steadiness and solitary and even prevent adversaries from acquiring ballistic missiles. Enemy in this case would fear operational defeat of his attack as well as threat of NATO retaliation. Thus, it would strengthen deterrence of its allies and US (Yost 2006). Also, defences would help to deter an attack from the enemy because enemy would have less confidence that he would be able to carry out successful attack. Defences would also complicate the attacks and will raise the cost of carrying out effective delivery of weapons (Panofsky and Wiklieng 2006: 222).

Some scholars believe that there is always a risk of escalation associated with deterrence. However, no such risk has been associated with missile defence. If missile defence is deployed in the post-Cold War context, threats of ballistic missiles and WMD in regional conflict are supposed to be countered by missile defence (Ikegami 2003:5). It is also said that deployment of missile defence would add additional layer of credibility of US power, and they may remove necessity for Washington to launch nuclear weapon (Mulvenon 2002:3). The US Nuclear Posture Review 2002 has expressed similar thoughts:

> Advances in defensive technologies will allow US non nuclear and nuclear capabilities to be coupled with active and passive defenses to help provide deterrence and protection against attack preserve US freedom of action and strengthen the credibility of US alliance commitments (Nuclear Posture Review 8 January 2002).

Some scholars say that deployment of US missile defence would make US nuclear deterrence vulnerable because it would evoke the other side to strengthen offensive nuclear missile capabilities. Nevertheless, some scholars dismiss this as the Cold War thinking. Missile defence, if combined with substantial disarmament of offensive capabilities, would facilitate further disarmament, ultimately enhancing conversation from offensive to defensive. Japan, for instance, has agreed to respond to North Korea's missile program by deploying TMD instead of developing nuclear weapons. Thus, BMD in regional crisis would not make US deterrence less viable (Ikegami 2003:8). There are those who say that missile defence is not affecting deterrence in a negative way. About 80 per cent of Russian nuclear forces are expected to survive the US first-attack and possess the ability to penetrate US missile defence. Thus, missile defence does not eliminate second-strike capability (Cimbala 2005:34). Some proponents insist that defence and retaliatory deterrence are complementary responses to new threat but defences can negate potential of regional adversaries and render attack not only fatal but also futile (Slocombe 2000:80). Some scholars support limited NMD system. Defences must be balanced against deterrence. Defences offer some insurance, if deterrence fails but defences can undercut deterrence if they overreach their potential or aggravate global or nuclear threat (Goldgeier and Lindsay 2001:20). The Under Secretary of Defence Walter Slocomebe remarked:

> To the extent that these first two components, reducing the threat and deterring the threat, are not fully successful, we have to be prepared to defend directly against a threat. In the case of the strategic ballistic missile threat to the United States from rogue states or from accidental/unauthorized launch, the National Missile Defense (NMD) program is America's ultimate insurance policy. For our deployed forces, we are developing and fielding multi-tier theater missile defenses to counter regionally oriented missile attacks. (Remarks by Under Secretary of Defense Walter B. Slocombe to CSIS Statesman's forum 1999)

3.3- BMD and Deterrence: Continued Negative Relationships

The other view is that missile defence is introducing new uncertainties in global nuclear deterrence and increasing instability in the international system. If country A believes that it has perfect defence against country B, than country B may also believe that it has lost its deterrence capability against country A. Instead, if both countries have 500 nuclear warheads capable of attacking other, both are likely to believe that other side would be deterred. If A introduce defensive system with 100 anti missile interceptors, country B will believe that its missile force would be impotent and would increase its deliverable warheads from 500 to 2000 in order to restore deterrent

capability. Thus any defensive system would make deterrence more precarious (Krienger 2001).

Going back to the 'challenger-defender' model, the NMD would undermine deterrence if the challenger is extremely dissatisfied with the NMD system as it would destroy the capability to retaliate and to attack the defender. Under such circumstances, the challenger will look forward to various other alternatives, such as strengthening deterrence by building offensive forces (Quackenbush 2006:538).

Therefore, there is negative relationship between first-strike capability and BMD. First-strike capability is an important part of deterrence. However, deployment of ABM system would degrade first-strike capability. The reason being that one side may strike first if it feels that BMD can degrade effectiveness of retaliatory strikes. If the combination of the offensive and defensive capabilities of the US put the first-strike capability of its opponents in danger, they might adopt offsetting actions that cause their weapons to be fired accidentally or prematurely. In such case, defence would exacerbate the problem of deterrence. The accidental and unauthorized use of nuclear weapons is the problem of the deterrence stability (Lebovic 2007: 77). Some of the possibilities mentioned are:

1. A rogue state armed with small number of vulnerable missiles can attempt to improve the chances that these weapons will survive an attack and penetrate the defence.
2. These rogue states could position its weapons close to target to circumvent the US defences. For example, these states can deploy missiles on ships in forward positions or could pre-position a nuclear device on the US territory for denotation in future (Lebovic 2007: 77-78).

There is another group of experts that believe that by giving Missile Defence to third party, United States is sending wrong signals. For instance, Europeans fear that "US might create a self-fulfilling prophecy, by addressing concerns that traditional deterrence might fail, US pursuit of NMD would ensure that it will definitely fail" (Gordon 2001:22).

The arguments made by the proponents of NMD that missile defence is needed to deter rogue states because they value regime survival above all is not true. The reason being that hope of the individuals to secure their place in new governments might remove the reckless attempt of the rogue states to take their countries on nuclear war. The devastating consequences of the US nuclear retaliation for rogue state nuclear strike would realize the worst nightmare of an unpopular regime-massive instability and a total breakdown of political control. It is also important to note that the US could render far greater destruction on these adversaries than rogue states could cause. If a rogue state uses its nuclear arsenal to maximum effect, it would not have anything in reserve for bargaining and will be exposed to full US retaliation. (Lebovic 2007: 76).

One French expert mentions how NMD sometime stand for "No more deterrence." A limited anti-missile defence of U.S. territory, far from being inconsistent with the creation of a stable deterrent posture against third countries, might strengthen the credibility of a retaliatory threat by removing the prospect of, a cheap shot at the United States. Moreover, such a defence would not alter the mutual vulnerability of the large nuclear powers to one another that is the foundation of the traditional view of nuclear deterrence. In both these senses, defences should be seen not as an alternative to deterrence, but as an additional element to strengthen deterrence (Cambone 2000:13).

There are also reports which say that the US is exaggerating the threat of the missile attacks of rogue states and terrorist groups. The technology of the rogue states is not sufficient to carry out a successful attack on the US. For example, Iran still has to develop successful stage separation technology; it needs to develop a propulsion system for an ICBM. The current propulsion system of Iran's Shahab 3 and Shahab 4 are not sufficient for ICBM. Similarly, North Korea's No-Dong test in 1998 was unsuccessful. It was found that No-Dong could carry a payload of 100-200 kg, which means that this payload is considerably less than the amount needed to carry nuclear weapons. This also means that this missile could carry only a small quantity of chemical and biological weapons, which are not sufficient to inflict large number of mass- casualty (Kumar 2007:79). The situation in which an adversary is unthreatening from its own perspective, the building of defensive measures of the US could be seen

as offensive gesture. The leader of rogue states might believe that the US seeks to protect itself because it seeks to attack (Lebovic 2007: 86). Under such conditions, the adversary would also try to build its offensive forces so as to prevent it from any future attacks. This would result into arms race and thus degradation of the US deterrence.

It is also said that deploying missile defence would push hostile states and movements to use other forms of attacks. Missile defence cannot provide protection against chemical, biological, radiological or nuclear weapons smuggled in US or assembled on its soil. It provides no defence against new technologies like cyber warfare. Hostile states use other forms of attacks which are cheaper, harder to attribute and retaliate against. The attacks on World Trade Center and Pentagon in 2001 show that NMD could do more harm than good. It could threaten US allies abroad and create new regional tensions. In this sense, the bipolar 'delicate balance of terror' that shaped the Cold War, would be replaced by a 'multipolar delicate balance of deterrence' (Cordesman 2002:371). The problem is that even if missile defences can be developed and pass operationally realistic testing, foes can always counter by building sufficient numbers of offensive ballistic missiles to overwhelm a system (Kimball 2007).

To sum up the main arguments:

1) Missile defences decrease deterrence. Missile Defences would question the role of deterrence and even negate deterrence as the 'Cold War concept'.
2) Missile defences would provoke first-strike by the country which does not possess BMD.
3) The efficacy of defences against biological weapons, cruise missiles and suitcase bombs remain low (Delpech 2000: 63).

3.4- Russian and Chinese Response

The first-strike capability could be increased by deployment of decoys. Decoys resemble to warhead and are made to distract the BMD system. It made it difficult for the radar to identify difference between warhead and decoys. Decoys would increase

first-strike capability by spoiling effectiveness of ABM system and thus reduce degradation in first-strike capability caused by missile defence (Nyland 2000:75).

Such measures are taken by China and Russia who fear that their deterrence and first-strike capability would be damaged by coming of BMD. Defences would only induce these countries to augment their offensive forces at a cost lower than the cost to the US for augmenting their defences (Panofsky and Wiklieng 2006: 225). China has an ICBM force of around 20-silo based weapons. Under such conditions, US system of 100 to 200 interceptors would eliminate its nuclear capability. In order to restore its deterrent value, China is busy in modernizing its forces and develops countermeasures. China could use multiple re-entry vehicles with some of them having decoys. Such warheads could be used, which has reduced infrared reflections, thereby limiting effectiveness of kinetic kill vehicle. Such technology could be developed by China to ensure that its warheads penetrate US missile defence (Godwin 2002:65). Similarly, some changes could take place in China's nuclear posture.

Similarly, Russia feels that the US program to put interceptors and radars in Czech Republic and Poland would degrade its deterrence. According to the plan, the site at Czech Republic deploys midcourse radar while Poland will host battery of ground-based interceptors. These radars and interceptors are mainly deployed to deal with threat of Iran. However, these radars could also detect the Russian missiles launched from bases in Russian European territory (Podvig 2007). As a result, Russia felt that these interceptors and radars would degrade its deterrence. Russia is engaged in military build up since the US has taken decision to deploy BMD in Czech Republic and Poland.

Russia is busy in developing countermeasures technology since 1960s. According to 1998 NIE, Russia has developed numerous countermeasures. These countermeasures include decoys that stimulate warheads, chaff. These could confuse enemy radars and maneuverable warheads that could evade interceptors. Reportedly, Russia's SS-18 missiles could hold about thirty decoys in addition to its ten nuclear warheads. Russia is also busy in developing Topol M rocket, which it claims has the capability to penetrate effectively a potential ABM system of any state (Lindsay and O'Hanlon 2001: 54). Russia also carried out successful test of RS-24 missile on 29 May 2007,

which could carry multiple independent warheads and could penetrate BMD system of the US (Harding 2007). In November 2007, Russia said that it could take a decision to deploy the Iskander missile in Beralus in response to the US plans to deploy BMD in Europe.

3.5 BMD and Deterrence: Present and Future

The present situation reflects negative relationship between the US deterrence and BMD. Given the present situation, it seems that the US BMD would not help in strengthening US deterrence. The US look at the development of missiles by rogue states as a threat to itself and therefore plans to deploy BMD. US defensive measures are seen as threats by rogue states and by countries like China and Russia. They are further busy in development of missiles so as to strengthen their deterrence and this would further create problems of deterrence for the US. It is important to note that China and Russia have a history of proliferation of WMD, including missiles. If they develop countermeasures, it is also possible that they would sell these countermeasures to Middle East countries and to rogue states. This would not only degrade the US interests in the region but also its deterrence. Also, rogue states and terrorist groups will develop other means to harm the US interest like development of suitcase bombs, cruise missiles or will try to carry out another attack like 9/11.Hence, the US deterrence would not be secure with the development of BMD. BMD is facing lot of technological and political challenge and does not act as a comprehensive framework to strengthen deterrence of the US.

Chapter 4
Assessment of Political and Technical Implications of BMD

The abandonment by the US of the ABM treaty and its decision to accelerate efforts to build and deploy BMD systems has revived these debates in the international community, especially in Russia and China. It has presented a situation of the 'security dilemma'. John Hertz described security dilemma as a social state in which individual powers have no authority above them to enforce behavioral norms or to prevent them from attacking one another. The mutual suspicion and fear drive individual states to obtain more security by increasing their power. (Feng and Ruizhuang 2006)

The efforts of the US to strengthen its own security by construction of BMD are considered as a danger to the other countries like Russia and China. Russia and China have regarded BMD as against their deterrence and therefore have intimated the US again and again that they would develop countermeasures technology to deal with the US BMD program. One of the Chinese senior foreign policy expert said:

> The US, like any other country, is entitled to security. But its interfering nature makes it difficult to allow the US the absolute security it seeks. The more secure the US is, the more insecure the rest of the world feels...When the US threatens the security of other countries, than there is need to challenge the US security system which has missile defense as a crucial component. (Roberts 2003: A-14)

Following the withdrawal of the US from the ABM treaty, policy makers mentioned that Russia and China would develop Anti Satellite Weapon (ASAT) program so as to engage and destroy US satellites. It was said that Russia and China could not compete with the US effectively in development of conventional and nuclear weapons and therefore would try to respond asymmetrically to American superiority by developing ASAT and posing threat to the US satellites (Krepon 2001:1). This concern was certified when China carried out ASAT test in January 2007. Similarly, scholars and diplomats had also said that withdrawal of the US from the ABM treaty would be followed by Russia's withdrawal from START treaty which will endanger non-proliferation regimes (Krepon 2001:3). Although, Russia has not abandoned START process, it has suspended its participation from INF treaty and has indicated its intention to withdraw from CFE treaty (Quamme 2007). Thus, there have been efforts

at the international level to penetrate missile defence or alternate means to threaten US deterrence. In this sense, US BMD program does not offer a comprehensive framework for preserving deterrence. Instead, it leads to offensive-defensive arms race.

4.0- China's reactions against US BMD

China remains more vulnerable to the US BMD and TMD program than Russia. The reason is that China possesses only 20 ICBMs which are capable of targeting the US. The US has mentioned again and again that BMD and TMD are aimed against rogue states and not against China or Russia. However, it is difficult for China to believe that the US does not have China in its plans to deploy BMD. Prof Shen Dingli says:

> It is untenable that the US would spend more than ten billions dollars on a system which has only "rogue" states in mind...Only Russia and China currently have the capability to hit US with nuclear warheads on intercontinental missiles...The envisaged NMD cannot stop an all-out Russian nuclear attack, considering the thousands of strategic weapons at Russia's disposal...Given the reported level of China's full range ICBM force, the NMD plans requiring ABM revision would compromise China's strategic capability in two respects. Geographically, it will protect the whole United States from being deterred. Numerically, even interceptors deployed on a single site may be enough to knock out all Chinese CSSS 4s. Hence, China's national security interests is greatly endangered (Roberts 2003:A-14).

Therefore, China regards the BMD program as against its deterrence policy (Krepon 2001: 119). Chinese concerns to BMD could be divided into three parts:

4.0A- Impact on global strategic stability of arms control and non proliferation efforts

Even before the withdrawal of the US from the ABM treaty, China was opposed to the BMD program due to concerns of arms control treaties and international strategic stability. Ambassador Sha Zukang, China's representative to the Conference on Disarmament, repeatedly said that missile defence violates both the content and core of the ABM treaty. China has always maintained that the ABM treaty must be preserved as it has served the corner of the strategic stability. (Yuan 2000). While speaking at a Conference of Arms control and disarmament, the Chinese Ambassador said:

> ABM treaty established so called "balance of terror" which can only provide relative security to countries. This might not satisfy some Americans in pursuit of absolute security. Nonetheless, "balance of terror" is better than no balance at all. Between two devils, we have to opt for the less evil and this is the best possible choice we can have until the complete elimination of nuclear weapons is achieved.

> Disturbing such a balance will only lead to greater insecurity for all countries, including the US (Zukang 1999)

The US focus on BMD reinforces Chinese perceptions that US wants to achieve absolute security for itself at the cost of others. Ambassador Sha Zukang later said: 'What the U.S wants is absolute security because it is only from a position of absolute security that it can enjoy complete freedom of action in dealing with other countries' (Zukang 2000). Under such conditions, it is clear that other countries will not sit idle. Sha Zukang said, "If a country, in addition to its offensive power, seeks to develop advanced TMD or NMD, in an attempt to attain absolute security and unilateral strategic advantage for itself, other countries will be forced to develop more advanced missiles." (Zukang 1999) Thus, this will reverse the process of nuclear disarmament. Chinese Ambassador Hu Xiaodi said at a UN Conference of Disarmament:

> NMD is, in essence, a disguised form of unilateral nuclear arms expansion, which will severely hinder the international arms control and disarmament process and even trigger off a new round of arms race...The US possesses the cutting edge nuclear arsenal and the most sophisticated conventional weapons in the world and pursues a policy of nuclear deterrence based on the first- use of nuclear weapons. With that, NMD will become an offensive arms multiplier for that country. It will not only severely impede the US – Russia and the global nuclear disarmament process but also render any initiative on the reduction of offensive nuclear arms meaningless (Xiaodi 2001).

4.0B- Impact on China's nuclear deterrence and credibility

Another major concern for China from the US missile defence program is its impact on the credibility and deterrence policy of China. Prof Li Bin mentioned:

> Chinese nuclear deterrence depends directly on American perceptions about Chinese nuclear retaliatory capabilities. Without the backup of NMD, the American would worry about Chinese retaliation with the few Chinese nuclear weapons that might survive US first nuclear strike against China. The deployment of NMD system would provide the American public with an illusion that the several surviving retaliatory Chinese ICBM would be intercepted by BMD (Li Bin 2001).

China's nuclear deterrence faces a danger from the US BMD program because it provides the US deterrence both offensive and defensive forces. On the other hand, China only has the offensive weapons system to preserve its deterrence (Donogue 2000:17). China has the smallest nuclear arsenals amongst the P-5 nations and has approximately 20 lands based ICBMs. The Chinese nuclear and missile forces have a lot of disadvantages: the bulk of Chinese missile force is liquid fuel, located at

fixed sites and requiring heavy time for launch preparation. Chinese nuclear bombs lack sufficient range and are too slow to penetrate air defence system. China's single *Xia*-class submarine is virtually non-operational. With such a small, technologically inferior force, China is concerned that the BMD system would render its second-strike capability impotent and thus enables the US to use nuclear blackmail against China (China's opposition to US missile defence program 2008). Chinese arms control specialists have taken the following path:

- The Chinese assumption is that the US would initiate first-strike.
- Chinese possess about two dozens of ICBMs and China assumes that only a small handful of them will survive.
- The handful of ICBM that survives the first-strike will be captured by US NMD.
- Thus, NMD would degrade China's retaliatory capabilities.
- This concludes that China's survival is at risk with the deployment of US NMD (Finkelstein 2001: 3).

To further quote from Ambassador Sha Zukang states that:

> We are against NMD, not because we intend to threaten the security of US with our nuclear weapons. We just hope that the existing mutual deterrence between the two countries can be preserved. As is known to all, China's nuclear arsenal is the smallest and least advanced among the five nuclear weapons states. Yet, China is the first to pursue the policy of no-first use of nuclear weapons. Of course, China will not allow its legitimate means of self defense to be weakened or even taken away by anyone in anyway. This is one of the most important aspects of China's national security (Zukang 2001).

4.0C- Impact of TMD on East Asia's Security Relationship with China

China sees deployment of TMD in East Asia as a broader part of the US TMD policy against China in East Asia. These policies become more apparent with the bombing of Chinese assembly in Belgrade, release of Cox report, growing threat of military and political ties between the US and Taiwan (Yuan 2000). The main allegations laid by China are:

- TMD will enable the US to commence undeterable military operations in East Asia with minimum inhabitations.
- The US seeks to exploit technical funding, expertise and missile defence in gaining domination in East Asia. By being the part of the

US BMD, allies would relay on the US for any security guarantees and become integrated in the US security architecture.

- China affirms that determination of the US to have BMD reflects rise of the conservative forces in US government to dominate, defence and foreign policy agenda and to carry out assault on China and North Korea (Yuan 2000).

The other two considerable concerns for China are deployment of TMD in Japan and Taiwan. Taiwan is always a very sensitive issue for China. China is cautious with the US decision to sell lower tier BMD to Taiwan which they consider it not only as confrontation in its political affairs but also anticipates that TMD systems will embolden Taiwan freedom movement (Delgado 2005:5). The Chinese Communist Party (CPP) has addressed the Taiwan issue as its internal matter and rebuffs any attempts by other states to legitimize other states' contacts with Taiwan (Donogue 2000:16). Without any TMD, Taiwan is vulnerable to China's short-range missiles. Missile defences in Taiwan would reduce China ability to use missile threats against Taiwan for achieving its political ambitions.

If China is unable to use its military power for threatening Taiwan, it will definitely embolden freedom movement. TMD transfer will strengthen ties between the US and Taiwan which could be harmful to the interests of China (Huntley and Brown 2001:2). NMD and TMD would empower the US to intervene freely in the affairs of Taiwan Strait. Besides, the triangular relationship of China, US and Taiwan could cause the fear of escalation of conflict. According to Game Theory, any triad is more susceptible to escalation than any dyad because of exponential increase in interaction (Mulvenon 2002: 56).

Similarly, China has concerns regarding TMD in Japan. China feels that deployment of BMD in Japan will promote it to take more aggressive steps against its neighbors. China said that Japan already has a strong military force and has the most advanced weapon systems in Asia. As a result, deployment of TMD will provoke Japan to take a aggressive role in East Asia. Some Chinese analysts also feel that deployment of TMD by Japan has political justifications rather than dealing with threat perceptions coming from North Korea. Japan relies heavily on sea line

communications so as to meet its energy needs. Taiwan is located at very important position of this sea line communication. The main aim of Japan is to control Taiwan and South China Sea so as to threaten Chinese interests (Ding 1999:95). China also regards transfer of TMD would lead to remilitarization of Japan (Yuan 2000). Therefore, United States BMD and TMD threaten Chinese nuclear interests and target its nuclear deterrence.

4.1- What will China do to maintain its Deterrence?

Clearly, China will not sit idle and will take steps to enforce its deterrence. The manner in which China will respond depends on whether it will seek to enhance survivability of its nuclear forces or reinforce its nuclear doctrine. China seems to do both these things through the following methods:

4.1A- Change in Nuclear Doctrine

There have been discussions going on in China to shift from the doctrine of 'minimum deterrence' to the doctrine of 'limited deterrence'. Limited deterrence will provide China the capability to deter conventional, theater and strategic war and to control escalation in the event of a nuclear war. Under this, China will need to target nuclear installations besides cities and this require additional deployments. According to Alastair Iain Johnson, "a number of Chinese strategists now explicitly reject minimum deterrence as a viable option for China as it reduces China deterrence and therefore increases the country vulnerability to attack, and offers no means to control arms race." (China attitude towards nuclear deterrence 2008).

The aim of such doctrinal change is to present credible deterrence and to prevent the US from using its offensive forces against China or threat to use nuclear weapons against China while protecting itself from the shield. China could also consider changing its doctrine of no-first use to the doctrine of launch on warning (LOW). China said that it is not the violation of NFU but rather a defensive measure taken when launch is confirmed. LOW could be defined as active defensive measures taken after adversary has attacked but before his weapons have wrecked destruction on China, particularly on its retaliatory forces (Godwin 2002:69). Therefore, the US BMD program would lead to change in the nuclear doctrine of China which would lead to more deployments, and continue to pose threat to the US deterrence.

4.1B- Modernizing Missiles

The second step to be followed by China is to increase its forces, both qualitative and quantitative. Quantitatively, China will increase number of nuclear weapons and deployed forces. CIA predicts that China would increase its nuclear warhead between 75-100 which would be capable to reach towards the US. Qualitative increase involves modernization of nuclear warheads and ability to penetrate missile defence of the US. Infact, the modernization of missiles and increasing number of missiles deployed is directly linked to the China limited nuclear deterrence (Roberts 2003: 35). Brad Roberts cites a Chinese academic who says:

> China's program will involve responses from US missile defense by increasing force level so as to restore the China minimum deterrence. The problem is this would make China's nuclear force develop into an embryonic limited nuclear deterrent at strategic level....For the purpose of reconstructing minimum deterrence, China is not only required to keep improving the survivability of its nuclear forces through measures such as camouflage of deployment sites, development of solid propellant and acquisition of mobile delivery systems as well as improvements in C4ISR capabilities. More critically, it is required to develop effective means to penetrate missile defense structure so as to strike at least some of the major cities. It is in this connection that China strategic forces move towards strategic minimum deterrence (Roberts 2003:36-37)

It is said that irrespective of the US BMD program, China will continue with its modernization of delivery vehicles. Nevertheless, the BMD program would accelerate the decision to develop its forces. The following paragraphs outline what is expected to be the result of China, modernization of delivery vehicles:

ICBMs: Replacement of DF-5 and DF-4 with more advanced DF-31 and DF-41. Both these missiles will be solid fuel missiles, thus easier to launch as compared with liquid fuel missiles. DF-31 and DF-41 have a range of 8,000 and 12,000 kms respectively. Some experts have estimated that China could field 50-70 MIRV and solid fuel ICBM by 2010.

SLBM: China plans to deploy 4-6 generation submarine by 2010. Each submarine will be armed with 12 JL-2 SLBM with a range of 8,000 kms and potentially have MIRV capability (Crincione 2000).

This makes it clear why the US BMD will not be able to preserve deterrence. Also, China has a history of proliferating weapons to Pakistan and to the Middle East, an area in which the US has a potential interest. Therefore, China could also proliferate

countermeasures technology to other states which will not be conductive to US deterrence.

4.2- Russia moves against BMD

The reasons for Russia's opposition to the US BMD programs are more or less same as China. First, Russia is also opposed to BMD program due to its concerns regarding the ABM treaty. Russia regards this treaty as the basis of strategic stability between Russia and the US. Russian President Valdimir Putin, has mentioned:

> People must realize that the mutual reduction of strategic attack weapons-the most dangerous of all nuclear weapons-is possible only when the ABM treaty continues to hold. Scrapping it would make further reduction of strategic attack weapons according to START I impossible. START II would not come into force either, as it would be impossible to conclude START III, aimed at talking about the radical reduction of nuclear arsenals. This blow would also affect other agreements that are of fundamental global importance: the NPT and the Nuclear Test Ban Treaty...Russia will be forced to look for an alternative to end its commitments not only regarding START, but also the agreement on intermediate-range and short-range missiles, the conclusion of which is linked to the legal and military framework of the START II-ABM process (Putin 2000).

On the other hand, Russia accepts the threat coming from proliferation of missiles but maintains that proliferation threat should be dealt with diplomatic measures and multilateral initiatives which will also involve rogue states. President Putin said. "The differences in our approach lies in that we propose to move ahead jointly in preventing ballistic missile threat while preserving the level of trust and balance created by 1972 ABM treaty." (Putin 2000). In order to deal with proliferation of delivery vehicles, Russia proposed Global Control Systems (GCS).

Secondly, again, the US has repeatedly mentioned that this missile defence is not targeted against Russia or China but both the countries have their doubts.

Thirdly, Russia's deterrence would be at least partially undermined with the construction of NMD. Russia affirms that the US is using North Korea as an excuse and Iran as a threat so as to build the BMD. A Russian General said, "US claims that it needs ballistic missile defence to protect itself from North Korea, Iran or Iraq....it is an argument for naïve and stupid. This system will be directed against China and Russia." (Krepon 2001:6) The events like the US moves to expand NATO, bombing Serbia during Kosovo war and criticism of Russia during

Chechnya war demonstrate that US wants to establish "strategic domination. (Krepon 2001:6). The reasons for Russia's fears of breakdown of deterrence are:

1. Russia's nuclear weapons are about to decline sharply over the next few decades, perhaps fewer than 1,500 warheads. The reason behind this reduction is that Russia has old weaponry which will soon become obsolete, and it is not economical sound to acquire new weaponry. On the other hand, the US continues to build larger offensive nuclear weapons, even if it is under arms control agreements. (Wolf 2002: 9).
2. Russia is against the deployment of radars and interceptors in the Czech Republic and Poland because these radars and interceptors could detect Russian missiles and therefore, would be harmful for Russia first-strike capability. (Kumar 2008:20)

4.3- Russia's response to the US BMD Program

Russia's response to BMD is based on three levels:

- ❖ Deploying multiple warheads on new ICBMs to enhance its ability to penetrate BMD
- ❖ Withdrawal from arms control and disarmament treaties
- ❖ Building diplomatic allies with Iran and China

4.3A- Deploying multiple warheads on new ICBMs

Russia has 360 SS-25 missiles and 30 operational SS-27 missiles. SS-27 missiles were expected to replace SS-25 missiles. Russia is producing 10 missiles per year but expected to increase its production up to 30 missiles per year (Wolf 2002: 10). Besides, Russia is also working on 'Topol Missiles' which are capable of penetrating the US missile defence systems. Russia has carried out successful test of RS-24 and claims that it can penetrate missile defence system. The RS-24 uses a sophisticated navigation system which allows the warheads to lock on to different targets and is capable of penetrating the US ballistic missile defence shield (Kumar 2007). Russia has also said that it would deploy S-400 Triumph air defence. Therefore, it seems that Russia has started a race of offensive-defensive weapons with the US.

4.3B- Russia's withdrawal from Arms Control Treaties

Russia said it would withdraw from the arms control treaties and develop weapons. The INF treaty requires the US and USSR to permanently forswear all their nuclear and conventional ground-launched ballistic missiles with ranges of 500-5,500 miles. On 10 February 2007, during the Russian President's speech at Munich, Russia indicated that it might withdraw from the INF treaty. The international community fears that INF missiles deployed in Russia could pose more of a threat to Europe than to the US. As a result, European states will feel insecure and would deploy corresponding INF missiles in Western Europe. On 14 July 2007, Russia formally suspended its participation from the CFE treaty. This treaty set limits between the NATO group and Warsaw on the specified military equipment known as Treaty Limited Equipment (TLE) in the Atlantic to Urals Zone (ATTU). It was agreed that neither side would have more than 20,000 tanks, 20,000 artillery pieces, 30,000 armored combat vehicles (ACVs), 6,800 combat aircraft, and 2,000 attack helicopters. Russian Foreign Minister Sergei Lavrov at a Russia-NATO council in Oslo said that "None of the NATO members are fulfilling this agreement, and we don't want to look like we're taking part in a theater of the absurd." He also said that "Relations in the Russia-NATO council are lacking a necessary degree of trust." (Kumar 2007)

Russian withdrawal from the CFE treaty has many implications. First, it will allow Russia to deploy additional troops in its southern and northern flanks; and second, it will bring an end to mutual inspections and confidence-building measures, which were part of this treaty. While suspending its participation from the CFE treaty, Russia said that it would not be bound by any limitation on conventional weapons, which indicate that this would have tremendous effects on European security and US-Russian relationship. As a result, it would establish Europe as the battleground between Russia and the US. This situation is very alarming for the US as it does not want to witness the onset of a new Cold War, particularly when it is waging a war on terrorism (Kumar 2007).

4.3C- Building Diplomatic Allies with Iran and China

Russia is building diplomatic proximity with Iran and China so as to counterbalance the US influence. The relationship between Iran and Russia has been strengthened

by the historic visit of the Russian President, Vladimir Putin, to Iran on 15 October 2007. Russian President Putin has confirmed that Russia will support construction of the Bushehr nuclear power plant at Iran. Moscow also mentioned that it would not back further sanctions against Iran unless the IAEA says Iran is not cooperating or proves it is working on nuclear weapons. Russia has further signed a contract to supply Iran with five Tu-204-100 aircraft. President Putin's visit to Iran could be seen as one of Russia's diplomatic measures to prevent the US from establishing its hegemony in the region and yet another move to demonstrate its opposition of the US' defensive plans. The US has remarked that it wants to establish missile defence so as to counter the ballistic missile threat from Iran; and in this context the Putin visit signifies that Russia would help Iran in making it stronger. Russia and China are coming close together and have conducted war games to show their military power in August 2007. Vladimir Putin, during these war games, ordered the Russian Air Force to resume the Cold War practice of long-range flights by strategic bombers. Observers say the exercise sent signals to Washington and Brussels (Kumar 2007:10).

This shows that by building missile defence systems, there does exist a situation of security dilemma in international affairs and countries like Russia and China will respond by various diplomatic and military methods. This will lead to offensive-defensive race of weapons, degradation of arms control regimes and further proliferation of weapons. This would lead to the weakening of deterrence.

4.4- Technological Challenges in BMD Program and Deterrence

The technological developments of BMD to strengthen US deterrence are in doubt. Despite several successful tests, the certainty of BMD is doubted. Prof. Theodore Postal of MTI charged Ballistic Missile Defence Organization (BMDO), with elaborate scientific and technological distortions that have been compounded by fraud and misconduct. He has also expressed several misgivings about the 'hit-to-kill' technology. He has been credited with uncovering the massive disinformation and cover up regarding the success rate of Patriot missile fired during Gulf War I so as to counter the Iraqi Scud missile threat and other exaggerated success claims of early missile tests of NMD (Ghosh 2003: 608) Similarly, Union of Concerned Scientists (UCS) has expressed doubts regarding the efficacy of developing systems. They said

that the technology has not been developed for realization of aims. They harbor the reservations about the system to overcome countermeasures (Ghosh 2003: 608). Following are the technological challenges faced by BMD:

4.4A- Dealing with Countermeasures Technology

Countermeasures are tactical or strategic actions taken by an attacker to overwhelm, destroy or evade BMD systems. According to NIE 1999, countermeasures would be available to the emerging missile states (Countermeasures 2007). These countermeasures are easier to build as compared to developing ICBM or a nuclear compact, and are light enough to be delivered by such a missile. Therefore, states which have the capability to build short or medium range ballistic missiles could easily develop countermeasures (Lewis 2000). There could be variety of countermeasures:

- *Submutions with biological and chemical warheads*

Biological or chemical warheads could be developed into many small warheads, which are called as submutions. It is very difficult to intercept these submutions. These submutions would distribute the agent over large areas and disseminate it at lower speeds. This is more effective means of delivering chemical and biological warhead. (Countermeasures 2007).

- *Anti-simulation decoys*

Decoys are made to look like missile warhead so as to overwhelm the defence with more targets than it could intercept (Lewis 2000). In order to mimic the infrared heat signatures of warhead, decoys could be equipped with small heat generators. Decoys could be placed inside the radar effective balloon that would make it impossible to see the interiors of the decoys (Lindsay and O'Hanlon 2001:46). Anti-simulation is the technique in which attacker disguises the warhead to make it look like a decoy (Countermeasures 2007).

❖ *Cooled Shroud*

NMD uses a variety of sensor systems. These sensors can only get the kill vehicle on a trajectory that takes it close to the target. The kill vehicle must itself detect the target, failing which the entire system of BMD fails (Lewis 2000). The attacker could cover a nuclear warhead with a shroud cooled to a low temperature by Nitrogen Oxide. This cooled shroud would reduce the infrared radiation emitted by warhead by at least one million. This would make detection of warhead impossible (Countermeasures 2007).

The problem is that target missile could release 'target cluster' which is made up of closely spaced objects during initial parts of ballistic missile trajectory. Such a cluster could contain warhead, decoys, chaffs, electronic countermeasures, etc. The problem of defence under such a condition is to discriminate warhead from other things. As target clusters are released above the earth atmosphere, they will continue to follow same ballistic path unless they re-enter the earth atmosphere (Mantle 2004: 176-177).

4.5 Operational problems in Ground Based Midcourse Defence (GMD)

In order to have a successful GMD, the following should take place simultaneously:

a) The launch of enemy missile must be detected, the heading of missile and information about it must be sent to command and control component.
b) The command and control center must cue the tracking radar so as to track the hostile missile or missiles and to provide immediate high quality data to fire control stations, which then develops a battle plan to engage the incoming missiles.
c) Fire control must launch the interceptor's missile or missiles. The exa-atmospheric kill vehicle must then disengage from the booster rocket.
d) The in-flight interceptor communication system of the fire control component must relay to the EKV updated target information, including discrimination of objects in the target complex, which it receives from the tracking radar.
e) EKV than must acquire the incoming warheads, track it and discriminate between them and decoys, make final target selections and steer itself for hit-

to-kill impact. The tracking radar than makes assessment of the success of the intercept.

This requires many systems to integrate together. It must have command and control systems, consisting of hardware and communication system so as to provide real time interfaces to integrate entire GMD complex and to ensure rapid transformation of data. This integration of systems is difficult and a realistic operational testing is many years away (Goure 2006).

4.6 Limitations of interceptors and Early Warning Radars

The interceptors currently deployed to defend the US homeland depend on ground based or ship borne radar for missile tracking, discrimination and guidance. For many interceptors, their effectiveness is limited by their dependence on the radar. Moreover, it will not be effective unless the radar is deployed in the right place, looking in right direction and operational at the time when a ballistic missile is launched. To address this problem, MDA is developing Space Tracking and Surveillance System (STSS), which will provide global coverage. However, this technology is yet to be developed.

A full constellation of STSS will begin in 2012. Similarly, Early Warning Radars (EW) have their own limitations. The five existing radars belong to the Cold War period and require substantial upgrading to communicate effectively with the national missile defence systems. These five radars are Beale Radar in California, Cobra Dane Radar in Alaska, Fylingdales Radar in United Kingdom, Otis Radar in Massachusetts and Thule Radar in Greenland. The Cobra Dane EW is pointed towards the East Russian Peninsula and North Pacific Ocean. It is the only EW radar which can detect launches from North Korea; but cannot cover the entire country (Goure 2006).

Besides this, there are three important technical realities, which are usually ignored:

a) Sea-based missile defence systems would be effective in preventing missile attacks from North Korea, but would not be effective against missile threats coming from China and Iran unless sea-based assets are deployed in Caspian and Black seas.

b) There are no effective missile defence systems to deal with accidental launches
c) Land-based missile defence systems have limited coverage (Cordesman 2002:339-340).

4.7- Failure of BMD to address the threat of Cruise Missiles

The Department of Defence (DoD) defines cruise missile as "the guided missile whose flight path to its target is conducted at an approximately constant velocity; depends on the dynamic reaction of air for a lift and propulsion forces to balance drag." (Mahnken 2005: 5) Federation of American Scientists (FAS) define it as, "an unmanned self propelled guided vehicle that sustains flight through aerodynamic lift for most of its flight and whose primary mission is to place an ordnance or special payload on a target" (Mahnken 2005: 5). The 2003 Iraq war showed that the US defences could deal with the ballistic missile defence but not with cruise missile. The US Patriot TMD batteries interceptors destroyed all nine Iraqi ballistic missile launched at military targets but they failed to detect and intercept any of the five HY-2/ CSSSC 3 Seersucker missile launched against Kuwait (Gormley 2004).

Cruise missiles are difficult for current active defences to detect, track and intercept. Defences that exist today protect only small areas and are normally used to protect unique, high-value assets. The best defence against a cruise missile would be to destroy the launch platform prior to launch. However, because of its relatively small size and modest launching infrastructure to support a cruise missile, finding and neutralizing it with offensive, preemptive counterforce may be problematic for any joint force commander. A number of other factors make cruise missiles attractive to countries. As mentioned earlier, cruise missiles are cheaper to build and buy than ballistic missiles, making them attractive to countries with less advanced militaries and to non-state actors as well. Tracking proliferation of cruise missiles is difficult because the materials and technology involved have multiple uses (The Cruise Missile Threat: Prospects for Homeland Defense 2006:2). There are talks about building of cruise missile defence but no effective step has been taken in this regard.

This analysis shows that though US BMD could deal with some of the missile threats but it is not a comprehensive framework to strengthen deterrence posture. It has raised

political debates in Russia and China about the US real intentions behind development of BMD. As a result, these states are forced to develop countermeasures. The vital point is that benefits of BMD are strongly nullified due to its adversaries (Russia and China) forcing the international community to start a more strategic, competitive, costly and dangerous arms race. Technologically, the BMD is not fully effective. The testing of BMD technology has taken place in pre-determined environment and does not resemble real war like conditions. Therefore, in order to deal with proliferation of missiles, the US should engage with the international community and adopt arms control and disarmament measures. The BMD provides short term benefits while arms control and disarmament measures will be effective in the long term.

Chapter 5
Conclusion

From this study of post-cold war debates on linkages between BMD and deterrence we see that there are three main kinds of relationships established between the US nuclear deterrence and BMD:

1) BMD could be a substitute to deterrence in cases where deterrence does not function. These may include examples such as dealing with rogue states or terrorist groups, which are assessed as 'undeterrable', or dealing with hazards of accidental launch of missiles
2) BMD could complement deterrence when threat is too modest to require nuclear weapons
3) BMD could be considered as a component of 'deterrence by denial'. The potential aggressor could be deterred by the rational calculation that its strikes do not reach the US territory (Tertrais 2001:9)

However, the questions raised by this research are: how capable is BMD to deal with contemporary threats of non-state actors and what is the solution to the offensive-defensive race of weapons? The answer is that there are no concrete measures taken by the US to deal with the offensive-defensive race of weapons. It is engaged with the following:

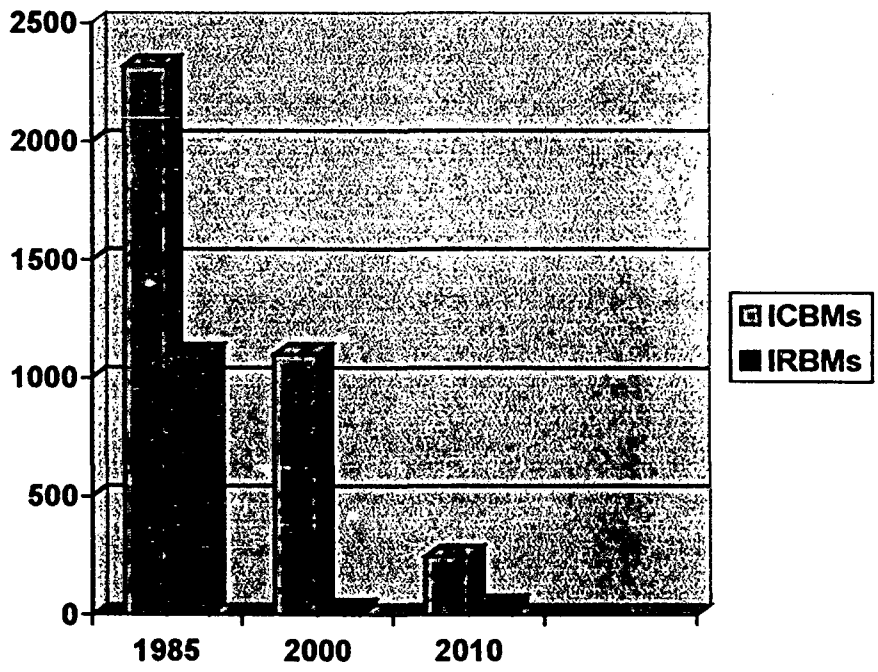
5.0 - Declining Ballistic Missile Threat

There has been literature published by Joseph Cirincione, the Director of the Carnegie Endowment for International Peace, which has demonstrated that ballistic missile threat has been on the decline since the end of the Cold War. The following prove this as fact:

- By 2005, the total number of ballistic missiles in the world had decreased by 51 per cent. The total numbers of missiles deployed by the Soviet Union and Russia for threatening the US have decreased from 2400 to 943.

- The total IRBM arsenals have declined from 778 in 1987 to 20. This represents 97% reduction from the Cold War period (Cirincione 2005: 5-6).
- The US has recognized threat from missiles from countries in the Middle East and South Asia, but the reality is that the number of ballistic missile programs has decreased since the end of the Cold War. By 2005, Brazil, South Africa and most recently, Libya, have abandoned their missile programs.
- Nations pursuing ballistic missile programs are smaller, with fewer resources and limited technology at their command. Therefore, the possibility of their success is limited (Cirincione 2007:75). The decline in ballistic missiles is shown in fig 5.1

Fig 5.1: Overview of missile arsenals



Source: Cirincione, Joseph (2001) The Exaggerated ballistic missile threat by 2001 http://www.mi.infn.it/~landnet/NMD/cirincione.pdf: 27

Joseph Cirincione said that the reports of the US assessing the missile threat incorporate 50 states while the reality is that 48 states possess missiles or have missile programs. The missile threat was advanced by at least 5 years of the

possible date of rogue states long range deployment (Cirincione 2007: 75). The report of National Intelligence Council (NIC) said:

> Our assessments of future missile developments are inexact and subjective because they are based on often fragmentary information. States with emerging missile programs inevitably will run into problems that will delay and frustrate their desired development timelines. The impact of these problems increases with the lack of maturity of the program and depends on foreign assistance at this stage of their development efforts. Most emerging missile states are highly dependent on foreign assistance at this stage of their development efforts, and disturbance of the technology and information flow to their programs will have discernible short term effects (Foreign Missile Developments and the Ballistic Missile threat through 2015:1).

Let us examine factual positions. Iran has acquired assistance from North Korea for developing the Shahab series of missiles. North Korea carried out an unsuccessful test of the No-Dong missile in 1998. It was discovered that the No-Dong could carry a payload only of 100-200 kg, which infers that this payload is considerably less than the amount needed to carry nuclear weapons. This also means that this missile could carry only small amounts of chemical and biological weapons, which are not adequate to inflict a large amount of mass-casualties. As Iran has obtained the technology of Shahab-3 from North Korea's No-Dong, the reliability of this missile is not very high. It seems neither Iran nor North Korea have been able to develop this technology (Kumar 2007:80).

Besides, there are several technological limitations of Iran's ballistic missile program. These include:

1) Iran has still to develop a successful stage separation technology. Iran has developed the Shahab-3 single-stage missile but has not carried out the multi-stage rocket test. Shahab-3D consists of liquid fuel in the first stage and solid fuel in the second stage but the test of Shahab-3 D failed in September 2000.
2) Iran needs to develop the propulsion system for an ICBM. The current propulsion system of Iran's Shahab-3 and Shahab-4 is not satisfactory for an ICBM.
3) Iran does not have the re-entry vehicle and guidance systems to conduct successful attacks on enemy targets. It also does not have the capability to carry out missile attacks.

4) Iran's liquid fuel missile program is such that it takes a long time to prepare before launch. As a result, this increases the vulnerability of missiles and slows down the reaction time (Kumar 2007:80).

Therefore, Iran itself is exaggerating its missile threat so as to threaten its adversaries. It will take a longer period of time for development of efficient ballistic missile systems (Kumar 2007:80). This shows that the basis on which missile defence is being built is doubted. Ted Postal says:

> If the purpose of a NMD is to protect the US from North Korea missiles, why is the world most advanced tracking and missile radar about to go online at the Northern tip of Norway instead of Northern Japan? Russia and China will be constantly concerned that the US will evaluate, expand and modifying their missile kill interceptors. Both Russia and China are under no illusions about the US agenda but America is lying to the rest of the world, including its own population on using North Korea as a camouflage to disregard its true intentions (Postal 2000).

The question arises whether the threat of ballistic missiles to the US or its allies is real? The genuine danger to the US and to the international community is not from ballistic missiles but from cruise missiles. Cruise missiles are not considered seriously and BMD is unable to detect and intercept them. Therefore, the reason behind building of BMD is tenable. It is unlikely that the US deterrence is in danger due to ballistic missiles. In fact, building of BMD could lead to the development of large-scale offensive weapons, which could put the US deterrence in danger.

Further, there are other threats that cannot be dealt with by deployment of BMD. BMD cannot protect the US or its Allies against the threat of suitcase bombs. BMD cannot deal with nuclear devices planted inside planes, boats or cars; cannot protect from threats similar to 9/11; and cannot deal with biological and chemical attacks. Although, in theory, it is correct that the post-Cold War threats of missile technology and WMD do argue strongly for effective missile defence systems but the reality is that BMD would become obsolete as soon as it is deployed. The reason is that new technologies advance very quickly. These new technologies will clearly find new mechanisms for inflicting WMD on the US. Also, NMD will encourage the proliferation of nuclear weapons as countries will begin arms race to protect their deterrence.

5.1- Threat of Cruise Missiles and Cruise Missile Defence (CMD)

According to Federation of American Scientists (FAS): "Cruise missile is an unmanned self-propelled guided vehicle that sustains flight through aerodynamic lift for most of its flight path and whose primary mission is to place ordnance or special payload on the target" ("Cruise Missiles", Federation of American Scientist 2007). Therefore, a large number of third world countries are turning towards procurement of cruise missiles. NIE-95 19 has mentioned about threats posed by cruise missile proliferation. It was stated that development of ballistic missiles is relatively complicated and involves discrete sequential steps, time and skill. Also, testing of ballistic missiles is difficult and the international community could detect it easily. On the other hand, cruise missiles are less detectable because there is no need to test large-scale rocket mortars. NIE 95 also noted that potential proliferators would use cruise missiles for regional war fighting and could launch them from ships to threaten the US (NIE 1995). A report by the US Congressional Research Service states:

> In contrast to ballistic missile proliferation, cruise missiles present a particular challenge for monitoring and control because they exploit technology that is well understood and well established in the civil aviation industry. Missile airframes, navigation systems, jet engines, satellite maps, and mission planning computers and software all can be purchased on the commercial market. Cruise missile technology hides in plain sight-making it difficult to identify a military program (Bolacom and Squassoni 2002:2).

Another concern is the ability of cruise missiles to carry chemical and biological weapons towards their targets. These kinds of weapons are most effective when disseminated into low stream and at low altitude. Thus, cruise missiles are excellent carriers for disseminating chemical and biological weapons. Cruise missiles can carry conventional high explosive warheads, cluster munitions or fuel air explosives (Gardner 1999:18).

Today, 70 countries possess cruise missiles, out of which 40 of them are developing countries (Gromley and McMahon 1996: 23). Among them are some rogue states which are considered as direct threats to the US. North Korea has land based SSC-2b, HY-1 Silkworm and HY-2 Silkworm. Iran too has Chinese HY-2 Silkworm and Ji-82. Iranian government also states that cruise missiles like Raad are under development. Above all, China has a bulk of cruise missiles and is also responsible

for the proliferation of cruise missiles in the Middle East and Pakistan (Mahnken 2005: 18).

There are two main reasons for proliferation and use of cruise missiles against the US deployed forces in Iraq (1991 and 2003). First, adversaries have seen that the US missile defence program has a poor performance especially in intercepting cruise missiles. This has been reflected during Gulf War I and II. In 2003, the Patriot missile defence program faced problems in dealing with cruise missiles and UAVs. Therefore, it encourages the enemy to use cruise missiles as the US has no proper defences against it. Second, the American adversaries are likely to appreciate the operational advantages of combining cruise and ballistic missile launches so as to maximize the probability of penetrating even best of defences of the US. Converting UAV or small airplanes into cruise missiles offer attractive and cost-effective methods to adversaries. When these are combined with more expensive and sophisticated ballistic and cruise missiles, it raises the stakes enormously for American missile defences (Gromley 2004).

In order to deal with the threat of cruise missile, the US decided to develop CMD. The National Defence Authorization Act for FY1996 called on the DOD to take an initiative to develop CMD (Hichkad and Bolkcom 2004: 1). The Defence Department Joint Theater Air and Missile Defence Office were given the responsibility for CMD. Unfortunately, the US has not given so much importance to CMD as compared to BMD system because cruise missile presents an operational challenge (Missile Defense Update 2006). An effective CMD is required to perform a series of military tasks called the 'kill chain'. The actions to be performed are:

I. Surveillance radars must detect manned and unmanned aircraft, including cruise missile.
II. CMD must be able to track the aircraft especially UAVs along its course.
III. It should be identified that whether the object is a cruise missile or a friendly or neutral aircraft. This process is called as combat identification.
IV. The next step is the decision to engage cruise missile either by naval, ground or airborne platforms. This step includes finally intercepting and neutralizing the cruise missile with weapons (Hichkad and Bolkcom 2004: 2).

However, currently, the US lacks the capacity for tracking and intercepting the cruise missile threat. The reasons are:

I. Surveillance systems are ground based, with limited detection against low altitude targets.
II. Interception and engagement capabilities are based on widely dispersed fighters, with unrealistically long reaction times against asymmetric threats.
III. Alert air defenders use rule of engagement based on visual identification which is extremely insufficient method, especially in bad weather or at night (Lambert 2003).

Therefore, the US has no appropriate and reliable defences against cruise missiles threat. Cruise missiles are likely to be a weapon used by rogue states or terrorist groups against the US. Thus, the US has to deal with the challenge of cruise missiles proliferation and should look beyond the development of BMD so as to address the real threat of proliferation. Similarly, the US BMD is unable to deal with unexpected and sudden threats such as 9/11. This will continue to pose threats to the US deterrence in future. As explained earlier, the US BMD would lead to the offensive-defensive race of weapons, which would further decrease US, deterrence rather than enhancing it. Following are the problems of missile defences, which are not conducive to international peace:

5.1A- It would increase the problem of missile proliferation: If the international community and adversaries are convinced that missiles can penetrate defences, they would increase the proliferation of missiles. The adversaries and competitors of the US will start investing their time and resources into offensive programs, thus resulting in greater number of sophisticated offensive missile programs.

5.1B- It would reduce crisis stability: If the defender is able to make such offensive weapons which could penetrate the missile defences of an opponent, it will increase the incentive for an offender to strike an opponent missile before they are launched. Countries like Russia and China have developed capacities for delivering multiple warheads from a single missile, which have further increased danger for preemptive strikes.

5.1C- It would complicate deterrence: The development and proliferation of offensive weapons will complicate the deterrence of the US. Further, an enemy would try to deal with the US by development of cruise missiles or suitcase bombs (Speier 2007).

5.2- International engagement towards dealing with the threat of Missiles

The situation could lead to the offensive-defensive arms race in which the US efforts to dominate the scenario by developing BMD while the other states feel left out is profoundly dangerous. The absence of any missile control treaty has made the situation much worse. Amb. David Smith, speaking on the importance of missile non-proliferation regime said:

> A successful non-proliferation regime could decrease the urgency of more and more advanced defenses, offense-defense technological challenge, time to obsolescence, numbers and types of threatening offensive missiles and diversity of likely adversaries (Isby 2003).

There could be three important ways to address the proliferation of missiles, both ballistic and cruise missiles. These are outlined in the following passages:

5.2A- Treaty Regime

Control on proliferation of missiles and further restrain on the development of missiles can be attained by the regional and international treaty. This includes global missile Non-proliferation treaty, global IRBM ban, regional missile ban etc. Although, there has been no such treaty agreed at the international level (Mistry 2004:172). It has been said:

> A non-discriminatory and comprehensive treaty prohibiting development, production and acquisition of ballistic missiles would need to be pursued single-mindedly along an incremental time-bound route. Russia, the US, China and perhaps even Pakistan and some other countries may not find a zero ballistic missile regimes acceptable. A global anti missile crusade for a multinational negotiated treaty may not constitute stray-eyed idealism but be an idea whose time has come (Kak 1999).

Such a global non-proliferation regime can be based on the model of Zero Ballistic Missile (ZBM) program as anticipated by President Regan or Global IRBM ban. Zero Ballistic missile consists of four stages:

Stage I: The US and Russia would agree to reduce the number of deployed missile forces beyond START II treaty.

Stage II: An international missile conference which addresses the concerns of all interested countries for missile proliferation, export controls and international space cooperation.

Stage III: Here, ZBM regime would be designed and a ballistic missile free zone would be negotiated.

Stage IV: All states having major missiles, such as the US, Russia, UK and France, would agree to destroy all existing missile arsenals not later than agreed upon year. (Holton, Lumpe and Stone 1993: 379-396).

Therefore, the ZBM regime would not only deal with the proliferation of missiles but will also provide comprehensive elimination of existing arsenals. Therefore, it is non-discriminatory in nature. Another proposal for the global non-proliferation regime could be Global IRBM ban based on the model of the INF treaty. INF treaty was signed between the US and the Soviet Union in 1987. This treaty bans all US and Russian land based cruise missiles and ballistic missile systems with a range of 500 to 5,500 kms. Therefore, this treaty covers short range missiles and intermediate range missiles (Graham and Mistry 2006). Such a ban on intermediate range missiles, multiple range systems and new missiles appear feasible not only for P-5 powers, but also for regional missile powers (Mistry 2001: 173). It would not only eliminate threat of rogue states missiles but will also maintain the status quo regarding large-scale weapons with Russia and China (Graham and Mistry 2006).

5.2B- Strengthening Export Control Regime: Missile Technology Control Regime (MTCR)

MTCR was established in 1987 to deal with the problem of proliferation of WMD. It now has 33 members. The aim of MTCR was to set up common export policies so as to control the spread of technology. Such restrictions would enable another country to acquire missiles that could deliver a payload of more than 500 kgs, with a range of more than 300 kms (Payne 1995). The MTCR Annexure was divided into

two categories. Category I consists of the complete rocket, UAV and their sub systems. The trading of these items is totally restricted. Category II consists of propellant systems, launch and ground support equipments as well as material for construction of missiles (Kimball and Bose 2004). The transfer of these items is less restricted and the following are kept in mind while transferring any such items:

i. Whether the intended recipient is pursuing or has ambitions for acquiring WMD
ii. The purpose and capability of intended recipient missile and space programs
iii. The potential contribution the proposed transfer could make to the intended recipient towards development of missiles or WMD
iv. The credibility shown by the intended recipient towards the purpose of purchase.
v. Whether the potential transfer violates any other international treaty (Kimball and Boese 2004).

But there are some limitations of MTCR and therefore it has been unable to deal with the proliferation of missiles. These limitations are mentioned below:

- MTCR has been unable to deal with the threat of cruise missiles and UAV.
- MTCR has helped to facilitate missile development and trade among its participants. After becoming a member of MTCR, Ukraine received a concession from that as a participant; it could retain its missiles with a range of 500 kms. South Korea also received the US approval for 300 km-range of missiles and made a case for 500 km-range of missiles for its SLV program (Mallik 2004: 84-85).
- There is lack of transparency and legal mechanisms in MTCR. There are no multilateral mechanisms to check non-compliance and to check the ability and will of members to comply with the agreements of MTCR.
- MTCR did not offer any incentive to countries to follow the rule of non-proliferation of missile technologies. The countries see no incentive in joining MTCR (Smith 2002).

MTCR address only the supply-side of the proliferation problem and ignores the demand-side. Missiles are acquired for a variety of reasons such as

regional security threats, prestige issues or to maintain deterrence. Unless the demand sides are addressed, the problem of missile proliferation cannot be solved.

Another problem is that many active missile development states remain outside the MTCR, like, North Korea, Iran, India and Pakistan. Unless all the potential suppliers are part of MTCR, the problem cannot be solved. Also, there are cases of violation, especially by China. China has violated MTCR regime by proliferating M-11 missiles.

MTCR is unable to control new technologies like cruise missiles. (Yuan 2000).

Therefore, there are many shortcomings in the present export control regime and there is a need to enforce missile export regime. MTCR should expand its control regimes and must include small range missiles, scuds and cruise missiles. As

5.2C- Confidence Building Measures (CBMs)

The aim of CBMs is to reduce the tensions, anxiety and suspicion among the parties by making the parties' behavior more predictable (Maiese 2003). Parties build missiles due to their security concerns. Effective CBMs will reduce such concerns, therefore consequently reducing the incentives for making missiles. Such CBMs could start from measures like launch pre-notification and observations measures and unilaterally, bilateral or multilaterally negotiated no first use policies. This could be followed by de-alerting, de-targeting and establishment of missile free zones. Measures should be taken to build CBMs among bilateral adversaries such as India and Pakistan (Yuan 2000). Therefore, CBMs can play an important role in addressing the problem of missile proliferation. In fact it has been said that CBMs should be combined with MTCR so as to deal with the problem of proliferation of missiles.

There are two approaches to apply CBMs, Traditionalist and Transformationalist. Traditionalist approach aims to make conflict situations less unstable without changing the underlying causes of the conflicts. If this approach is applied to the

problem of missile proliferation, it will encourage openness about missile capabilities and launches in order to lessen the danger of surprise attacks and misinterpretations. Transformationalist approach believes that CBMs possess the capacity to change the terms on which states interact rather than to ameliorate them. It aims to build trust and confidence among the members (Smith 2001: 29).

Global Control Systems (GCS) and Hague Code of Conduct, which is also known as IcoC, were introduced as CBM measures to control spread of ballistic missiles. GCS was formed to reduce the danger of using missiles in peace times, including the risk of misperception by other states of launches conduct, to develop norms of conduct in the field of missiles and to encourage states to voluntary follow up these norms and to renounce the possession of WMD (Fedorov 2002: 33). Global Control system consists of two important blocks: establishment of non-proliferation regime and transparency regime.

However, the present proposed CBM measures have several shortcomings. The GCS, although could present a comprehensive approach to address the problem of missile proliferation, it is ambiguous. In view of safeguarding the security interests of states, to halt the development of missiles is neither political nor military feasible. Another criticism of the GCS is that rogue states can legitimize their missile program by being part of GCS. (Mizin 2005:28). The US Under Secretary of State John Bolton said about the Hague Code of Conduct:

> [I]t is no secret that the ICOC has its limitations. For example, in taking on the political commitment pursuant to the ICOC to exercise maximum possible restraint in the development, testing and deployment of ballistic missiles capable of delivering weapons of mass destruction, the United States -- like other countries -- understands this commitment as not limiting our right to take steps in these areas necessary to meet our national security requirements consistent with U.S. national security strategy (Bolton 2002).

Countries like India, Pakistan, South Africa, and Brazil were invited to be part of code so as to reap the benefits of the peaceful use of space technologies. But, apart from South Africa, none of these countries have agreed to be part of the Code. The heavy reliance of code on CBMs has also been criticized. Israel said that CBMs could be useful in preventing missile proliferation but should be started at a regional level rather than at a global level. Also, there have been no provisions for incentives for joining the code of conduct to encourage countries like North Korea, Iran etc. These countries see no reason for halting their ballistic missile programs and to be a part of

norm against ballistic missiles (International Code of Conduct against Ballistic Missile Proliferation 2008).

The objective of the code should be to delegitimise the possession of missiles and thus make ownership of missiles a stigma and breach of the international law. But there has been no such mention in the code. Code mentions that proliferation of missiles is a challenge, and aims to deal with it. It does not make any mention of the reversal and attainment of missile disarmament. This also means that those countries which possess missiles will continue to possess them in the future as well. Under such conditions, other states will continue to fear the missiles developed by other states and would not be prepared to give up their programs. The other important thing to be noted is that this code or GCS does nothing to deal with new emerging missile threat, i.e., cruise missiles. Unfortunately, none of the international conducts paid attention to it. Therefore, there is need to strengthen CBM efforts. Some of the CBMs could include ban of flight testing, introduction of ban on flight testing and no-deployment zone etc (Smith 2002).

5.3- Missile Defence or International Control on Proliferation of Ballistic Missiles?

The reliability of the international community on the existing non-proliferation regimes has been reduced. The recent events show that China is still proliferating missile technology and missile components to Pakistan and North Korea, despite being a part of MTCR. There remain many countries outside the non-proliferation regime that remain active in building nuclear weapons and their delivery vehicles which continue to haunt the security of those countries which are part of arms control or restrict themselves from developing armaments. Many countries refuse to be part of arms control and disarmament process because of their discriminatory nature. For e.g. India has refused to be part of NPT and CTBT because they retain the nuclear weapons of P-5 states without the assurance of nuclear disarmament, and prevent other countries from developing nuclear weapons. There is need to have renewed emphasis on arms control and disarmament measures.

The US should understand that BMD will neither add to international security nor to its deterrence. It would lead to offensive-defensive race of weapons and more proliferation of ballistic missiles and countermeasures. As mentioned earlier, Russia and China are concerned about the BMD program of the US and have voiced their concerns regularly. China, for example, has threatened that it will not sit silently, but will respond to the US with armament buildup (Ekholm 2000). At the same time, the belief of the US and the Soviet Union that nuclear weapons, ballistic missiles and ABM system add to the deterrence of their respective countries has set an example for other countries to create such systems. Countries like India, Pakistan, North Korea and Iran have either come up with their ballistic missiles and nuclear weapons or are trying to come up with their weapons. Israel has the most advanced nuclear weapons and missile program outside the P-5 states, but is closely tied to the US. Therefore, there have been no international pressures on Israel for giving up its missile or nuclear weapons program (Lichterman, Mian, Ramana and Scheffran 2002: 1).

BMD program aims to limit only ballistic missiles so as to strengthen US deterrence. But ballistic missiles are not the only means of delivery. There are other platforms used like bombers, aircraft carriers, ships, submarines armed with long-range missiles etc. Besides this, there are suitcase bombs to deliver radiological weapons which could also be used easily by terrorist groups (Lichterman, Mian, Ramana and Scheffran 2002: 1) Therefore, BMD does not offer a comprehensive framework to strengthen the US deterrence. Rather, the focus should be on comprehensive treaty regime, norm building, and CBMs to address the problem of missile proliferation. This will not only stop proliferation of missiles but will also protect the US and its allies from missile threats. In view of this, the debate about role of BMD in the US nuclear deterrence needs completely a new approach. The emphasis should be shifted on the Arms Control and Disarmament efforts and to adopt a non-discriminatory approach instead of relaying on BMD which in turn escalates international arms race against the interest of the US deterrence.

Annexure I

Relationship between Deterrence and BMD during the Cold War

Type of Deterrence	Meaning of Deterrence	Relationship between Deterrence and BMD
Massive Retaliation	In case of a war or conflict, the US is bound to retaliate with nuclear weapons. To maintain this deterrence, the US maintains reliable and credible nuclear weapons.	Both the US and USSR maintain high levels of nuclear weapons and this prevents conflict between the two superpowers. Introduction of BMD would degrade first-strike capability of the other side. As a result, both sides would engage in developing offensive weapons so as to degrade the other's defensive measures.
Flexible Response	Under this doctrine, the US would be open to various options and would respond by using conventional and nuclear weapons, depending on the circumstances. This doctrine was adopted to deal with the USSR's conventional attack.	Flexible response established positive relationship with deterrence. Mac Namra presents two ways under flexible response: offensive and defensive. In case of any military attack of USSR on the US, the US would destroy all the military installations of USSR and would protect its own civilian and industrial population by deployment of BMD.
Mutual Assured Destruction	Both sides would retain high confidence in their retaliatory capacities. The assumption was that attack by one side could lead to escalation of conflict and ultimately use of nuclear weapons. The use of nuclear weapons would produce catastrophic results for both the US and USSR. This fear prevents war between the two adversaries.	There was a negative relationship between BMD and MAD. BMD would reduce first-strike capability of other states. Other states would respond by development of such countermeasures which would penetrate the missile defence of the US. As a result, deployment and testing of BMD was limited with the ABM Treaty of 1972.

Annexure 2

Relationship between Deterrence and BMD in post-cold war period

	Yes	Counterarguments	No	Counterarguments
Whether the US BMD program could enhance deterrence?	It is not possible to deter rogue states like North Korea, Iran and Iraq	Rogue states are not as irrational as the US assumes them to be. North Korea agreed to give up its nuclear and missile program in exchange for economic and technical help from the US.	States like Russia and China would feel threatened and therefore develop offensive missiles and countermeasures to penetrate BMD.	The US has repeatedly mentioned that BMD is meant to protect the US and its allies from missiles of rogue states and non-state actors. It does not aim at Russia and China. Also, 80 % of Russia nuclear forces could survive the US first attack and possess the capability to penetrate defences.
	Rogue states are developing ballistic missiles which could threaten the US or its allies	Rogue states are economically and technically backwards. They do not yet possess the technology to carry out successful missile attacks.	BMD technology is not effective in dealing with countermeasures.	Missile defence proponents addressed the problem of countermeasures by proposing layered missile defence system. Layered BMD system will intercept missile at three stages: boost phase, midcourse phase and terminal phase. It is designed to provide more robust answer to the problem of countermeasures.
	If states realize that their attacks will not succeed, they would deter from attacking the US or its allies.	States will develop other means to threaten the US such as suitcase bombs, anti-satellite weapons etc.	BMD cannot deal with cruise missiles.	The US is developing Cruise missile defence (CMD) so as to address the threat of cruise missiles.

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