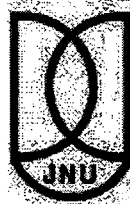


Missile Defence and China's Strategic Force Modernisation

*Dissertation submitted to Jawaharlal Nehru University
for award of the degree of*

MASTER OF PHILOSOPHY

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DECLARATION

I declare that the dissertation entitled “**Missile Defence and China’s Strategic Force Modernisation**” submitted by me in partial fulfillment of the requirements for the award of the degree of **Master of Philosophy** of Jawaharlal Nehru University, is my own work. The dissertation has not been submitted for any other degree of this University or any other university.

M. S. PRATHIBHA

CERTIFICATE

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

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ABBREVIATIONS

ABM	Anti-Ballistic Missile
ABL	Air-Borne Laser
ALTBMD	Active Layered Theatre Ballistic Missile Defence
ASAT	Anti – Satellite
BMD	Ballistic Missile Defence
BMDO	Ballistic Missile Defence Organisation
CNP	Comprehensive National Power
CALT	Chinese Academy of Launch Technology
C2BMC	Command, Control, and Battle Management and Communications
CD	Conference on Disarmament
CEP	Circular Error Probability
CMC	Central Military Commission
C4I	Command, Control Communications, Computers and Intelligence
CTBT	Comprehensive Test Ban Treaty
DOD	Department of Defense (United States)
DF	Dong Feng
EMP	Electro Magnetic Pulse
FMCT	Fissile Missile Cut-Off Treaty
GBI	Ground Based Interceptor
GMD	Ground-based Mid-course Defence
GPS	Global Positioning System
GPALS	Global Protection Against Limited Strikes
GLONASS	Global Navigation Satellites
GIFC	Global Integrated Fire Control
HQ	Hongqi
HPM	High Powered Microwave
ICBM	Intercontinental Ballistic Missile
IRBM	Inter-mediate Ballistic Missile
JDA	Japanese Defense Agency
JSDF	Japanese Self-Defense Forces
JASDF	Japanese Air Self-Defense Forces
LRS&T	Long-Range Surveillance and Track
MEADS	Medium Extended Air Defence System
MARV	Manoeuvrable Re-entry Vehicle
MIRV	Multiple Independently Targetable Re-entry Vehicle
MRV	Multiple Re-entry Vehicle
MAD	Mutually Assured Destruction
MSDF	Maritime Self-Defence Forces
MDT	Mutual Defense Treaty
MDA	Missile Defense Agency

MDA	Missile Defense Agency
MRBM	Medium Range Ballistic Missile
MTCR	Missile Technology Control Regime
NFU	No-First Use
NSA	Non – Security Assurance
NPR	Nuclear Posture Review
NATO	North Atlantic Treaty Organisation
NMD	National Missile Defence
NAD	Navy Area Defence
NDPO	National Defence Programme Outline
NPT	Non-Proliferation Treaty
NTW	Navy Theater Wide
PAC#3	Patriot Advanced Capability – 3
PLA	People’s Liberation Army
PLAAF	People’s Liberation Army Air Force
QDR	Quadrennial Defense Review
SM-3	Standard Missile – 3
SBX	Sea-Based X-Band
SAM	Surface-to-Air Missiles
SALT	Strategic Arms Control Limitation Talks
SAF	Second Artillery Force
SRF	Strategic Rocket Force
SDI	Strategic Defence Initiative
SDIO	Strategic Defence Initiative Organisation
SRBM	Short-range Ballistic Missile
SLBM	Submarine Launched Ballistic Missile
SBIRS	Space-Based Infra-Red System
TMD	Theatre Missile Defence
TRA	Taiwan Relations Act
TBM	Tactical Ballistic Missile
THAAD	Theatre High Altitude Area Defence
TEL	Transportable Erector Launcher
UAV	Unmanned Aerial Vehicles
UEWR	Upgraded Early Warning Radar

INTRODUCTION

China is keenly observing the deployment of National Missile Defence (NMD) and Theatre Missile Defence (TMD) by the United States on a global scale. China perceives that the deployment of missile defence would undermine its strategic environment and affect its national security goals. China diligently works to enhance its stability in its strategic environment and considers strategic deterrence important for fulfilling its national security objectives. China's threat perceptions influence its strategic environment and induce changes in its behaviour towards perceived challenges.

The deployment of missile defence by the United States changes the way strategic environment operates. The use of ballistic missiles against the United States as an object of deterrence or coercion from any adversary is undermined. For China, the deployment of missile defence challenges China's use of its strategic missiles against perceived threats of nuclear coercion or intervention from the United States. In East Asia, the deployment of missile defence would affect China's security environment due to the involvement of states that are a concern to China.

China is modernising its own strategic forces to aid its national security objectives. Several determinants drive China's strategic force modernisation. It is driven by the need to strengthen its strategic deterrence, combined with its image as a major power, economic rise, and availability of technology in the market. China apart from its military modernisation attempts to shape the security architecture to satisfy its interests. China induces the changes by insisting on mutual security cooperation and warning against bilateral alliances. This regional diplomacy has gained momentum and has resisted in any overt coalition forming against China. Missile defence cooperation on the contrary has driven actors in the East Asian region to combine their operational activities. It increases the cooperation between alliance partners and the United States, in turn strengthens the alliance system – the one China attempts to weaken.

The nature of operating missile defences in itself changes the way defence planning, operational tactics and strategies are planned. States such as North Korea, Iran, and China have increased their ballistic missile developments raising concerns of the United States on ballistic missile threats. Thus, the United States is deploying a collage of missile defence systems attempting to give protection from missile attacks from North Korea and Iran.

Missile defence is a defence system that employs interceptors that intercepts an incoming missile and destroys it using hit-to-kill technology. A hit-to-kill technology uses the interceptor to collide with the incoming missile and destroying it upon collision using kinetic energy. To track the missiles and destroy, missile defence system uses satellite weapons to identify and X-band radar to track the missiles. The discrimination techniques of the missile defence components are significant as it helps to identify between decoys and warheads. Missile defence provides protection against ballistic missiles of any range depending on the configuration of the system. For example, TMD systems provide protection against short-range and medium range missiles, cruise missiles, and aircrafts.

The usage of missile defence addresses the role of defensive weapons and raises questions on arms control and proliferation. The evolving concept of joint operations gains momentum with the deployment of missile defence. Moreover, joint operations not only between forces but also between states effectuate complexity in warfare and military operations. The United States by deploying TMD systems in the Asiatic region might participate in joint operations with states against common threats.

Thus, the geography of missile defence deployment is not static. The dynamics of missile defence deployments though initially concentrated in East Asia is however acquiring wide-ranging objectives in Europe especially in Eastern Europe. The Iranian missile threat is driving-Northern Atlantic Treaty Organisation (NATO) allies to participate in US missile defence cooperation. The NATO Active Layered Theater Ballistic Missile Defense (ALTBMD), which is responsible for TMD in Europe might be integrated with the US system to provide protection to Southern Europe (Tauscher 2007: 10). The US system would become operational in 2011 and will be integrated to the NATO missile defence system.

The ALTBMD is a command and control system that will allow NATO nations to integrate various national weapons systems to defend alliance forces against ballistic missile threats of up to 3000 kilometres and would achieve initial operational capability in 2010 (Tauscher 2007: 10). Moreover, East European states such as Poland, Czech Republic are conducting talks regarding missile defence cooperation with the United States on a bilateral basis raising Russian concerns. The United States plans to move upgraded X-band radar to Czech Republic and deploy ten anti-ballistic missile interceptors in Poland. These developments demonstrate the manner in which missile defence deployments are acquiring wide-range support from various quarters, especially from Europe.

The region in particular concern to China is East Asia where the United States is actively deploying TMD systems. The TMD deployment in the East Asia region is important as it involves China. China's response to missile defence raises fundamental questions over its defence planning, nuclear options and warfare dynamics. The participation of Japan with the United States and the transfer of missile defence components to Taiwan by the United States present unique challenges to China. Its national security goals in the region such as reunification of Taiwan hinges on effective missile campaign by the Chinese in the Strait region. China is concerned about possible Japanese participation in the reunification of Taiwan. It perceives that Japanese Ballistic missile defence (BMD) combined with the US BMD forces would hamper Chinese missile campaigns.

Significance of the Study

The discourse on missile defence has emerged imperative as it raises several issues. The United States is the predominant power in the world system. The capability of the United States to shape the security architecture is immense. The United States has been engaging in wars in various theatres such as Gulf, and Afghanistan to protect its strategic interests. The ballistic missile development in third world countries, especially 'states of concern' has posed constraints on US foreign policy options. Missile defence offered options in case of failure of arms control efforts and diplomacy, offers the United States choice of pre-emption (Wilkening 2000).

The existing states having ballistic missile capabilities have benefited from arms control treaties such as the Anti Ballistic Missile (ABM) treaty. China has implicitly benefited from the ABM treaty as it allowed China to concentrate on its strategic modernisation on its own pace and preserve its deterrent capability. The deployment of missile defence by the United States alters the existing conditions of the nuclear environment. China would preserve its deterrent value in a nuclear environment dominated by missile defences. Thus, China would accelerate its strategic force modernisation or develop countermeasures in order to negate the strategic advantage that the United States has due to missile defences.

The deployment of missile defence is critical because of strong reactions from states like Russia and China. The reaction is harsh because China and Russia considers it to be the target of these systems. The study is significant as it investigates the responses by China, because it would have far-reaching impact on Asia-pacific security. It questions the utility of offence as a strategy in maintaining security. In order to guard its strategic interests and keep the commitments to its allies, the US perceives missile defences as an apt choice for lessening the threats from the ballistic missile developments in the region.

China perceives deterrence to be effective in its strategic security and survival of the regime. The case for missile defence positions 'defences' however undermines China's offensive capability against the United States. Due to missile defence, China might renege on its arms control agreements, accelerate its strategic force modernisation, and change its defence planning. Thus, assessing China's response would help in identifying the consequences of the deployment.

In order to deploy missile defence, the US rationalised certain assessments regarding US role and mission in the region. The United States perceived threats to its role as a stabiliser in the region and states acquiring ballistic missile to limit US response (Rumfeld Report 1998). In East Asia, the United States perceives the North Korean missile development as threatening to Japan and has the capacity to pose limits on US response in an event of a crisis. The deployment of TMD systems in East Asia has implications for China, which has its own security perceptions in the region. Beijing perceives that the deployment of missile defence is implicitly targeted against it. The

threat perceptions regarding missile defence would prompt China to engage in active changes in their security strategy. The study is significant as it assesses the possible changes and responses by China.

The responses to missile defence are most likely seen in China's military modernisation. China's military modernisation is influenced by its threat perceptions regarding its environment, perceptions about relative power capability of neighbouring states, and the US uni-polarity. Regional security concerns such as North Korean nuclear instability, Taiwan independence, and Japan's military role influences its military modernisation (Shambaugh 2005-06: 72-73). The US military presence and its bilateral alliance partnership with states also drive China's modernisation plans (Shambaugh 2005-06: 73). The deployment of missile defence in East Asia and its consequent impact on China is significant as it would shoulder changes in the pace and direction of its strategic force modernisation

However, there are several strategic, tactical, and operational challenges of missile defence. The development of missile defence system is expensive and effectiveness of the system is contested. The kill probability ratio of missile defence against ballistic missiles is not high and countermeasures further complicate the operation. China has initiated several research studies on developing countermeasures. China is likely to inculcate these countermeasures to its ongoing strategic force modernisation.

Rationale of the Study

This study draws out the ramifications of deployment of missile defence in East Asia and US homeland. It gives detailed analyses of the probabilities of active deployment, its consequences on regional players, and likely responses from China. The underlying basis is that the deployment of missile defence affects China's security goals crucial in maintaining its territorial integrity and sovereignty. Deterrence is essential – not only contributing to Chinese state survival and but also inducting confidence in managing its territorial objectives. Consequently, in the region China's military modernisation receives scrutiny, resulting in reactionary responses from other states.

The presence of US troops, its assistance to its allies, especially to Taiwan are some of the contentious issues in China, where it views these developments as a containment strategy to thwart Chinese ascendancy. However, China's active diplomacy and increased military capabilities has placed China in an advantageous position and given opportunities to manoeuvre despite systemic constraints. Missile defence however, sets China back to its defensive position, negating its strategic deterrence, thus initiating an imminent Chinese response. These responses are significant since it would affect the strategic landscape of East Asia.

Chinese reaction would be severe if it foresees problems in its reunification plans. Missile defence may prompt the Chinese to speed up reunification plans before it becomes operative. Missile defence provides the United States to consider pre-emption as an important strategy to resolve the conflict. Moreover, Japan's involvement in TMD cooperation further complicates the scenario. China is deeply suspicious of Japan's intention in acquiring TMD technology and perceives that it would interfere in its reunification plans. The United States is attempting to strengthen the security alliance in East Asia in order to limit China's influence. China's responses to missile defence would factor this broader prospect. Thus, the developments in this field are important since these very changes shape the future strategic security environment of Asia.

The Chinese response and threat perceptions are taken seriously by the United States as it provides options to assess Chinese behaviour and reactions. The study is relevant in terms of assessing potential consequences in the region due to the deployment of missile defence, especially in terms of China.

Theoretical and Conceptual Framework of the Study

The advent of nuclear weapons revolutionised warfare and states were concerned with its security in the nuclear age. Strategic security analysts proposed nuclear deterrence to avoid nuclear annihilation and to make war unprofitable. Deterrence theory assumes that second-strike capability is sufficient to ensure that states would be deterred to attack because of the threat of retaliation. Deterrence theory assumes that actors are rational and could do cost-benefit analyses and react according to it. The issue of missile defence has raised the relevance of deterrence theory in the post-Cold war era and initiated policy

debates in the United States. Classical deterrence theorists say that missile defence system undermines deterrence because it affects the opponent's second-strike capability (Quackenbush 2006: 534). The opponent would perceive that the state is developing missile defences to increase its first-strike capability and to undermine the retaliatory strike. Several analysts view the current missile defence programme through the lens of classical deterrence theory arguing that the deployment of missile defence would have consequences on the second-strike capability on other states resulting in further insecurity and arms race.

Deterrence is effective if the threat of nuclear retaliation is credible and the actors are rational and acknowledge those credible threats. Missile defence enthusiasts portray that post-Cold War actors have different sets of values than the United States and willing to take risk than that of Soviet Union. In case of China over Taiwan independence, Payne argues that classical deterrence theory would fail, as China would not be deterred by retaliatory threats (Payne 2001). This is because in case of Taiwan, China associates Taiwan reunification to the survival of the regime, thus having higher stakes than the United States in the conflict and more inclining to accept the risk of retaliation (Payne 2001). Missile defence proponents argue that rogue states would take abnormal risks for the survival of the regime.

To deter a state, the credibility of the threat is important. Rational deterrence theory assumes that the actors are rational. The theory also assumes that the actors are free of domestic constraints, risk-prone gain maximisers, and be able to identify themselves as defenders or challengers. Criticisms were mounted on the assumptions that leaders are rational and therefore recognise the dangers of nuclear war and escalation (Lebow and Stein 1989). It does not also account misperceptions regarding threats and ideological and domestic imperatives that compel states to take risks. Deterrence does not explain whether these assumptions explain an existing reality or directions that one has to take to avoid nuclear war.

Powell (2003) argues that brinkmanship defines nuclear crisis wherein the defender has to escalate the risk forcing the challenger to quit. He argues that if the second strike capability of a state is credible, and then the state would be prone to be resolute in escalating the crisis (Powell 2003). The more the state wants to prevail over its

adversary the more it maximises its risk for nuclear fallout. Powell (2003) argues that the NMD would make the United States resolute and more willing to take risk. However, the risk propensity would depend upon the effectiveness of the system. Unless NMD has sufficient efficiency, these conditions cannot be achieved.

In the study, China perceives the combination of offence and defence by the United States as threatening to their deterrence. The implication being missile defence affects the deterrence capability of other states, which is considered necessary for a stable nuclear environment. Lebovic (2002) argues that the inclusion of defence would prompt the Chinese to view that the United States would act pre-emptively and China would be unable to mount a credible retaliatory attack up against missile defences (Lebovic 2002: 462). Whether formally or effectively then, Chinese launch authority might be decentralised to guard against a knock-out blow to the central command or China might plan to launch missiles quickly with limited warning or evidence of an attack (Lebovic 2002: 462).

In case of China, the proponents of missile defence point out that China's offensive capability is increasing and its military modernisation is geared towards preventing US intervention. The deployment of missile defence would give the United States the freedom of action in the US foreign policy goals or prevent regional adversaries from attaining capabilities to prevent US intervention. The study analyses the Chinese perception of missile defence as a destabilising factor to its deterrence and security goals in the region. The analyses show that China would strengthen its deterrence and security in a nuclear environment dominated by missile defences. However, it is not clear whether China is willing to survive a nuclear war in order to change the *status quo* or the United States has stakes high enough in Taiwan to intervene and prevail in order to defend the *status quo*.

Objectives of the Study

Though missile defence is a global venture, it has ramifications for China. China uses its strategic deterrence against the United States to prevent possible nuclear blackmail or military interference in case of a conflict over Taiwan. China has approximately 30 or

more¹ (Shambaugh 2005-06) Intercontinental Ballistic Missiles (ICBMs). China has not disclosed the exact number of ICBMs – it neither denies nor accepts these numbers. China relies on the uncertainty of these numbers as a part of deterrence. China deduces that even if the US derives a pre-emptive attack, the possibility of the survival of one or two missiles is sufficient to initiate a counter retaliatory attack.

The uncertainty regarding the number of strategic missiles would deter the United States from launching a pre-emptive attack on China because the United States would be unsure of whether it has destroyed all the missiles. The uncertainty that there would be at least the survival of one or two missiles would provide sufficient deterrence to Chinese in offsetting an attack from the US. China by successfully launching Submarine Launched Ballistic Missile (SLBM) has secured a credible second-strike capability.

Thus, China's modernisation is intent on making the missile much more manoeuvrable and credible to survive a first attack. China perceives that the deployment of missile defence sufficient to protect the United States from China's remaining ballistic missiles on a retaliatory strike. This would increase the possibility that the United States would initiate a pre-emptive attack. Thus, the deployment of NMD would prompt the Chinese to accelerate the modernisation of its strategic force.

Apart from the military implications, the political implications are significant. China perceives that Japan's involvement in the TMD programme would pave way for it to play an extended role in the region. China is concerned that Japan would become a peer competitor in the region. China also presupposes that the relation between Taiwan and the US would become a *de facto* military alliance if Taiwan cooperates in the TMD programme or receives TMD technology. It perceives that then the status of Taiwan would be elevated triggering momentum towards independence.

Moreover, the alliance system would strengthen the systemic space constructed by the US, which excludes China. The strengthening of this space would in turn hamper Chinese attempts to influence the policies of the region. If China were constrained in the region, questions would arise about its ability to manage affairs in the region thus its influence would wane with the rise of other regional actors. If China views these conjectures to be

¹ Different estimates assess different figures regarding China's ICBM count. Jane's Intelligence assess that as of 2007 China has around 44 ICBMs. IISS estimates that China has 46 ICBMs in its inventory.

imminent then it might execute its security objectives in the Taiwan Strait before missile defence architecture becomes operational.

However, China's response to these developments has been cautious. It has chosen diplomacy and stability of the region over open confrontation with the US.

It is important to note that the regional actors and other countries are worried about its rise, would be interested in China's reaction. China had repeatedly assured the neighbours that its rise would not be counterproductive to other states. Any overt balancing by the Chinese would also result in strong American reaction. China attempts to avoid any open confrontation with the United States, as it is counterproductive to Chinese interests.

Thus, any reaction would address the issues without upsetting the delicate balance of the US and its strategic interests in Asia. China documents the recent 'unilateral use of force' by the United States to preserve regional stability thus achieving to protect its strategic interest. China is concerned that the United States would emulate the same strategies in East Asia. China's security objectives are crucial when it involves question on its territorial integrity and sovereignty.

If China perceives the deployment as a threat to its deterrence, it would need further testing of nuclear weapons and modernisation of nuclear warheads to test technologies to further modernise its nuclear arsenal and to improve its technology to evade missile defence. China's countermeasure to evade missile defence includes development of decoys, increasing its nuclear and missile arsenal and developing multiple independent re-entry vehicles and other technical countermeasures. These developments would also bring questions of future Chinese support to major arms control agreements. China might also not cooperate with the United States on non-proliferation challenges in Iran and North Korea. Missile defence might also affect nuclear strategy, minimum deterrence, and No-first use (NFU) policy. The possible acceleration of its strategic force modernisation would also cause concern in the neighbouring states.

The study details how BMD evolved in US strategic thinking and the Bush Administration's efforts to revive it. The study entails various missile defence architectures that are developed for US homeland and in the East Asian region. The study investigates the implications that China faces for its security due to the deployment of

missile defence by the United States. The deployment of missile defence poses significant threat to China's security environment, its strategic deterrence, and its security objectives in its neighbourhood.

The study investigates the reasons as to why China regards missile defence to be detrimental to their security. The study illustrates the regional implications for China due to the deployment of missile defence in East Asia. It also analyses the implications for the East Asian region by assessing the repercussions due to the involvement of regional actors in the missile defence programme. It specifically analyses the role of Taiwan and Japan, the most crucial actors in the East Asian region for the Chinese security. The study assesses the countermeasures that the Chinese military have adopted to counter missile defence plans. The study also examines the political consequences and changes in the nuclear strategy due to the deployment.

The study of the Chinese perspectives on missile defence is crucial given the importance of China to the Asian security order. China has moved to the path of modernisation of its strategic weapons to augment the credibility of its deterrence. However, the deployment of missile defence has the momentum to steer the Chinese strategic force modernisation towards a different course. It gives sufficient reason for China to accelerate its strategic weapons modernisation.

Even though, the Bush Administration has fused NMD and TMD together as missile defence, the study maintains the separation of NMD and TMD for convenience and research purposes. There are also several limitations in the study. Due to the extreme secrecy that China maintains about its strategic forces, its modernisation and military data, it is difficult to assess the changes conclusively. Most of the analyses are done with the available open source materials.

Survey of Literature

The studies about missile defence are immense. However, they concentrate on the American perceptions and debates on missile defence. Literature focuses on the dangers of proliferation and cites missile defence is an apt response for countering proliferation (Utgoff 2002). Some focus on providing arguments against the critics of missile defence. They point out that the deployment of missile defence will not lead to arms race as many

countries already modernising their militaries and developing sophisticated ballistic missiles (Harvey 2000).

Some of the literatures focus on the role of missile defence deployment on strategic stability and impact on other states such as Russia and China. They deal with how missile defence deployment would lead to further proliferation of missiles and arms build-up in states like Russia and China (Miller 2001). Literature also focuses on the history of ballistic missile defence development in the United States and evolution of strategic thinking progressed (Denoon 1995).

On the other hand, there are no detailed monographs on the effects of missile defence on China. There is a paucity of literature regarding this topic of research. However, there are few journals and articles that reflect on various facets about the impact of missile defence on China. The literature on regarding the effect on China's strategic deterrence broadly broadcasts on several issues. They generally range from discussing Chinese perspectives on missile defence, its concerns, and its threat perceptions (Vandon, 2002; Medeiros 2001). The bulk of literature concentrates on broad concerns of China about Taiwan's intention to acquire TMD technology. It focuses on the threat perceptions that China perceives with regard to Taiwanese involvement in the project. They view sales of TMD technology to Taiwan as a contentious issue between the US and China (McDevitt, 2003; Yan, 1999).

Some scholars view TMD development in terms of cross-strait competition whereby it reflects patterns of competition and cooperation between Taiwan and China (Bi Jianxiang 2002). However, the literature discusses only broad concerns of China to these developments. The explanations are limited in scope as it ignores the effect of missile defence on China's security. These are also very brief in their analyses and ignore consequences for the East Asian region.

Urayama discusses various debates in China about missile defence (Urayama, 2004) and outlines detailed analyses of China's concerns about the deployment. Cambone states that TMD is significant for the Northeast Asian context due to ballistic missile development in the region (Cambone 1997). Medeiros' work on China's case against missile defence is significant in its depth and analyses. It analyses about the overall NMD and TMD effect on its reunifications plans and nuclear deterrence and possible counter

measures (Medeiros, 2001). Yan Xuotong does skilful analyses of how TMD technologies can be used for offensive purposes and how these would affect the Northeast Asian security (Yan Xuotong 1999).

Several others also reflect on the impact of the deployment of NMD on Chinese deterrence and the ways in which China would counter missile defence (Li 2001). These studies focus on the changes in China's nuclear arsenal due to the deployment of missile defence and impact of deployment of NMD on China's nuclear modernisation. They also focus on how China would increasingly compensate in its nuclear strategy and doctrine to counter missile defence (Li 2001) (Shen 2000). Despite its importance, deeper issues such as the cost of such countermeasures, and changes in doctrine, posture, planning is ignored

The literature on TMD systems in East Asia deals with several issues. Some of the literature focuses on destabilising effect of TMD system for the East Asia region and concerns about Taiwan's involvement in the programme. The literature also provides development of TMD through the prism of US-Japan cooperation in East Asia and discusses the destabilising effects of this cooperation. (Wang Qun 2000). Some exclusively looks in to the debates imminent in Taiwan about the feasibility of the systems and the economic viability of the programme (Lee Wei-Chin 2001). They examine on the main drivers behind Taiwan's decision to acquire TMD technologies and the political significance of such transfer. Literature also exists on the evolution of TMD debates in Taiwan and rationale for the support for TMD programmes in Taiwan (Chen Mumin 2002).

Literature also exists on the impact of missile defence on several agreements in the international system. Li Bin argues in detail that the ways in which the production and deployment of missile defence violates the Missile Technology Cutoff Regime (MTCR), whereby it encourages the proliferation of ballistic missiles (Li Bin 2000). Many question the utility of missile defence system and argue that it only further impairs arms control efforts and other nuclear disarmament proposals (Gu Guoliang 2000) (Zhu Mingquan 2001). However, certain literature also criticises several Chinese arguments about the dangers of TMD in East Asia and questions the rationale for such concerns (Arthur Ding 1999).

There are skilful analyses done on the effect of missile defence on the military contingencies on Taiwan, China, and the United States (Mulvenon, 2003). Some consider many of China's concerns about TMD debatable and troublesome and question those concerns (Ding, 1999). However, this does not show the rationale for China to go such lengths to oppose the plans if there are no plausible effects on China. Literature focuses on the changes in the security landscape of East Asia due to the deployment of missile defence and the initiation of arms race due to the deployment (Chu Shulong 2000). However, these literature addresses are specific concerns not delving deeper into overall effects on China's national security and are mostly country specific. Missile defence involves many regional actors in East Asia, thus alarming the Chinese. Thus, it is important to map out the alliance system in East Asia, according to which the United States would deploy missile defence systems.

There is also explicit literature citing that the deployment of missile defence is against China and prevent the reunification of Taiwan to the mainland (Hong Duan 2000). These literatures argue that the cooperation between the United States and Japan is to facilitate these goals of preventing the emergence of China and its goal of national reunification. However, some literature argues that there is a serious issue of ballistic threat in the region due to North Korean missile build-up and that would influence Japanese security. That missile defence cooperation is aimed at ensuring stability in the region and protects states from intimidation and threats caused by the ballistic missile developments (Shinichi Ogawa 2000).

Information regarding countermeasures due to missile defence deployment is not sufficiently analysed (Yuan 2003). Stokes concentrates exclusively on Chinese strategic force modernisation, where he addresses that missile defence plans has also played a role (Stokes, 1999). Stokes details on the discussions on countermeasures in China. The literature also focuses on some of the countermeasures that are deployed or tested. However, this does not deduct the changes that missile defence plans alone contribute.. The array of literature either talks of specific issues pertaining to certain region of contention or broader concerns. However, these concerns are not explained in conjecture with the threat perceptions of China nor it has given certain historic reasoning, whereby China has arrived at certain conclusions.

The other part of the literature leaves political explanations out, considers military objectives and its potential countermeasures. However, these are not contextualised within the emerging security environment. This study however intends to give a holistic picture by eliciting the historic reasons and threat perceptions for China's opposition to the US plans. Its political and military goals to the region of concern and the way these plans affect its goals. Moreover, the study also talks of countermeasures that China has initiated in its force modernisation, debates of changes in nuclear doctrine, posture, and planning.

Research Questions and Hypotheses

There are several central research questions raised in this study. They are:

- What explain the Chinese perception of missile defence as a security threat?
- To what extent NMD affects Chinese nuclear retaliatory capability
- To what extent TMD bear on China's position in East Asia
- What are the changes that are being brought about in China's strategic force modernisation in response to missile defence?

The hypotheses that would be tested are,

1. The US deployment of NMD would neutralise China's nuclear deterrence.
2. The US deployment of TMD in East Asia would constrain China's military choices vis-à-vis Taiwan and Japan
3. Missile defence would accelerate China's strategic force modernisation emphasising on countermeasures.

Methodology

In exploring this subject, we intend to utilise inductive method. In this method, observations are made and general principles drawn from the observations. In simple words, particular observations are taken and generalised as opposed to deductive method where a general theory is tested to apply in a particular observation. The study will employ primary sources like government white papers, government documents, statements by key government officials, intelligence reports. The study will also use



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secondary sources like newspaper articles, books, journals, proceedings of conferences, various reports, and other documents. The study also uses internet sources extensively.

Chapterisation

The chapters would assess the following research questions and would give a holistic picture of the issues. Chapter 2 attempts to explain the reasons why China sees missile defence as a security threat. The chapter analyses the historic threat perceptions over the deployment of global missile defence system. It details several aspects of China's strategic weapons policy and analyses how missile defence bear on China's nuclear retaliatory capabilities, principally its deterrence.

Chapter 3 deals with the effect of TMD in East Asia, with special reference to Taiwan and Japan. It analyses the Chinese concerns on proposed TMD project and deployment in East Asia. It analyses the challenges to Chinese security with the transfer of TMD technologies to Taiwan. It also analyses the implications for Chinese security with the participation of Japan. It also analyses how missile defence limits China's military choices with regard to its reunification plans with Taiwan and its objective of limiting Japanese power. The chapter also discusses China's objections, responses, and likely military choices in case of a conflict.

Chapter 5 explores issues related to countermeasures that China has undertaken in its evolving strategic force modernisation. It specifically highlights the political and military countermeasures that China intends to employ against missile defence deployment. The chapter also raises the changes in the nuclear strategy and strategic force modernisation of China due to the impact of missile defence deployment. It elucidates the challenges in the Chinese defence planning and the ways in which they aim to counter missile defence.

This chapter also identifies the ways in which China would exploit the weaknesses in US defence plans. The chapter also identifies the conditions in which China would accelerate its strategic force modernisation to counter missile defence developments. Chapter 6 would present the findings of the study. The limitations of this research, if any, will also be outlined in the summary section.

Chapter 2

MISSILE DEFENCE: AN EMERGING SECURITY LANDSCAPE

Introduction

The United States is taking a lead in developing and deploying missile defence. Several determinants influenced the decision to deploy missile defence. The interest in anti-ballistic missiles in order to protect the United States from ballistic missile threats characterised the US defence planning through out the Cold War. Theories based on deterrence played role in providing basis in which the United States protected against possible ballistic missile attack from the Soviet Union. Technological challenges and later the priority of strategic stability with the Soviet Union overrode missile defence ventures.

The rationale for the United States to pursue missile defence came from different quarters. First, the strategic environment had undergone tremendous changes. The post-Cold War witnessed states developing ballistic missile capabilities as a part of their national security agenda. The post-Cold War 'environment provides an ever-widening access to technology, information, and expertise that can be and is used to speed both the development and deployment of ballistic missiles and weapons of mass destruction' (Rumsfeld report 1998).

The United States perceived that states such as North Korea, Iran, and Iraq would possess ICBMs in future to target United States. The United States rationalised that there could be possibility of accidental launches from states like Russia and China due to political upheaval and poor state of maintenance. The United States characterised its strategic environment as unstable, small but consisting of unpredictable threats. The US perceives states like North Korea, Iran, and Iraq to be irrational actors willing to target the US regardless of the causalities and consequences.

Second, in a globalising world, technological innovations made operationalisation of missile defence conceivable. Interceptor technologies, technologies regarding sensor, tracking, and discrimination, were improving. Third, the post-Cold War era saw the ascent and continuation of the US uni-lateral movement. Several political imperatives of its uni-polar movement prompted the option for missile defence. The foreign policy of

the United States increasing occupied with measures to protect US interests and sustain US supremacy. Thus, the uni-polar reality of the United States facilitated the deployment of missile defence to ensure US interests and supremacy remained in the face of ballistic missile developments in the region.

Non-proliferation efforts occupied an important status in the US foreign policy agenda. Having acknowledged the proliferation of Weapons of Mass Destruction (WMD) and ballistic missiles and the threats that posed for the United States and Europe, the US administration influenced by Republicans in the US Senate and US Congress looked beyond arms control initiatives to combat threats. Arms control initiatives and regimes were seen insufficient with regard to new ballistic missile threats. Thus, missile defence efforts reflected the new strategic assessments. The United States exercised several strategic options with regard to the deployment of missile defence. The US concluded that missile defences should protect from a limited ballistic missile attack either intended or accidental. Instead of using nuclear interceptors to target ballistic missiles, the system would use non-nuclear anti-missile missiles and destroy upon impact. The United States would cooperate with its allies in Europe, Asia to build missile defence systems to protect US troops and provide protection to its allies.

The scope and range of the project is such that it has consequences for other states, notably Russia and China. The plans to deploy missile defences are part of a new strategic framework that the United States is intent on propelling to address ballistic missile threats. The United States maintains that the deployment would play a complementary role to primarily an offence-oriented deterrence. Missile defence deployment marks a significant change in the security strategy of the United States, which changes the strategic security landscape of the world. The issue has regional implications where it has the capacity to shoulder changes in the strategic force modernisation of other states, especially China.

The chapter raises the following questions. How did BMD evolve in United States strategic thinking? Historically, how have various arguments shaped the determinants for the support of deployment of missile defence in the United States? How the Bush administration was able to garner support and deploy missile defence? What are the different sets of systems that the United States is pursuing in its homeland and in East

Asia? What are the current deployment dynamics that are taking place in the US homeland and East Asian region?

The chapter elucidates the following assessments. The call for missile defence is not a new concept in US strategic thinking and there has always been support for the project. However, lofty goals and technological hiccups dominated the programme during the Reagan Era. The changes in the post-Cold War era contributed to the momentum for change in attitudes regarding missile defence deployment. It details that how the United States viewed offence-based deterrence as an insufficient tool to counter proliferation effectively and new strategic circumstances facilitated these arguments. The rationale for the deployment of missile defence existed on the basis that the states of concern (rogue states/axis of evil) would be undeterred by the US' conventional superiority. That deterrence based on nuclear retaliation would prove insufficient when faced with states of hostile intentions towards the United States.

The United States is pursuing research and development to achieve layered missile defence shield. There are aggressive pursuits for fine-tuning the technologies for various missile defence systems and the United States is conducting active research on upper-tier TMD systems and ground-based mid-course defence. The Bush administration emphasised progress regardless of the criticism for the programme from various quarters both at home and abroad.

Development of BMD in US Strategic Thinking

The advent of nuclear weapons changed the security landscape and made nuclear war possible with terrifying consequences. As the tensions between the United States and the Soviet Union intensified, so did the efforts for strategic domination. The strategic force development between the both sides increased. There was increase in the production of delivery systems such as missiles and other forms. These developments made case for several disarmament measures in order to avoid the dangers of nuclear war. However, various nuclear disarmament proposals supporting global disarmament failed to materialise due to the realities of Cold War politics.

As disarmament efforts fail to materialise, arms control efforts took centre stage with the Limited Test Ban Treaty, which banned atmospheric testing. However, nuclear testing continued unabated and nuclear issues and arms control was rather became to dealt with US-Soviet political agenda (Bohlen 2003: 9). Since both the United States and Soviet Union practised Mutually Assured Destruction (MAD), they amassed offensive weapons. MAD is a military strategy whereby that both the defender and the attacker recognise their vulnerability to other's offensive nuclear capability. In this doctrine, any side initiates an attack; each would destroy the other by their offensive technology. Thus, the United States and Soviet Union maintained their offensive capabilities and considered defensive weapons as unstable to the MAD doctrine. The United States and Soviet Union considered MAD as essential to maintain the stability and deter a nuclear war.

Arms control efforts were particularly successful as the United States realised that the Soviet Union would catch up with them in a few years. Soviet Union increased their delivery weapons and nuclear weapons rapidly thus forcing the United States to focus on arms control to stem arms race. Thus, the strategy of arms control captured a reality whereby amassing weapons would not ensure security but rather would prove counterproductive. Thus, limiting defensive weapons based on 'window of vulnerability' offer states not to indulge in unnecessary offensive build-up and preserve their vulnerability. Preserving vulnerability took centre stage whereby both states undertook efforts in controlling defensive weapons.

During the Cold War, the United States and Soviet Union continued to build up nuclear arsenals on both sides. The Strategic Arms Control Limitation Talks (SALT) concluded in May 1972 and both states signed the ABM Treaty and the Interim Agreement on Strategic Offensive Arms. The ABM treaty primarily dealt with defensive weapons capable of offsetting offensive capability of both states. The United States and Soviet Union viewed the ABM treaty as essential to MAD. The ABM treaty lasted just under three decades and took on a symbolic status as the cornerstone of strategic stability that came to transcend its specific provisions (Bohlen 2003: 10). In the heart of accepting the ABM treaty, deterrence played an important role in American nuclear strategy.

Arms control efforts were particularly successful during the Cold War in restraining arms race between the United States and Soviet Union. The security planning of both the United States and Soviet Union was to avoid nuclear war and avoid misunderstanding or misperception that might lead to nuclear war. The United States in the post-Cold War era took note that states are building nuclear weapons and ballistic missiles though being members of arms control regime such as the Non-proliferation treaty (NPT). The failure of the treaty to curb ballistic missile development in states like North Korea and Iran thus facilitated the arguments for missile defence.

The strategic thinking in the United States during the Cold War period was concerned on how to maintain strategic stability between the Soviet Union and the United States in a bi-polar setup. The United States considered deterrence based on nuclear retaliation was credible to stop the other state from launching a first strike. Deterrence formed a strong strategic tool that the United States and Soviet Union engaged and there was vast support for the concept of deterrence (Denoon 1995). The United States saw deterrence as a strategic tool to survive the bi-polar struggle. Even though, there was strong support for the utility of deterrence, there were calls for missile defences based on moralistic and realpolitik accounts. Thus, missile defence debates are reminiscent of an age-old debate about defence versus offence. The United States considered offence as cost-effective and efficacious in defending the homeland rather than defence.

The missile defence was neither new nor unique to the Bush administration. Previous administrations in the United States have attempted to build anti-missile systems. However, proposal that won such popular attempt were by the Reagan administration in initiating the Strategic Defense Initiative (SDI). The Reagan era popularised the pursuit of missile defence and initiated a moral debate on the idea of massive retaliation on population. Since the Reagan's SDI, the United States has spent more than 85 billion dollars for research and development. However, there were intense criticism about the cost and the technical feasibility of the programme. There were also arguments about the right strategy for the United States to follow – defence or offence,

where offence based deterrence on nuclear retaliation was favoured rather than defence based on missile defences².

The Strategic Defense Initiative Organisation (SDIO), later Ballistic Missile Defense Organisation (BMDO) continued efforts to field a global missile defence. During the Cold War, the United States perceived threats from Soviet Union, a known adversary with hundreds of nuclear tipped missiles. The Reagan administration envisioned a programme whereby space-based lasers would destroy hundreds of missiles from Soviet Union. The technology proved elusive, and the architecture was incompatible with the technology. From the Reagan administration 1984 to 1999, the development of BMD focussed on three elements of research: sensors, weapons, and control (US DOD report 2000).

The SDI initiated several architectural studies. The SDIO settled upon a system that included battle management, kinetic energy weapons and ground based and space-based sensors (US DOD report 2000). The plans proved controversial and fraught with several technological challenges in terms of infrared technologies and tracking devices (US DOD report 2000). There were also complexities involving command and control of the programme. The efforts were in vain and there were subsequent questions about the futility and the cost of the programme. Missile defence technology was far away and the arguments for the need of deterrence won in the academic and policy circles. The notion of deterrence as an important strategic tool occupied the US strategic thinking. The utility of defence as an effective policy was criticised by several in the arms control committee, democrats in the senate, and scientists.

In the post-Cold War era, strategic stability between Russia and the United States were no longer an immediate concern. The strategic circumstances changed with the collapse of Soviet Union. Arguments regarding arms race and strategic stability did not dominate when the United States debated about fielding a limited missile defence. The use of Patriot systems in the Gulf War against SCUD missiles from the Iraqi side proved

² Moreover, the deployment of missile defence systems was seen detrimental to arms control in the US. The argument in the present context that arms control regimes would die is effectively an old argument initiated during the Reagan Administration. See article, McGeorge Bundy, George Kennan, Robert McNamara and Gerard Smith (1984-85), 'The President's Choice: Star Wars or Arms Control,' *Foreign Affairs*, 63(2): 264-278. Also see David H. Denoon (1995), *Ballistic Missile Defense in the Post-Cold War Era*, West view Press: Harper Collins Publishers

as psychological reassurance to the populace of Israel serving the United States to moderate Israeli response. Though the success of the Patriot systems in the Gulf war was debatable, it nevertheless generated positive views for missile defence programme. This momentum helped the senior Bush administration for initiating the 'Global Protection Against Limited Strikes' (GPALS) in January 1991. The programme was mainly focused on TMD systems for protecting US troops and the utility of NMD system was reduced for protecting against small, accidental launch or unauthorised launch (Denoon 1995: 132).

The United States in the post-Cold War era saw itself as a target, where rogue states possessing nuclear weapons and delivery systems would be undeterred by the United States conventional superiority. The United States characterised the new security environment as unstable due to the spread of technology of ballistic missiles to states hostile to the United States. Moreover, there were intense criticisms on the ineffectiveness of arms control treaties in stopping new nuclear states such as India and Pakistan (Schell 2000). The Republicans in the US Congress generated intense pressure on the Clinton administration for approving plans for missile defence. The Clinton administration yielded to the pressure in the US Congress, approved for research, and testing albeit under the constraints of the ABM treaty.

The Clinton administration attempted to develop a NMD within the contours of the ABM treaty. The administration approved the 'National Missile Defense Act' of 1999, yielding to pressure from the missile defence lobby and denying republicans a potentially powerful political issue (Newhouse 2001: 101). However, the Clinton administration placed importance on the development and procurement of theatre missile defence and for the NMD, research, and development was a priority. However, the Clinton administration left the decision on whether to field a full missile defence shield to the next administration.

The Bush administration on the other hand widened the scope of missile defence citing emergence of new security threats and irrelevance of MAD in the Post-Cold War era. Denoon argued that arms control community have always been vehemently opposing any BMD related efforts in the United States and their arguments are now reflected by the critics of the current programme (Denoon 1995).

The Bush Administration and Missile Defence

The May 1 2001 statement by President George Bush regarding missile defence marked a significant shift in the US strategic planning. The United States saw deterrence based on offensive technology credible to provide security in the Cold War era. The Bush's statement on May 1 disregards the Cold War notion of deterrence based on nuclear retaliation and mutual vulnerability and states that the United States needs defences to enhance deterrence (Bush speech May 1 2001). The administration professed that the US needed a kind of deterrence that would enable them to prevent proliferation and protect from possible ballistic missile attacks. The Bush administration questioned the proliferation strategies adopted thus far in the United States. These changes in perceptions shows shift in the US strategy from non-proliferation efforts to counter-proliferation. The Bush administration established the Missile Defense Agency (MDA) to look into various missile defence programmes together in an integrated approach.

The Bush Administration reinforced that the US needs 'new concepts of deterrence that relies on both offensive and defensive forces' (Bush Speech May 1 2001). The Bush Administration opened a new chapter in the US nuclear strategy - to build missile defence on a global level to protect the US homeland, its troops, and its allies from ballistic missile threats. The United States disregarded the nuclear strategy of maintaining MAD and arms control efforts to limit defensive weapons. The Bush administration preferred to use defensive weapons to enhance deterrence in a mainly offence oriented deterrence. The rationale is that offensive deterrence is insufficient to deter new threats emerging in the Post-Cold War era.

These policy changes reflect a new security environment assessed by the US that outlined new security threats in the future. These threats were well publicised in the Rumsfeld report released in 1998. The report stated that the proliferation of ballistic missiles is increasing and the United States would face possible ballistic missile attacks from rogue states (States of Concern/Axis of Evil) or accidental launches from instable countries.³ The US administration citing these changes propounded that the United States needs missile defence to protect its population, troops, and its allies.

³ For the summary of the report see, *Report of the Commission To Assess The Ballistic Missile Threat To The United States*, Executive Summary, [Online web] Accessed on 24 December 2007, URL:

The prominent shift that occurred after the Bush statement on May 1 2001 was the abrogation of the ABM treaty. It reflected that the United States did not want to be constrained by any arms control treaty that would potentially halt further testing of anti-ballistic weapons systems. The ABM treaty does not permit research or deployment of anti-ballistic missiles for a nation-wide defence and 'prohibits development, testing, or deployment of sea-based, air-based, or space-based ABM systems and their components, along with mobile land-based ABM systems'⁴. With the US pulling out of the treaty, the MDA would be able to research and develop anti-ballistic missile systems without any constraints on its research or testing.

Many do not welcome the pursuit of missile defence by the United States. There are considerable differences within the international community and in the United States about the feasibility of the programme. The critics of missile defence are concerned about the impact of the deployment of missile defence on strategic stability, and arms control agreements. Along the way, national missile defence may breach some of technology's frontiers, but it is unlikely to remove or contain the serious threats to stability and security (Newhouse 2001: 109). Opponents point out that 'defensive weapons' would always be susceptible to countermeasures. The organisation named Union of Concerned Scientists came with a report called 'countermeasures' providing number of possible technical countermeasures against the proposed NMD system (UCS/MIT report 2000). The offence can design its attack to capitalise on defensive vulnerabilities, whereas defence must prepare for attack across the full range of offensive options (Lebovic 2002: 468).

The opponents cite that the concept of defences would ultimately prove ineffective in case of a crisis. They point out that during theatre of war, when a country uses various ranges of weapons and attacks, defence would not provide sufficient protection. Moreover, opponents argue that this likely shield would foster insecurity to other countries such as Russia and China resulting in an arms race in the regions (Miller

<http://www.fas.org/irp/threat/missile/rumsfeld/toc.htm>, Also see, R. James Woolsey, 'A Case For US National Missile Defence' in 'Ballistic Missile Proliferation' Edt Ben Sheppard, *A Jane's Special Report*, ISBN 07106 21760

⁴ 'Treaty Between the United States of America and The Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems', Executive Summary, [Online web] Accessed on 25 December 2007, URL: : <http://www.state.gov/www/global/arms/treaties/abm/abm2.html>,

2001). Miller (2001) criticises missile defence, which 'represents a high-cost remedy to a threat that is speculative, distant in time and uncertain in scale and character'. Moreover, many Chinese analysts do not agree with the argument that the US with vast conventional superiority and nuclear weapons capability would want missile defence to protect itself (Shen 2000). They point out that countries like North Korea and Iran would not initiate attacks, as they are well aware of the US superior conventional strength.

However, there are few who believe that proliferation is growing and threats from ballistic missiles are imminent and missile defences are the right alternative to the growing threat (Utgoff 2002; Schell 2000). Threats due to the rise of nuclear terrorism were also seen as an important aspect to counter with the help of missile defence (Schell 2000). Some do not accept the arguments regarding the doubts on its technology citing the ever-increasing growth of technologies. That NMD has not yet reached 100 per cent accuracy is irrelevant. 'What is relevant is whether the pace of innovation is such that NMD will, at some future point, produce a 'high enough' probability of success to warrant deployment' (Harvey 2000: 55) than going for other alternatives that has been done so far.

However, some suggest a more moderate approach of assessing the technologies further and deploying limited missile defence aimed against small threats (Lindsey and O'Hanlon 2002) and beginning the process of instilling confidence for the countries that feel threatened (Gordon 2001: 17-36). Analysts believe that the United States should also consider stability of US-Russian relations in terms of limited BMD architecture (Slocombe 2002). The United States has been successful in muting some of the criticism from European countries towards deployment measures.

Missile Defence Architecture

The United States plans to deploy NMD for population defence and TMD for protecting its troops and allies. Missile defence is a multi-layered weapons system aimed at intercepting incoming ballistic missiles or warheads at boost phase (where the missile is launched), mid-course (during its flight through space), and terminal phase (when the missile/warhead descends) architectures. The system uses space, air, sea, and mobile

ground-based interceptors to hit the missiles. The more ambitious one is to use lasers to intercept and kill the missiles.

Missile Defence consists of innumerable interconnected technologies and has battle management, command, and control centre to assimilate information, which directed from the early warning radars. On December 17, 2002, President Bush announced that he had directed the Secretary of Defense to proceed with fielding “an initial set of missile defence capabilities by 2004 (Karchner 2004).” Thus, the United States has an initial missile defence capability to protect against few missiles after deploying eight interceptors in Alaska and California.

The NMD covers the entire homeland of the United States whereas the TMD protects the US troops deployed in the regions. The United States also deploys the TMD essentially to offer protection to its allies. Therefore, TMD is mobile, covers a particular area, and generally protects from short-range missiles (SRBMs), medium-range missiles (MRBMs) and intermediate range missiles (IRBMs) whereas NMD covers a large area of population and offers protection against ICBMs. The missile defence composes a cluster of weapons system that would produce all round protection and in a systemised manner providing choices for the leadership in a crisis.

The layered missile defence system pursued by the current administration has characteristics that make them unique compared to other missile defence efforts. One such is the layered architecture, which would depend on different individual systems woven together attempting to give foolproof security. According to the Nuclear Posture Review (NPR), the weapons system is layered so it can intercept missiles in all phases of their flight i.e. boost, mid-air, and terminal phases (NPR: Excerpts from Congress). Thus, it would try to intercept in all flight phases so giving the US more than one opportunity to hit the missile. Moreover, the deployment would also cover individual weapons in integrated fashion acting in accordance with each other.

The research of the missile defence systems would also depend on the progression of stages according to its capabilities. This progression is termed C1, C2, and C3 capability. The initial deployment premises on the C1 capability, where it handles ‘small unsophisticated threats involving approximately five warheads and only simple penetration aids’ (Wilkening 2000:31). The C2 capability would consists of hundred

interceptors, three X-band radars collocated with early-warning radars, one additional in-flight interceptor communication system, and Space Based Infra-Red System (SBIRS) – Low Satellites. The C3 deployment would have 250 interceptors at two sites, an additional in-flight interceptor communication system in Hawaii, a new ballistic-missile early warning radar, and X-band tracking radar in South Korea, and four additional X-band radars.

According to the NPR, the United States would deploy missile defence capability as per near-term and mid-term capabilities. The United States would deploy an emergency capability consisting of single airborne laser for boost-phase intercepts, a rudimentary ground-based midcourse system, and a sea-borne Aegis system (NPR, Excerpts from Congress). The system would be elevated to the operational capabilities if technological capabilities progresses quite well. Then the systems would include two to three Airborne Laser (ABL), additional Ground-based Mid-course (GMD) sites, four sea-based mid-course ships, and terminal systems for SRBMs like Patriot Advanced Capability # 3 (PAC-3), Theatre High Altitude Area Defence (THAAD) systems (NPR Excerpts from Congress). The system would also encompass other ambitious program such as space-based laser and the ‘Brilliant Pebbles’ kinetic kill interceptor. The United States also intends to explore the option of extending the capability of the Navy Theatre Wide (NTW) system to include engaging ICBMs (Huisken 2001: 7).

Moreover, the Bush administration has insisted upon the development of boost-phase interception. This model of interception is much easier than mid-course or terminal phase. This is because the rocket boosters are easier to detect and the debris falls on the country that initiates an attack. Moreover, at mid-course and terminal phase, the interceptor has to discriminate between decoys, penetration aids, and warheads. This is not necessary in the boost-phase interception making it easier to dissimulate an attack. However, the reaction time for the boost phase intercept is low. Thus, it would require a highly automated command and control system, which reacts quickly and sends information to the leaders of concern.

As a state can launch missiles from either land or sea, the boost phase interception would require keeping interceptors in ground as well as in the sea. By using Ground-based Interceptors (GBI) and radars or using space based laser or interceptors,

the boost-phase interception could be achieved. For NMD, naval boost-phase interceptors are one of the systems that are proposed (Wilkening 2000: 60). The United States is also engaged in design of an air-borne boost phase programme for theatre ballistic missiles. Thus, there are recommendations for air-born laser for research and development for boost-phase architecture of the TMD programme.

At the end of 2007, the system architecture consists of several systems. There are up to 24 GBI emplaced in silos in Alaska and California. There are 21 Standard Missile-3 (SM-3) sea-based interceptors and seven Navy Aegis BMD Destroyers configured for the Long-Range Surveillance and Track (LRS&T) mission. There are three Navy Aegis BMD Cruisers and up to seven Destroyers, armed with SM-3s to engage short- to intermediate-range missiles, and perform the LRS&T mission.

In terms of lower-tier TMD systems, there are 549 PAC-3 missiles (MDA booklet, 2007). There is a Sea-Based X-Band (SBX) radar capable of providing robust discrimination capabilities and deployed active Upgraded Early Warning Radars (UEWR) in California and the United Kingdom and upgraded Cobra Dane radar in Alaska. There are also two Forward-Based X-Band Radars (AN/TPY-2) delivered (one deployed to Japan) and initial Global Integrated Fire Control (GIFC) capability. A Battle Management, Command, Control and Communications (BMC3) system on line at three Combatant Commands with situational nodes within the National Capital Region (Missile Defense Agency 2007).

National Missile Defence Systems

The NMD programme is designed for the fifty states of the United States aimed at detecting and destroying the warhead by force upon impact. The NMD system would be a fixed, non-nuclear missile defence system with a space-based detection system. Ground-based Mid-course Defence has replaced the name of NMD system. It consists of GBI, BMC3, X-Band radars, and UEWR. There are two space-based sensor systems such as the SBIRS-High earth orbit satellites and SBIRS-Low earth orbit satellites. The former is for early warning and the latter is to provide decoy discrimination. These individual systems work together to provide overall security to the state. On June 2006, the US activated the GBI missile defence system (Press Trust of India: 6 June 2006).

In the NMD programme, the GBI would intercept incoming ballistic missile warheads outside the earth's atmosphere (exo-atmospheric) and destroy them by force of the impact. During flight, the GBI receives information from the BMC3 to update the location of the incoming ballistic missile, enabling the GBI onboard sensor system to identify and home in on the target. The GBI would consist of a multi-stage solid propellant booster and an exo-atmospheric kill vehicle.⁵

The BMC2 sub-element provides extensive decision support systems, battle management systems, battle management displays, and situation awareness information. Surveillance satellites and ground radars locate targets and communicate tracking information to battle managers, which process the information and communicate target assignments to interceptors.

The X-Band radars performs tracking, discrimination, and kill assessments of incoming ballistic missiles using high frequency and advanced radars in order to improve the target resolution and allow discriminating between closely spaced objects. UEWR are phased-array surveillance radars used to detect and track ballistic missiles targeted at the United States. For the NMD program, the SBIRS constellation of sensor satellites would acquire and track ballistic missiles throughout their trajectory. This information would provide the earliest possible trajectory estimate to the BMC2 sub-element.

Even though the administration has merged the NMD and TMD together to Global Missile Defence, NMD would have certain weapons systems that are unique and particular to the protection of the US homeland according to the technologies available. These would include GBIs, ground-based X-band tracking radars, and upgraded ballistic missile early-warning radars to provide warning and cueing information to the X-band radars and to provide track data on missile trajectories beyond X-band range (Wilkening 2000: 30).

There are intentions to derive sea-based NMD defences from other existing technologies such as NTW system to intercept ICBMs. However, these would depend on the progress of technology. Boost phase NMD is also increasingly gaining acceptance in the United States military. Since mid-course defences are still emerging, there are signs

⁵ A full overview of the system would be available in Ground Based Interceptor, See Internet: <http://www.fas.org/spp/starwars/program/gbi.htm>

that budgetary allocations for boost phase NMD would take considerable time keeping in mind the progress in technology.

Theatre Missile Defence Systems

The TMD system consists of lower-tier and upper-tier systems. Both lower-tier and upper-tier systems are being developed for East Asia. These regional defences reduce the risks if the United States seeks to help an ally in distress. The United States administration defines this position as 'freedom of action' whereby countries would be deterred to use its missiles to intimidate the United States from effectively intervening in a regional conflict (Mulvenon 2001). Analysts argue that deployment of TMD by the United States in Japan would help succeed in reducing the threat from North Korean missile challenge (Allen and others 2000).

Lower tier TMD system intercepts short-range missiles in low altitude with the ranges roughly from 600 to 1500 kilometres. These are effective in theatre operations and can destroy aircraft and cruise missiles. An upper-tier system on the other hand would deduct missiles in the high atmosphere or above the atmosphere against longer-range theatre missiles roughly up to 3500 kilometres. The lower-tier TMD systems include PAC -3, Medium-Extended Air Defence System (MEADS), Navy Area Defence (NAD) and upper-tier systems are THAAD, and NTW. ABL is a boost-phase defence against SRBMs and MRBMs.

The United States had few lower-tier systems used for point defences accepted by ABM standards. The United States is currently conducting active testing of upper-tier TMD systems. The ABM treaty signed by the United States and Soviet Union in 1972 banned upper-tier systems for regional defences. In East Asia, the threat from North Korea is widely portrayed as the rationale for providing Japan TMD technologies (Dennon 1995: 53-63).

The currently deployed PAC-3 system is a surface-to-air guided missile (SAM) air defence system, which uses a hit-to-kill interceptor. PAC-3 missiles targets enemy missiles in their mid-course or descent phase in the lower atmosphere and used in conjuncture with the longer-range THAAD systems (Shuey 2001: 2). The new operational PAC-3 provides advanced capability against enemy cruise missiles, aircraft,

and unlike previous systems of PAC – 2. The United States is carrying out further research on PAC-3 missiles to destroy ballistic missiles with sophisticated technology and to evade countermeasures and decoys.

The US would also deploy land-based lower-tier MEADS, which is a multinational, ground-based, mobile missile defence system deployed with the ground troops. Of the various TMD systems, only MEADS will provide 360-degree coverage. The MDA has combined the management, development and fielding of PAC – 3 missiles and MEADS systems. There are efforts to fuse the patriot systems with the MEADS systems. MEADS will use the PAC-3 missile with its hit-to-kill warhead, designed to intercept multiple and simultaneous SRBMs up to 1500 kilometres, low cross-section cruise missiles and aircraft, and Unmanned Aerial Vehicles (UAVs). MEADS will eventually replace the aging HAWK air defence system.

After the abrogation of the ABM treaty, the US is actively conducting testing of upper-tier systems such as THAAD and NTW. Japan and the United States are currently involved in joint research for these systems. The THAAD system is a land-based system to destroy ballistic missiles up to 3500 kilometres before they enter the atmosphere or in the upper atmosphere providing regional or limited area terminal defence. It uses a single, solid-propellant rocket and a hit-to-kill interceptor to destroy SRBMs to IRBMs upon kinetic energy of impact (Shuey 2001: 6).

Significant aspect of THAAD is that is best effective against missiles carrying WMD. In March 2004, the “T” in THAAD was changed from “theatre” to “terminal,” to better describe the system’s primary function: the destruction of ballistic missiles in their final descent phase. The new THAAD will consist of four principal components: X-band radar; a BMC3, mobile launchers; and the THAAD interceptor missiles themselves.

The NTW is an upper-tier TMD system that is used in the Aegis ships carrying SM – 3 for destroying medium range missile threats in all phases. Formerly, NTW was primarily to intercept missiles at the terminal phase implying that the shield had little chance of overcoming the countermeasures. However, after the layered defence concept, the NTW system intercepts missiles in all phases due to several phase architecture layered together, making it more effective against missiles from China.

Moreover, TMD systems would also be deployed for point defence for protecting US troops in Okinawa, and Kauai. Thus, an ABL, which is a boost-phase defence system, is effective in troop theatre operations. Of the seven aircraft, five is expected to be deployed for theatre operations for positioning behind friendly troops lines and to move closer towards enemy airspace after local superiority is achieved. This air-borne boost system can be damaging to China's launch sites provided the laser could operate under operational environment.

Progress and Limitations of Missile Defence Systems

The GMD system currently has interceptor missiles deployed at Fort Greely, Alaska, and at Vandenberg Air Force Base, California (MDA: 28 September 2007). The system consists of upgraded Cobra Dane radar at Aleutian Island along the chain of Alaska, upgraded early warning radar at Beale Air Force Base in California, and forward deployed air-transportable X-band radar in Japan (MDA BMDS booklet 2007).

Moreover, with the successful test of the GMD system on November 2007 by the MDA assures that the system is coming of age. The MDA conducted the test in an integrated fashion along with other components to provide strategic, regional and theatre BMDS capabilities using scenarios containing threats emanating from multiple geographical region (MDA 14 November 2007).

Thus, the United States has placed a rudimentary NMD system. However, there are developments that provide basic operational capability to NMD. This is because the MDA has completed the integration of SBX Radar and initiation integration of Fylingdales UEWR. Moreover, there are tests increasingly provide evidence that GMD Element's ability to function with GBI operational assets. There are also progress in GBI builds and emplacements and improved System Discrimination demonstration design employing Forward-Based X-Band radar discrimination data. Most importantly, the United States has initiated European site preparations (BMDS booklet, MDA 2007). Thus, the United States has a minimal NMD capability in place for emergencies. According to the progress of the technology, the capabilities would be increased and deployed. This is apparently a test-demonstration capability; whereas the real capability

of interception with warheads has never been tested, besides if saturation attacks are mounted – the viability of the architecture is unproven.⁶

The success of these systems as effective weapons systems would depend on the future scope of these programmes. The systems have scope depending on the progress of technology and funding of the project. Moreover, the United States may consider research on upper-tier systems for intercepting ICBMs if technology progresses. This is because re-entry speed of an ICBM is only marginally higher than theatre missiles of 3500 kilometres making it possible for it to intercept. However, Patriot missiles have performed badly against cruise missiles and UAVs evident in the Iraq War (Gromley 2003: 62)

The effectiveness of the system can be tested when it performs against complicated countermeasures. The progress has reached to a level that there are more successful hits than previous testing. The AEGIS based missile defence system has already completed eleven successful intercepts in thirteen attempts. The system uses hit-to-kill intercept where the intercepts destroys the missiles upon impact rather than exploding near them. The United States also expects to deploy initial THAAD capability within 2008 where it has already completed three successful flight tests and a tracking exercise.

The MDA has completed activation of THAAD sites in Pacific Missile Facility (BMDS booklet MDA 2007). The Aegis BMD programme has delivered its engagement capable ships and the SM – 3 BLK-IA missiles. This implies that a full shield is still under development and it would require intense testing and research for a complete system to emerge capable of handling complicated countermeasures. The United States has deployed certain components of the defence shield.

The TMD system in East Asia is a layered missile defence concept where the first layer would be upper tier TMD systems. This layer would engage missiles at mid-course and boost phase and provide protection. Lower-tier missiles like the PAC-3 would engage the missiles missed at terminal phases. Thus, TMD system can provide protection against theatre missiles. However, one of the PAC-3 tests has featured a ballistic missile

⁶ I thank Dr Lawrence Prabhakar for this input.

target similar to the ones that proved so difficult to intercept in 1991 Gulf War (Gromley 2003: 64).

President George W. Bush sent Congress a fiscal 2008 budget on seeking an initial \$10 million for studies on what could be the first space-based interceptor missiles despite opposition from China, Russia and many others. Thus, space based missile defence system has also been given headway in the United States. The United States continuing developments in both GMD and TMD systems with various degrees. China would continue to watch any developments in these systems to assess the impact on its strategic security.

Chapter 3

CHINA'S THREAT PERCEPTIONS AND NMD IMPLICATIONS ON CHINESE DETERRENCE

Introduction

China's concern towards missile defence reflects its apprehensions towards intentions behind the United States' decision to deploy missile defence. China assesses its strategic security environment dominated by missile defence network as a concern to its security. China's threat perceptions regarding the role of the United States in its security environment is viewed through the prism of suspicion and real-politik. Moreover, China perceives the role of the United States as an important variable that has the capacity to prompt changes in its security environment.

China perceives that deployment of missile defence influences its strategic security environment contrary to its interests whereby affecting its security. The chapter attempts to answer the following questions. What are China's national threat perceptions and objectives? How does the deployment of missile defence affect China's strategic security environment? Why does China perceive the deployment of missile defence as a security threat? What are China's historic experiences and responses regarding BMD development in the United States? How does China formulate its strategic weapons policy especially in lieu of the ongoing strategic force modernisation? How does the deployment of NMD affect China's nuclear retaliatory capability?

The chapter addresses the following arguments. China's attitude towards missile defence largely reflects its security perceptions in its periphery and intentions behind the United States. China has always been conscious of US attempt to build anti-missile systems and viewed it to have consequences for their security. Maintaining a credible minimum deterrence was the main element of China's nuclear strategy given its small inventory. The ongoing modernisation is an attempt to increase the credibility of its nuclear deterrence. However, there are increasing voices for changing into limited nuclear deterrence keeping in mind China's raising international profile and economic might.

The chapter argues that the deployment of NMD has the capability to nullify China's nuclear retaliatory capability. The chapter details how an initial NMD capability

could prove challenging for China to maintain the viability of its deterrence. With the United States improving the capabilities of its ground-based mid-course defence by testing it under more challenging operational environment, China will have to increase its deterrent value to maintain its credibility.

China's National Threat Perceptions

China's security strategy reflects the threats it perceives to the state's external and internal security. China's threat perceptions are influenced by geography, strategic culture, and historic legacies. Any threat to China's territorial integrity and sovereignty constitutes its immediate concern. The separatist activities in Tibet and Xinjiang have elicited strong Chinese reaction in forms of repression. Xinjiang consists mainly of Uighurs Muslims belonging to Turkmenistan. Xinjiang's economic deprivation as opposed to the Han Chinese has acted as a catalyst in generating resentment and dissent among the Uighurs. The influx of Han Chinese into Xinjiang has aggravated these concerns.

Tibet remains a constant irritant with China's relation with India. The recent protests by the Tibetan dissents contributed to the hardening of the Chinese stance on Tibet. China's policies on internal stability reflect its intolerance towards what is considered as 'splitting the country'. China's policies towards Tibet and Xinjiang reflect its attitudes regarding internal stability. China has termed activities in Tibet and Xinjiang as terrorism, separatism and extremism and warned that the 'Chinese armed forces will strike hard at terrorist activities of any kind, crush infiltration and sabotaging activities by hostile forces and crack down on all criminal activities that threaten public order, so as to promote social stability and harmony (2002 defence white paper). The strike-hard campaigns though started as a tool to fight crime, later used to deal increasingly with separatism, terrorism and extremism (Davis 2008). Malik (2002) argues that China supported anti-terrorist efforts by the United States on the basis that China could bring legitimacy to its efforts in quelling the separatist activities in Xinjiang (Malik 2002). Within days of September 11, China sought to link the world wide campaign against terrorism with its efforts against 'separatism' in Xinjiang, Tibet and Taiwan (Malik 2002: 21).

Taiwan forms a central threat perception in China's quest for national unification of the motherland. China identifies Taiwan the 'biggest immediate threat to China's sovereignty and territorial integrity' and resulting in instability across Asia-Pacific (2004 defence white paper). China's diplomacy in East Asia, military deployment, cross-strait economic levers are all intended to reunify the island with the mainland. China perceives the realignment of military alliances in the Asia-pacific region as worrisome as it affects its security goals in the region. China is concerned that the 'United States is buttressing military alliances and accelerating the deployment of missile defence systems' (2004 white paper).

China perceives the United States' uni-polarity remains a crucial threat. China accuses the United States of 'hegemony' and 'power-politics'. China claims that 'tendencies of hegemonism and unilateralism have gained new ground, as struggles for strategic points, strategic resources, and strategic domination crop up time to time (2004 defence white paper). China views the unilateral military intervention by the United States in Kosovo and Iraq as an example of its quest for strategic domination.

China perceives economic instability as a threat that could weaken regime stability and recognises that the 'impact of economic globalisation is spreading and risks and challenges associated with it are mounting' (2004 and 2006 defence white paper). The inequalities created by economic development have resulted in social instability in China. The Chinese government have been keen in stabilising the social order to bring stability to the regime. China links regime survival to the social stability of the country. In its immediate environment, China views the role of the United States as a constraint. China views US alliances in Asia, especially with Japan as destabilising and expansionist. Japan's new National Defence Programme Outline (NDPO) has identified China's expanding capabilities in nuclear and missile arena. In Beijing's view, the NDPO doctrine of 'preventing threats from directly affecting Japan' echoes the US doctrine of pre-emptive intervention (Hill 2005: 44).

National Security Objectives

There are several national security objectives that China seeks to attain in the future. The defence white papers portray several national security objectives that China adheres.

China seeks to protect its territorial integrity and sovereignty, to maintain internal and external security, secure a favourable national image and promoting economic development in the state. China seeks to achieve Comprehensive National Power (CNP) in order to obtain its national security objectives (Cleary 2006: 15). The reunification of Taiwan remains the most important national security objective of China.

Its military modernisation is steered toward the goal of reunification of Taiwan. Thus, any transfer of BMD components to Taiwan or operational integration between Taiwan and the United States implies difficulties for China to reunify with minimal damages. China seeks to deny US intervention or to equip with means to respond to US intervention in the Strait region. The scope of the US intervention is a concern that China shares mostly in reunification process. In 2000 defence white paper, China links hegemonism and power politics and how that has affected the reunification process and 'China will have to enhance its capability to defend its sovereignty and security by military means' (2000 Defence white paper). Thus, the transfer of BMD components to Taiwan would play an important role in the tilting the military balance in the Strait region. The US DOD's annual report to the Congress in 2007 identified that 'China's near-term focus for preparing for military contingencies in the Taiwan Strait, including the possibility of US intervention, appears to be an important driver of its modernisation plans (DOD report 2007).

External stability is important for the reunification process. External stability implies a favourable strategic environment, no overt coalition against China and waning of US influence in the region. The strategic assessments regarding US' BMD role in the region would serve to change its nuclear strategy according to the BMD defined operations. China is intent on improving its international image by participating in several multilateral efforts. Its involvement in several arms control committees and regimes are a step in maintaining a favourable international image. Most of all, China is intend to continue its economic development further and reap the benefits of the international political economic order.

China's grand strategy is to attain CNP and using it to accomplish its national security objectives. CNP is a term used extensively in the Chinese context means overall strength of a country. Strategic planners measure qualitative and quantitative variables to

evaluate and measure China's standing with relation to other states (2008 Military power of the PRC). By attaining CNP, it can challenge the predominant position of the hegemon. In the end, the Chinese expect that the development of China's economy will provide the key to enhance the country's comprehensive national power (Glaser 1993: 271). In the modern sense, not only economy, military and polity forms important sectors of power but also science and technology, cultural factors, geography, natural resources, and diplomacy. In the early phase of the 'four modernisation' era, when Deng sought to transform Chinese agriculture, industry, science and technology and the military, the principal objective of China's grand strategy was the accumulation of CNP (Ward and Hackett 2004: 1).

China also assumes that by through CNP, the economic prosperity and stability will afford China greater international influence and diplomatic leverage as well as robust, modern military (Military power of the PRC 2007).

There are several national security objectives for achieving CNP. They are,

- Ability to defend the heartland against external and internal challenges, taking control instantly, and gaining advantage at the earliest.
- To guard sea-borne interest by developing considerable presence in the sea and developing sea-denial capabilities for a sustained period.
- To develop credible limited nuclear deterrence and to never allow countries to use nuclear blackmail for coercion.
- To develop formidable capability to conduct short-range conventional and nuclear strikes.
- Develop capability to neutralise or inflict damages against a superior force by using naval and air systems.

China's Strategic Security Environment

The power relations in the international system have grown favourable to China. The phenomenal economic growth in China has facilitated this change. On the global front, China practises deft diplomacy to favour its economic growth. Its foreign policy has achieved considerable sophistication evident in the inclusion of China for brokering challenging international security issues. China characterises itself as a rising power with

peaceful intentions and a responsible stakeholder in the international system. China has built concrete partnerships throughout Asia based on trade and commerce, what it calls as a 'win-win situation'. China has stabilised its periphery by postponing some of the crucial territorial objectives and by solving most of the border issues with the neighbouring countries.

China is constrained in its strategic security environment by several systemic factors. China has to contend with the predominance of the United States and its alliance system in Asia. The US not only has bilateral relationships with states based on military alliance but also practises forms of extended deterrence in the region, especially with Japan and South Korea in East Asia. The Taiwan Relations Act (TRA) commits the US to help in Taiwan's self-defence and to maintain military balance in the strait region.

In the post-September 11 2001 security order, the United States is consolidating its presence due to its military involvement in Afghanistan and anti-terror coalitions. The United States has expanded its presence in Pakistan, Central Asian Republics, strengthened its alliance with Japan, and developed a closer cooperation with India. The United States is accelerating its realignment of military deployment to enhance its military capability in the Asia-Pacific region (Defence white paper 2006). Apart from these developments, its actions in East Asia are particularly worrisome to China. The continued sales of arms to Taiwan based on maintaining cross-strait balance offsets Chinese calculations of maintaining military superiority in the strait region. The prevention of independent Taiwan and its reunification remains a crucial security goal of China.

Thus, the United States affects China's strategic security environment. However, the strategic interaction between the United States and China is constrained over several issues. The historic instances in which, both the powers corresponded caused suspicion and concern to both sides. Today, even with the steady increase in economic interaction and political dialogue, anxieties about each other's intentions continue to exist on both sides. Thus, China evaluates the security environment on ways to maximise its influence despite the US predominance. The aim of the Chinese security planning is not to openly confront the US designed security order, but to offer an alternative to the existing order.

Its new security concept is consistent with this idea, as it offers mutual security and confidence over the idea of bilateral military alliance systems and extended deterrence.

By noting the United States' interest in the region and its presence, China's strategic security bases its assessments on likely US intervention in its regional goals. China perceives that its strategic security hinges on maintaining its nuclear credibility, which China perceives to an effective tool that limits US outright intervention in its internal affairs. China's strategic force modernisation precisely makes it to ensure that its strategic force is survivable, accurate, and credible on the face of US conventional dominance. The deployment of missile defence complicates its strategic security environment.

China strategic environment, as it perceives is deeply undergoing changes in informationisation of the armed forces. China states that 'the forms of war are undergoing changes from mechanisation to informationalisation' (2004 defence white paper). It also states that the competition between states based on informationalisation has increased (2006 defence white paper). Thus, China perceives its strategic environment to become complex with the deployment of missile defences resulting in military competition and arms race.

Missile Defence as a Security Threat

China's concerns towards missile defence echoes its broader threat perceptions that characterise its security policies. The geo-strategic space that China occupies and perceptions of its relative power capability in the international system play significant role in the assessment of its threat perceptions. In other words, China is sensitive to relative gains in the power structure, perceives that greater the gain in power capability then greater the state's capability to secure its security.

Missile defence plans pursued by the United States would decrease China's relative power capability in the region thereby reducing its capacity to influence regional affairs. Moreover, China perceives that it would also increase the relative gains of competitors like Japan. Thus, China seeks to raise its influence in the region where the United States stepped up its efforts to reorient its regional priorities. Jiang (2006) asserts that China does not openly confront the strategic order but accommodates it through its

overt diplomacy in the region. China's assesses missile defence as a security as it perceives it to reduce its relative gains in its strategic security environment.

China perceives that the United States' participation with other states would change the military balance in the region. For example, the participation between states has integrated defensive operations with coalition partners during conflict or potential hostilities (US DOD report 2000). China perceives that these activities would affect its strategic security environment to be more hostile to China.

However, China perceives that the dominance of United States in the region underscores its strategic security environment. If in the early post-Cold War years it could be argued that the rise of the United States to global primacy was debatable, there is little doubt today that a uni-polar world is increasingly a reality with which China must cope (Wang Jisi 2000). The realisation of the reality that the United States would remain a predominant power in the coming years, China has consistently placed the stability of its relations with United States above all other concerns. However, Chinese analysts feel that the United States has ignored its security concerns. Rather than adopt substantive measures to satisfy Chinese security concerns, the United States has instead exploited opportunities to contain China (Sun Xuefeng 2006: 80). Missile defence plans as many Chinese perceive would affect China's relations with the United States as it ignores China's legitimate concerns about the programme.

China views US plan to deploy missile defence as a strategy to undercut China's rising influence. These plans have received intense Chinese criticism spearheaded by Ambassador Sha Zukang (Sha Zukang 1999) and other leaders. The former Chinese Premier Zhu Rongji states, in a press conference in Beijing on March 15, 2001:

Our stance is a clear-cut one: We are opposed to NMD. We are opposed to it because it is against the Anti-Ballistic Missile Treaty and it can only lead to an international arms race. We have explicitly expressed our position on many occasions on this issue to the U.S. side, and we have noted that President Bush has expressed the view that they will have consultations with China on this issue (Arms Control Today 2001).

China reiterates that it needs a peaceful security environment to foster economic development crucial in regime survival and avoiding internal chaos. The logic of the peaceful security environment is that China wants to concentrate its resources on economic development not on managing conflicts. Without increase in relative power

capability, attained by economic growth, China cannot solve its territorial objectives to its satisfaction. The twin security goals of preserving domestic order and well-being and deterring external threats to Chinese territory are closely interrelated, from the Chinese perspective (Swaine and Tellis 2000: 17). Missile defence plans would force the Chinese to hasten its force modernisation and take stock of missile defence activities in its immediate neighbourhood.

The US designed security architecture constrains China systemically. However, China has neither confronted nor shown acquiescence to this construction. It has in several ways attempted to elude this structure and creating an alternative architecture where it would allow China to manoeuvre. However, the TMD plans by the United States in turn strengthens the military alliance system in East Asia whereby scuttling the Chinese plans for the region.

China, in order to strengthen its security environment seeks to influence its periphery. The practice of influencing its periphery is an important state policy in China for centuries. The codification of this practice is characterised in its tributary system, which legitimises the Chinese power crucial in maintaining its Sino-centric order. In modern times, China maintains its influence in the periphery by conducting extensive economic interactions. This policy advocates an economic and political order in which mutual trust, benefit, equality, and cooperation characterise bilateral relations (Yong Deng 2004: 125).

This is evident in the economic partnerships that it has with South East Asian Nations, Japan, South Korea, and Taiwan. It is also member in numerous multilateral institutions in the region and in the international system. Its phenomenal growth and strategic importance have facilitated these improvements resulting in what it seeks – a peaceful security environment. The basis of developing economic partnerships is also to introduce interdependence in the relations between itself and its neighbours. The strategy of engaging the neighbourhood and increasing its influence is best conceptualised in its new security concept. China perceives that the successful economic partnerships between states would make it difficult for the state to jeopardise economic ties for overt balancing. China has successfully carried out its regional strategy, which is to ascend its influence by maintaining prominence in the region.

Missile defence has an impact on its periphery and its policy of influencing the periphery. Committing itself to settling disputes through negotiation and securing stability through cooperation, China supports security dialogue, regional security cooperation mechanisms, and stronger multilateral security cooperation, as a way to address security threats and challenge facing all countries (Li Zhaoxing 2005: 680). Missile defence plans strengthens the dominant security architecture of bilateral alliances and forward presence diluting China's efforts in forming a security architecture based on 'mutual cooperation'.

Alistair Iain Johnston and Paul Evans assert that China engages in multilateral institutions to portray itself as a responsible power and to prevent isolation from the international system (Johnston, Evans 1999: 235-265). More so, China can effectively construct a policy for its periphery at the same time stabilise its domestic challenges essential for the security of the state. Thus, China's security policies factor the larger objective of attaining greater international status and consolidating its power capability. Besides, in Beijing's views China's external security and international status rely on a secure domestic base and a more developed economy (Yong Deng 2001: 361). Thus, missile defence undermines China's peripheral policy of promoting its influence and status in the region.

In the Post-Cold War, China's hopes of transition to multi-polarity in the world order was not fulfilled. The Chinese projection of the "inevitability of multipolarity" does not prevent them from noting, at least privately, the tide of the day is otherwise – the United States will remain the only global hegemonic power for decades to come (Wang Jisi 2004: 15). China's hopes of playing an important power in a multi-polar world further came under strains. However, according to many analysts post-September 11 gave a new lease for China to improve its relations with the US (Jia Qingguo 2001). However, it soon found out that the fundamental differences never changed and the changes were tactical not strategic (Wu Xinbo 2004, Friedberg 2002). Missile defence plans pursued by the United States globally further confirms Chinese suspicions that the US in intent on unilateralism.

In East Asia, its relations with Taiwan and Japan are contentious issues for China. Regarding the interests of national survival in the Taiwan problem, China should adopt

strategic coercion policies uniquely adapted to its strengths (Sun Xuefeng 2006: 81). In other words, military coercive methods can be used in case of Taiwan focusing on asymmetric warfare rather than confronting on equal terms. The presence of US troops poses significant constraints on China, which they believe is aimed at containing them and thereby would stop from ascending as a regional power. Its relation with Japan is viewed similarly perceiving that arming Japan to counter China. The US plans for East Asia with regard to missile defence would strengthen military-to-military ties between Taiwan and United States furthering Chinese concern on the reunification.

China's security goals have been narrowly associated with sovereignty and territorial integrity. China's security response is much severe where there is a perceived notion of interference in the domestic affairs or compromise in important territorial objective crucial in the stability of the state. The Taiwan reunification is closely associated with China fulfilling its territorial integrity and the US arms sales or its close association to Taiwan is regarded as interference in its domestic affairs. An objective assessment of the gap in military power suggests that tactics of strategic coercion can be employed only on issues concerning China's survival, and that their value will be tempered and only partially effective (Sun Xuefeng 2006: 78).

However, in response to the US hegemony, China security response has been cautious and hesitant. Prevailing bandwagoning by other powers, acute domestic insecurity, and perceived high costs of open confrontation with the United States combine to explain Beijing's hesitancy (Yong Deng 2004: 334). Thus, the Chinese analysts have focused their attention on defining a position for their country within a global system of US hegemony (Yong Deng 2004: 334).

However, its security response has been severe on security objectives based on core sovereignty issues and territorial integrity. This is not the case for broader issues of hegemonism and power politics. China is decidedly dissatisfied with certain aspects of the current international system, such as Taiwan's indeterminate status and the position of US unipolar dominance (Medeiros 2005). However, there are no policies of outright opposition to the US designed world order.

However, there are certain overall policy measures that China has taken in order to preserve its security. To define the tasks that China has taken to respond to the

continuing challenges posed by the US and the changing security environment, it has issued some strategic level missions and objectives. They are,

- Defending national territory and sovereignty
- Securing nation's maritime rights and interests
- Maintaining the unity of the motherland
- Ensuring internal stability
- Maintaining a secure and stable external environment, especially on China's periphery (Finkelstein 2007:109)

If the deployment of missile defence affects any of these missions, China would take an active response. For defending national territory and sovereignty, China considers its strategic deterrence to be significant. Thus, China would respond to challenges for the viability of its strategic deterrence induced by missile defence deployment. Other challenges would be to have a secure and stable external environment in the event of deployment.

China's Concern on BMD on a Historic Basis

History, China has debated about strategic defences and its impact on its small nuclear force. China's concerns on missile defences can be traced back to US efforts to build strategic defences against the Soviet first-strike capability. China developed a small but vulnerable nuclear force. During the 1960s, Chinese reactions to BMD debates in the United States were minimal because of the political turmoil during the Cultural Revolution. However, as China developed its strategic force, it has always been concerned about its accuracy, survivability, and to prove the credibility of their retaliation. These concerns still reflect China's strategic force modernisation in the recent times.

China's response to SDI was different from its indifference during the early period. The BMDO worked on various research and development programmes against Soviet missiles. The SDI opened up a nuclear debate in China and many analysts debated on how SDI would affect strategic stability and potential offensive uses of technology (Roberts 2003). China also regarded their own missile defence system as they were opposed to the deployment of strategic defences though not to research and development

(Roberts 2003: 13-14). One of the broad concerns that China expressed was the impact of strategic defences on their small nuclear arsenal. China's response to SDI was based on all these assessments about its retaliatory capability. Moreover, the United States has previously aimed missile defences against China. The Johnson administration introduced the Sentinel system in the United States. However, the Sentinel system later were directed against China.

China's countermeasure response started as opposed to SDI. These developments coincided with its own changes about nuclear strategy and modernisation practices. China also debated on the relevance of its nuclear doctrine with its ongoing strategic modernisation. SDI also proved a stimulus to Chinese thinking about how China's international nuclear status compared with that of Britain and France (Roberts 2003: 13). In addition, China's own ballistic missile programme, cancelled in 1983 due to technological and budgetary constraints might have had a boost during this period (Roberts 2003). With broader strategic modernisation, China was concerned about the survivability of its nuclear force in the world of penetrating defences. More so, China also started the production of theatre ballistic missiles for various contingencies in the region. Chocolate

China's participation in disarmament in the 1980s also provided an important role in educating about the maladies of defences for strategic stability and nuclear deterrence. China debated the dangers of weaponisation of space with regard to the SDI programmes. However, the end of SDI indirectly helped China in maintaining its credibility. In the post-Cold War era, the United States was interested in acquiring protection for US troops from theatre missiles. China's concerns on TMD programmes stemmed from the factor relating to its plans of usage of theatre ballistic missiles for regional contingencies, especially in Taiwan. China's concern for US TMD programmes in East Asia increased as its reliance of theatre missiles as a source of military strategy gained importance.

With the end of SDI, Chinese attention on anti-ballistic missiles was minimised. China indirectly benefited from arms control treaties such as ABM treaty banning strategic defences. It ensured that China's small nuclear force retained its deterrent value. However, with the deployment of missile defence Chinese concerns on its credibility of its deterrence has again arisen.

China's Strategic Weapons: Strategic Weapons Policy and Deterrence

China exploded the bomb on October 16, 1964 'to oppose the US imperialist policy of nuclear blackmail and nuclear threats' (Lewis and Xue 1988). China's nuclear weapons sought to reduce China's vulnerability against superpowers in a conventional war against nuclear coercion. Thus, nuclear weapons play an important role in China strategic security. China's nuclear weapons programme was response to the nuclear coercion that it experienced in early 1950s in the backdrop of Korean War (Lewis and Xue 1988). However, China's nuclear strategy changed its course to Soviet Union as tension between both the states intensified (Wang 1984: 1040-1055).

a) Nuclear weapons as political and military tool

China saw the utility of nuclear weapons as an important tool against nuclear blackmail, especially from the United States. Johnston argues that Chinese strategists and leaders still believe in the utility of nuclear weapons in China's military and their political role in attaining great power status (Johnston 1996: 548-576). Thus nuclear weapons occupied in Chinese thinking as a political tool and having military utility.

China's position on nuclear weapons as a tool to deter nuclear coercion is a consistent statement echoed by various officials and analysts. China views nuclear weapons as a status symbol in international system and politics. The importance of nuclear weapons is not just political significance, their military utility is also greatly discussed by various Chinese analysts (Medeiros, Chase 2005: 127). Even though, China used nuclear weapons as an important political tool against both the United States and the Soviet Union, there was virtually no concrete model of doctrine regarding its nuclear strategy. Moreover, Chinese writing on nuclear weapons doctrine was for a long time virtually non-existent, certainly at the public level, and probably also internally (Johnston 1996: 533).

There are also various political dimensions to the usage of nuclear weapons and its nuclear doctrine. China uses nuclear weapons as a coercive instrument politically whereby the American leaders have to take into account the possibility of the Chinese retaliatory nuclear attack. The deployment of missile defence would act to mitigate this political utility. Moreover, there missile defence plans are also connected to the larger strategic clash between the United States and China. Medeiros and Chase (2005) argues

that China is also exploiting counter-deterrence whereby China increase its efforts to communicate its willingness to respond to a nuclear first strike or perhaps just an attack on Chinese strategic facilities (Medeiros, Chase 2005: 133).

These suggests that China is also looking into conveying its intention of its will to retaliate with nuclear weapons thus communicating its intention if there is a direct threat to the nation. There are also various confusions regarding Chinese terminology of deterrence and western terminology of deterrence. China's limited deterrence is closer to credible minimum deterrence than limited deterrence of western notion. Here the Chinese sources indicate that limited deterrence means have sufficient nuclear retaliatory forces for counter-attack operations. Moreover, nuclear weapon as a coercive weapon is gaining prominence where it can used to resolve conflicts. Recent writings on nuclear strategy have also made the general point that the greater one's military capabilities, the greater the awesomeness of the state and the more likely one is to determine conflict outcomes to one's advantage (Johnston 1995/96: 8).

b) Assured Retaliatory Strike

China built a modest nuclear force compared to the United States and Soviet Union. Thus, China's nuclear weapons were extremely vulnerable to first strike. Moreover, Chinese deterrence was weak as they lacked the necessary delivery systems such as long-range ballistic missiles to make their deterrence credible. Thus, China did not have nuclear retaliatory capability against the US until it successfully launched its ICBM capable of reaching continental United States and deployed in 1981. Thus, Chinese plans on modernisation of its strategic force modernisation have always been focused on attaining an assured retaliatory capability.

The nuclear retaliatory strike is the most important part of Chinese nuclear doctrine. China believes that its nuclear retaliatory strike should be able to 'strike enemy command system, cripple enemy war potential, frustrate enemy's strategic intentions, shake enemy's determination and contain the escalation of nuclear exchange' (Medeiros, Chase 2005: 139). Some of these reflect limited deterrence. The doctrinal changes influenced due to the reality that it wants to protect the survivability in new technologically superior military forces.

In order to have an assured retaliatory strike, China has been modernising its nuclear arsenal and delivery systems. Even though, minimum deterrence best characterise its doctrine, there is a transition in China's nuclear doctrine due to the ongoing modernisation. However, by assessing its current force structure, acquisition, capabilities, and debates in the academic circles, certain broad characteristics can be associated with the nuclear weapons policy. However, capabilities of its nuclear forces are not transparent. Secrecy is a tool of China in terms of its strategic forces because it would create uncertainty about its actual size and thereby preserving its credibility. Li Bin argues that transparency would undermine its credibility (Li Bin 2001).

The issue of survivability comes because of China's NFU policy. Survivability is also important for a retaliatory strike. China's nuclear forces have to survive in order to retaliate. Since China has maintained this policy of throughout its nuclear force development, it also means that China has to look into the survivability of its nuclear forces because it has to survive a first strike and then retaliate. Thus, for China to retaliate, its retaliatory forces have to be invulnerable. Medeiros compares it to Wohlsetter's 'Delicate balance of terror' (Medeiros, Chase 2005: 142-143). Thus, China's majority of nuclear force modernisation has been propelled to address the concern of vulnerability. This is also the reason why China has also devoted in developing a SLBM as a major part of its retaliatory force.

China has increasingly focusing on sea-based arsenal because of development of high technology by the United States in wars after the Post-Cold war. China thus is developing credible seaward deterrent because its land based and air based system would be vulnerable to American attack and can be tracked by satellites. Nuclear weapons launched from a submarine are much more credible as it is difficult to detect and submerged nuclear platforms are survivable. The Hainan Island developments indicate that China is building a Soviet-style 'Bastion' strategy of homeporting its Type -094 Jin class fleet ballistic missile submarines and Type-093 fleet attack submarines so to avoid US-Japanese anti-submarine warfare efforts.⁷ Thus, the Chinese leadership is committed in a nuclear arsenal, which is small but has credible deterrence and consists of many advanced weapons

⁷ I thank Dr Lawrence Prabhakar for this input.

c) Strategic Deterrence

Through public statement and analysing the nuclear arsenal, many analysts provided much information about China's nuclear strategy. Lewis and Xue elaborate seven principles shaping China's nuclear strategy. They maintain that NFU is an important part of their nuclear weapons policy. According to their capability, China has a doctrine of minimum retaliation and a small but reliable nuclear force. China targets its nuclear weapons against population centres and quite inclusive of several types of weapons. China has also no tactical nuclear weapons according to the authors (Lewis and Xue 1988).

These principles dominate Chinese nuclear strategy at least in the initial stages, where there were not adequate signs of modernisation to denote any other. However, China nuclear policy has matured over the years with sufficient improvement in its nuclear and missile arsenal. Yao Yunzhu of Academy of Military Studies elaborates on China's nuclear policy. He points out that China still practises NFU policy, would have limited development of retaliatory capability, and will not use nuclear weapons on non-nuclear states and nuclear free zones. He points out that China would continue to work on nuclear disarmament measures and opposes nuclear deployment outside national territories (Yao Yunzhu 2005).

He differentiates the deterrence as strategic rather than operational and tactical deterrence wherein nuclear weapons are used in terms of grand strategy as a tool against coercion not to win military operations (Yao Yunzhu 2005). This is also to imply that China would apply nuclear weapons to prevent nuclear war or its escalation but not win a nuclear war. This means that China does not believe in nuclear war-fighting capabilities like the United States. He differentiates China's deterrence as retaliatory, which means that China believes in small number of nuclear weapons to retaliate (Yao Yunzhu 2005). This is also complimentary to the NFU policy of China whereby it will retaliate after only nuclear attack is forced on China. Moreover, China differentiates its deterrence as central providing security only to China not extending the nuclear umbrella to any country.

Yao Yunzhu describes the deterrence as defensive rather than offensive deterrence and minimum rather than limited or maximum deterrence (Yao Yunzhu 2005). The relevance is in this description is noteworthy to analyse. China believes that its

production of nuclear weapons is a defensive tool. Various literatures have emphasised the argument reiterating China's experiences with nuclear blackmail. Thus, nuclear weapons though be an offensive weapon would be used as a defensive tool however not to coerce other states or used as a weapon in attaining military objectives.

Chinese understanding of deterrence also poses in differentiating how they view their deterrence with regard to other states like the United States and Russia. China characterises its deterrence as minimum deterrence with special emphasis on uncertainty of numbers. Limited deterrence is whereby the deterrence should be credible and visible. As China relies on secrecy and deception in its deterrence, it describes its deterrence as minimum unlike maximum deterrence like the United States, where it has thousands of nuclear warheads and delivery systems for war-fighting capabilities.

However, some issues raise questions over the China's assurance of not using nuclear weapons on non-nuclear states. The Dong Feng (DF)-21 series insofar as its range and basing mean its possible targets largely comprise non-nuclear-weapon states. The DF-21s' basing and ranges suggest targets in such places as Japan, South Korea, Okinawa, the Philippines, or Vietnam. If true, as asserted by Lewis and Xue, that China's target sets for the DF-3 included US bases in the Philippines and Japan, this targeting also runs contrary to Chinese NSAs. That the DF-3 and DF-4 series missiles are already capable of reaching Russian and Indian targets raises further questions as to the purpose of the DF-21 series in the context of Chinese Non-Security Assurances (NSA).

China's focus on its nuclear doctrine became more pronounced as changes in the strategic environment became prominent. China assessed its threat environment in the new circumstances with the reform and opening up. Moreover, China's nuclear doctrine was also affected by its exposure to various arms control committees whereby many Chinese analysts learnt various discussions on doctrine, nuclear strategy etc. From the 1980s, China started to debate about its credibility of its strategic deterrent. Thus, with modernisation the operational capabilities slowly matched that of its doctrine.

However, with the ongoing nuclear modernisation, there are some changes in its nuclear doctrine. China is augmenting its credibility and reducing its uncertainty. Chinese nuclear development is undergoing changes where moves away from quantitative

ambiguity to where it seeks to develop credible and visible minimum nuclear deterrence where it would seek to enhance its survivability of the missiles (Li Bin 2001).

Several Chinese content that China is modernising its nuclear doctrine as a response to changes in the international system and to changing material capabilities of China. However, China's nuclear modernisation does more than general military modernisation; it has specific goals of reducing its vulnerability vis-à-vis the United States. It will define the parameters of the necessary future force specifically to overcome whatever benchmark the United States sets with the defence it constructs (Roberts 2001: 9):

Alastair Iain Johnston argues that China is moving towards the direction of limited nuclear deterrence (counter-force war fighting) rather than minimum deterrence (minimum counter-value) unlike another analysts argue (Johnston 1995/96: 5-42). Limited deterrence has counter-force and war-fighting capability. Here in limited deterrence, China would need greater number of smaller, more accurate, survivable, and penetrable ICBMs, and SLBMs, a BMD to protect its limited deterrent force and Anti-satellite (ASAT) to hit enemy satellites (Stokes 1999). However, China does not have the operational capabilities to practise limited deterrence. China also limited in pursuing limited deterrence as it would generate 'China threat' theory along neighbouring states. China is would not pursue limited deterrence in the present context as it has to protect its international image as a peaceful state.

However, with the strategic force modernisation, there is intense concentration and exploration of limited nuclear deterrence. China is effectively modernising its strategic force not just as a soft-target capable force but also as a force that would fight and survive a nuclear war. While the concept is still evolving, limited deterrence, according to the Chinese strategists, requires sufficient counterforce and counter-value tactical, theatre, and strategic nuclear forces to deter escalation of conventional or nuclear war (Johnston 1995/96: 6). The Chinese strategists perceive that this concept would help in controlling the escalation in a conflict. It has specifically gained more importance after the high-technology war fought by the United States in Gulf and Kosovo.

Gill, Mulvenon and Stokes have done intense studies on the different types of doctrine that China follows at different level. They contend that China follows different

doctrine at strategic level, theatre and conventional level and short-range conventional missile force level. They maintain that China follows credible minimum deterrence at strategic level, offensive oriented limited deterrence at theatre level and offensive, pre-emptive counter-force war-fighting posture at conventional missile forces level (Gill and others 2002).

China is moving towards enhancing the credibility of its deterrence in the new strategic environment. In other words, China has well noted the high technology improvements that are taking place in the United States evident in the Gulf War. They also note the renewed efforts in pursuing missile defence. Thus, China's focus is to increase the credibility of its strategic deterrence under these circumstances. That is to prevent their nuclear forces from being completely wiped out from a pre-emptive strike and to have a retaliatory strike under missile defences. Chinese writings on nuclear doctrine clearly and consistently place a high priority on improving the reliability and survivability of Chinese nuclear forces (Medeiros, Chase 2005: 123). However, at minimum continued interest in a limited strategic deterrence exists in China's strategic circles (Medeiros, Chase 2005: 124).

d) Principle of 'Uncertainty'

China believes that a small number of weapons are enough to inflict damage on the enemy and prove to be a credible deterrent. However, there are some characteristics unique to the nuclear doctrine adopted by China. China has never disclosed the number of long-range missiles: it has neither denied nor accepted the estimates. China believes that uncertainty in numbers would make the aggressor hesitate to attack. In other words, if the US initiates a pre-emptive attack, they would not be confident that they have destroyed all the missiles and would worry Chinese nuclear retaliation with a few undetected missiles (Li Bin 2001).

Thus, the uncertainty in the US estimates about the force size is the relevant part in China's nuclear deterrent strategy (Medeiros and Chase 2005: 131). The Chinese believe this uncertainty compensates for the vast disparity in the US and Chinese nuclear arsenals and creates what Chinese scholars called a "stable unbalanced nuclear relationship (Tompkins 2003)."

China considers its small strategic missiles as sufficient to deter the United States from launching a pre-emptive attack on China or consider interfering in a conflict with China. Even though, China terms international environment to be stable, its reliance on nuclear weapons or its perceptions of its importance has not diminished. Thus, its small but advanced weaponry is crucial for its strategic deterrence. Their modernisation has associated with the credibility of the deterrence rather than increasing the size of their arsenal.

The modernisation focuses on converting its liquid fuelled missiles to solid fuelled missiles. Moreover, increasing the effectiveness and survivability of the missiles is an important goal of modernisation. The modernisation in this arena is to on the deployment of DF 31 (8,000 km) and DF 41 (12,000 km), which would be mobile and solid-fuelled. China is also trying to develop 'Multiple Independently targetable Re-entry Vehicle' (MIRV) capability in addition to this. The DF-31 is the variant of the old one is deployed would increase the abilities and coupled with the sea-based variant JL-2 would be a formidable force.

Provided some of about 20 Chinese ICBMs survive a pre-emptive nuclear attack from the United States and remain capable of striking back, even a limited NMD programme capable of intercepting 20-30 warheads is bound to produce serious effect on China (East Asian Strategic Review 2001). The actual effect of a US national missile defence system would be to deny China a strategic deterrent (Shen Dingli 2000). Thus, its strategic deterrence would come under increasing strains if the NMD becomes operational.

NMD and its Effect on Chinese Deterrence

The development of NMD in the United States homeland has implications for China's strategic weapons policy and deterrence. China has over the years have put forth numerous arguments against the development of NMD. China links the argument of the development of NMD as a threat strategic stability and future arms control issues and one such impedes nuclear disarmament (Sha Zukang November 1999) (Xinhua News Agency 2000).

China's arguments primarily revolve around one issue regarding NMD deployment. China perceives that NMD would affect its strategic deterrence by neutralising its nuclear retaliatory capability. China argues that NMD not only neutralises China's deterrence but also endorses US hegemonic activities in Asia and destabilises strategic stability. Chinese analysts and government officials have criticised the deployment for contributing insecurity to other states (Sun Yuxi, People's Daily 2000).

China did not welcome missile defence plans pursued by the Reagan Administration in its SDI. Brad Roberts argues that there was concern on the Chinese side about the offensive uses of SDI: the US intended to do more than just restoring the strategic balance and 'SDI threatens to open the door to developments that could fatally undermine China's nuclear retaliatory capability' (Roberts 2003: 12). Thus, Chinese arguments placed high priority on the effectiveness of NMD when it becomes operative and perceived notion of the system being used for hegemonic purposes by the United States.

Missile defence, in Beijing's view, is at best problematic for China's efforts to maintain a viable strategic deterrent and at worst puts the survival of the Chinese state at risk (Romberg, McDevitt 2003: 17). China's strategic weapons policy would be under strains because of the deployment. China perceives that NMD would invariably affect its nuclear capability albeit a limited one. It might be very effective to thwart the potential threat posed by the limited nuclear capability of China (Sha 1999).

NMD system poses threat to China's usage of nuclear weapon as a political and military tool. China perceives that the United States would engage in nuclear coercion even with a limited NMD. China has always associated the development of nuclear weapons to the survival of the state. China perceives that without nuclear weapons foreign powers would attempt to use nuclear blackmail. These strategies according to the Chinese would play an important role in limiting Chinese response if China's core security is threatened. This would in turn affect the survival of the state and more importantly the survival of the regime.

Secondly, a NMD system poses problems for Chinese strategy of preserving uncertainty. The uncertainty principle does not work as NMD can intercept the remaining missiles after a first strike. Since, China is modernising based on removing its uncertainty to US pre-emptive strike, it is deploying new strategic missiles. If the United States

deploys more than 100 interceptors, it would undermine China's modernisation programme. Even though the effectiveness of the system would be debatable, China will be hesitant to leave at chance and would expand its arsenal.

China also perceives that the NMD would prompt the US to engage pre-emption with the Chinese. By cancelling a retaliatory capability, the Chinese argues that the US can use force or coercion to solve conflicts according to its satisfaction. Zhu Mingquan of Fudan University argues that "the deployment of an NMD system by the United States will neutralise China's minimum strategic deterrence" and China will lose the very limited capability to deter the US from inflicting first strike on it (Zhu 1999: 21-23). China perceives that the NMD would prompt the US to use pre-emption to solve regional conflicts especially regarding Chinese interests.

Third, China perceives that NMD system would erode its desire to have an assured retaliatory capability. China believes that their current strategic forces that are targeted at the United States would be rendered useless if NMD becomes operational. The NMD, which can intercept more than 20 warheads, are best problematic for China. This minimal capability would negate the credibility of its threat of nuclear retaliation. Once deployed and strengthened, the NMD system would create a situation that would negate the effectiveness of China's 20 ICBMs are both deterrent and coercive weapons (East Asian Strategic Review 2003). China perceives that the missile defence system is not a defensive weapon as argued by the United States. China distinguishes that the United States would use missile defence weapons for offensive purposes, as the country would have both the sword and the shield. Thus, the US would act unilaterally without fearing retaliation from China.

Moreover, there are reasonable analyses that can determine that the even a minimal capability that can intercept few tens missiles can seriously risk China's nuclear deterrence. The emergency capability that is prepared is intended to have 100 interceptors. These interceptors are designed to intercept few tens of long-range missiles. This capability would completely negate China's deterrence. Moreover, the United States is pursuing a layered defence, which would ultimately give more than one option to hit a missile. The layered missile defence system also provides opportunity to direct several interceptors for one missile or warhead, thus increasing the kill probability.

In addition, other factors indicate that the US NMD of GBI would be effective against China's long-range missiles. Li Bin argues that the C1 and C2 capability missiles in Alaska are closer to East Asia, thus helping the US to take a "strategy of 'shoot-look-shoot' in defending missiles from East Asia (Li Bin 2001). This would effectively improve the system's capability to intercept the missiles from China thus proving to be catastrophic for its deterrence. Chinese strategists argue that as a result, 'the blackmail of nuclear war will likely loom again and the international situation will become turbulent and unstable' (Hu Xiaodi, People's Daily 2000).

According to the NMD plan, the US will deploy 100 interceptors in Alaska in its first configuration. Assuming a 1 in 4 rate of interception, the US could at most hit 25 incoming missiles, a more than sufficient capability to take care of the alleged threat from those "rogue" states' said to be developing long-range ballistic missiles with which to target America. At later stages, the US would deploy further kinetic kill vehicles in North Dakota in order to provide nationwide missiles defence.

Fourth, by diluting China's strategic deterrence, it would face other difficulties. China perceives that by nullifying China's deterrence, the US can carry out any objectives without providing due respect to China's security concerns. Li Bin states, "If the Americans tended to believe that a first nuclear strike plus a NMD system would be able to disarm the Chinese nuclear retaliatory capability, the US could become incautious in risking nuclear exchanges with China in a crisis." Moreover, this would also put the US in an advantageous position in the East Asian region or in resolving regional conflicts where China has a significant stake. China's military chiefs are also concerned that a thin US national missile defence will substantially undermine the country's strategic deterrent, potentially removing one means by which China can influence US intervention in a military conflict across the Taiwan Strait (Wilkening 2000: 18).

Conclusion

China's security environment dominated by US security architectures portray missile defence as another policy aiming at China. Moreover, China in the past had debated about strategic defences as the United States prepared to initiate the SDI. The current missile defence, especially the NMD plans, reinforced these concerns.

The weapons systems denote that the US is attempting to deploy a ground based NMD with multi layered options. They give the leaders more than one opportunity to hit the missile thereby increasing the kill ratio of the interceptors. The layered weapons system is also such that the sea and air based systems would also be used for the NMD programme therefore giving much needed protection against China's missiles. Even if the minimal capability does not cover countermeasures, as the US focuses on boost-phase system, these countermeasures would not matter.

Lieber and Press argue that the US is pursuing a first strike capability and the US plans to win future wars without resorting to nuclear weapons (Lieber, Press 2007: 69). The implication here is that the US might not plan pre-emptive nuclear attack but rather a lethal conventional precision guided munitions pre-emptive attack. The modernisation in its strategic weapons is for these purposes: to deter a nuclear counterattack for its conventional pre-emptive attack. The deployment of missile defence favours these strategies. Thus, China perceives that the deployments of missile defence systems are exactly for these purposes – enhance the US' pre-emptive options.

From China's perspective, it is untenable that the US would spend 60-100 billion dollars on a system, which has only "rogue" states in mind (Shen Dingli 2000). Thus, it perceives that the US is deploying the system against China to deny its path to great power status and to preserve its own predominance in the world system. China perceives that it is building NMD systems precisely keeping China in mind and using Rogue states as a pretext.

NMD neutralises Chinese nuclear retaliatory capability and poses challenges for its strategic weapons policy. It undermines Chinese goal of assuring a retaliatory strike. China's ICBM forces, even though has modernised when faced with an NMD have difficulties. Thus, the viability of China's strategic deterrence is threatened by the planned NMD system.

Chapter 4

THEATRE MISSILE DEFENCE IN EAST ASIA: REPERCUSSIONS FOR CHINA

‘We are against TMD... We are especially firm in our opposition to including Taiwan under TMD... TMD would constitute a violation against international agreements on missiles as well as an encroachment on China's sovereignty, territorial integrity and an interference in China's internal affairs.

--Premier Zhu Rongji (in Pottinger 1999).

Introduction

The deployment of Theatre Missile Defence (TMD) in East Asia by the United States has ramifications for China. The chapter assesses the impact of the deployment of TMD on Chinese security. It also analyses how TMD bear on China's position in East Asia. The chapter addresses the following questions. How does China perceive the deployment of TMD in East Asia? What are the implications for China's security due to the involvement of Japan and Taiwan in the TMD programme? How does the deployment of TMD constrain China's military choices in East Asia? How does the deployment of TMD in East Asia affect China's security goals?

The chapter presents the following arguments. It argues that China's perceptions about TMD deployment in East Asia reflect its broad concerns about the region's security order and its position in East Asia. The chapter argues that the deployment of TMD in Japan and Taiwan presents challenges for China's security given the change in nature of strategic cooperation between states on missile defence. The chapter also argues that China's military choice of using its missile forces would weaken as military balance in the region undergoes rapid changes due to the deployment dynamics. These arguments extend as to analyse how these changes consecutively could affect China's security goals in the region.

TMD and China in the East Asia region

In East Asia, the United States is aggressively pursuing the deployment of TMD. By convincing, other states to participate in the programme, the United States gains

legitimacy for the project and can share the costs. From the United States' points of view, the deployment of TMD would reiterate US military commitments to the region.

In East Asia, only Japan has shown acquiescence for joint development of TMD systems especially in the development of Aegis BMD. South Korea is hesitant citing the costs of the programme and incompatibility of the systems with its own defence priorities. It does however support US TMD systems in South Korea for protecting US troops. In future, the nature of support that the United States expects from Taiwan and South Korea would depend on the US assessments of changes in the security scenario in the East Asian region. It would also reflect the United States' ability to influence the decision-making.

In East Asia, Japan and Taiwan are the primary actors who play a significant role in Chinese security. Thus, the involvement of these two actors in the TMD programme would cause significant repercussions for China. Japan rationalises missile defence as an essential defence priority to defend against emerging threats it perceives from North Korea. North Korean and a Korean Peninsula contingency remain the most immediate concerns and public legitimisation for BMD research in Japan (Hughes 2001: 6). The US actions to convince Japan to join the programme materialised when Japanese policy makers showed apprehension over incidents in the Korean peninsula. A modest TMD deployment would ensure that Japan is not vulnerable to the kind of ambiguous coercive threat posed by Iraq against Israel and Saudi Arabia, by North Korea against South Korea or by China against Taiwan Strait (Cambone 1997: 72).

The sheer magnitude of the threats that it perceives from the Chinese missile forces motivates Taiwan to pursue TMD technologies. Taiwan proclaims that Chinese missiles are an important source of coercion to prevent permanent Taiwan independence (Yu 1997).⁸ Even though there are deep concerns about the costs of the weapons system and the Beijing's sensitivity towards the purchase, Taipei might receive TMD technologies if the strait situation deteriorates.

⁸ Statements from key government figures and officials in Taiwan often state that China's missiles are positioned to threaten Taiwan from declaring independence. Taiwan President Chen Shui-bian stated that China had 1328 ballistic missile aimed at Taiwan. See 'Taiwan's Chen Sees Jump in China's Missile Buildup', Reuters January 1 2008

Taiwan might also purchase due to the US pressure stemming from the need to share the costs. However, Taiwan would be cautious in avoiding public statements on the issue and will avoid research and development with regard to upper-tier TMD systems (Swaine and Runyon 2002: 67). Apart from defensive weapons, Taiwan is also diverting resources into offensive technologies. For example, Taiwan is steadily testing cruise missiles with regard to growing Chinese missile deployments (Quam and Yuan 2006).

Taiwan, South Korea, and Japan have deployed TMD systems in their states. The US has deployed PAC-2 systems in South Korea for point defences. Taiwan has deployed PAC – 2 systems for protecting crucial military installations. Due to harsh verbal opposition from China, there has been delay in the sales of PAC-3 missiles and the sales have proved controversial. However, in the 2008 budget, Taiwanese government approved funds for buying four sets of PAC-3 missiles much to the indignation of China (Minnick 2007).

However, the specific architecture of any BMD system developed for Taiwan will be heavily influenced by US calculations arising from the larger military and political environment affecting US-Taiwan-China relations (Swaine and Runyon 2002: 67). In 1998, Japan decided to acquire PAC – 2 missiles. Japan has currently has 24 PAC – 2 fire units. For Japanese Air Self Defence Forces (JASDF)'s six air defence missile groups consisted of six battalions comprising of four fire units (Allen, and others 2000: 62). Japan then additional ordered 16 PAC – 3 missiles for protecting cities.

Japan has already deployed two PAC-3 missiles at military bases around Tokyo. By the end of March 2008, Japan would deploy more missiles in two more locations (Taipei Times January 16 2008). Japan's Self-Defense Forces (SDF) will also deploy PAC-3 missiles at Iruma Air Base in Saitama prefecture by the end of fiscal 2006, and at Kasuga Base in Fukuoka, Gifu Base and Hamamatsu Base in Shizuoka prefecture by fiscal 2010 (Xinhua News Agency June 26, 2006). It intends to deploy 124 PAC-3 by 2010.

Japan has also deployed SM-3 missiles in its Aegis destroyers boosting its sea-based missile defence systems. Japan currently has four Aegis ships equipped with SM-2 interceptor missiles for targeting aircrafts. These fleets are the Kongou and Choukai, both based in Sasebo, the Myoukou in Maizuru, Kyoto Prefecture, and the Kirishima in

Yokosuka, Kanagawa Prefecture (Japan Times July 23 2006). The fifth vessel, the Atago would be deployed at Maizuru and the sixth at Sasebo, Nagasaki Prefecture, which will be equipped with SM-3 missiles. Japan intends to deploy 36 SM-3 missiles between 2007 and 2010 on the four Aegis destroyers – Kongo, Chokai, Myoko and Kirishima. There is also research pursued on upper-tier systems such as NTW and THAAD with the United States.

Table: Current TMD systems in place in East Asia (as of 2007)

	Lower Tier	Upper Tier
Japan	24 Pac-2+, 16 Pac-3 (Taipei Times 2006)	6 Aegis BMD ships (Japan Times 2006)
Taiwan	Pac-2+ systems (Taipei times 2008) , budgetary allocations for 4 PAC-3 (Minnick 2007)	---
South Korea	PAC-2 + systems Numbers (n.a)	---

China’s Concerns on TMD and Regional Implications

China considers that a secure periphery is essential and instrumental in maintaining stability of the regime and preserving order in the state (Swaine and Tellis 2000). Thus, China actively engages the periphery to enhance its influence and reshape the regional order to be more conducive to its interests (Gill 2007). China’s perceptions about the deployment of TMD around its periphery echo its broader concerns about its position in East Asia. China argues that deployment of TMD in the East Asian region would have three important regional implications, which would affect its position in the East Asian region. Measures to enhance cooperation on the TMD front are perceived as efforts to reorient defence network and cooperation in East Asia providing challenges to Chinese security (Diamond 1999)

China perceives that missile defence systems in East Asia would prompt changes in the regional security architecture, whereby it would become more hostile to China. Secondly, China perceives that transferring technologies would increase proliferation and arms sales in the region contributing to instability. This argument reflects China's apprehension regarding sophisticated weapons at the hands of states hostile to China. Thirdly, China perceives that TMD systems in East Asia are one of the ways for the United States to preserve its 'predominance'.

a) Regional Security Architecture

China's concern for the present regional security architecture designed by the United States is evident from various statements in its defence white papers.⁹ These statements reflect the view that China perceives regional security architecture as asymmetrical and not favourable to China. China contends that the deployment of TMD in East Asia and resultant activities between states due to the cooperation would invariably reorient the regional security architecture to limit China's influence. The military and strategic balance could be reshaped in East Asia because of the development of missile defence in the region (Chu Shulong 2000). China's perceives that the deployment of TMD induces changes in the already hostile regional security architecture in several ways.

First, TMD-induced changes would be evident in the military alliances in East Asia. China's prominent concern centres on the US military alliances in East Asia. China frequently reiterates its distaste for what it considers these regional military alliances as 'Cold War mentality'. China perceives that cooperation among states on TMD programme would promote greater interaction in military, polity, and networking. These interactions would promote renewed importance on military alliances in the region. China asserts TMD deployment would strengthen regional military alliances whereby these alliances eventually aim to contain China (China Daily June 8 2007).

⁹ In the defence white paper 2004, China states that 'complicated security factors in the Asia-pacific are on the increase'. It has shown concerns on both Japan and the United States on the military activities whereby the US is 'reinforcing its military presence in the region'. The Taiwan situation is termed as grim and China accuses Taiwan authorities 'waiting to declare independence through constitutional reform'. In the 2006 white paper, it declares that there are 'growing complexities in the Asia-Pacific region'. Here it points that 'strategic realignment' is underway. There is emphasis on US military presence and Japan's growing operational integration with the United States. Similar statements are frequented in defence white papers 2002, 2000.

Gill (2007) assert that China remain vary of alliance system of the United States and sees as something “directed against China either as part of a general containment strategy or, more particularly, during a conflict over Taiwan”. The 2004 defence white paper states that ‘the United States is realigning and reinforcing its military presence in this region by buttressing military alliances and accelerating deployment of missile defence systems’ (2004 defence white paper).

Thus, China views that strengthened military alliances through TMD deployment would change the nature of the regional security architecture, which it believes to be detrimental to its interests. This is because the regional security architecture through military alliance also provides immense influence to the United States in the region and excludes China. The deployment of the TMD systems would further safeguard these arrangements. As long as China is excluded from the United States –Japan joint TMD programme, China will feel targeted by the US-Japan alliance as a common enemy and will be cautious about taking steps in the direction of China-US-Japan trilateral security cooperation (Yan Xuetong 1999: 72).

Secondly, China views forward deployed troops by the United States with increasing concern. The security architecture largely built during the Cold War era to prevent the spread of communism facilitates the presence of the United States in East Asia. Maintaining regional stability is the overarching long-term security interest of the United States in Northeast Asia, as it has been since the Cold War (Wilborn 1996: 24). The United States uses the systemic advantage to promote its interests in the region and provide access to the region’s markets. In return, the US would preserve the order, play the role of the stabiliser, and provide security to the region through military alliances. To protect its interests, the US also denies the rise of any power that has the intention and capability to threaten these interests. These interests call for continued US commitment to the regional security through the presence of forward-deployed troops to minimise the impact of the so-called “tyranny of distance” (Danny Pau and Herbert Yee 2005: 32).

China asserts that by developing and deploying TMD in East Asia, the capabilities of the US troops in East Asia would increase. China largely uses the offence-

defence debate¹⁰ to propagate that especially upper-tier TMD can also be termed as offensive weapons. With research and development steadily increasing on TMD related technologies, China perceives that the United States would use defensive capabilities for offensive operations. China contends that one way of using TMD technologies for offensive use is to use interceptor technologies in missiles to hit space-based objects. The recent test by the United States using interceptor missile to hit a crippled satellite only confirmed Beijing's suspicions. For example, China clearly sees the TMD cooperation in Japan as dangerous as it argues that it would increase Japan's offensive capabilities.

Thirdly, TMD deployments would strengthen bilateral partnerships into regional security arrangements as opposed to China's efforts to build a multilateral security structure based on common security values and mutual trust. The one-way provision of protection by the United States to Japan will turn into two-way regional arrangement (Sha Zukang 1998). China is concerned that TMD deployment would have political implications as it would derail Beijing's desire to establish a multilateral security framework, where China would play a significant role. Beijing's recent change of attitude towards multilateral security architecture and its emphasis on security cooperation partnerships runs directly opposite to the US reliance on bilateral security alliances and forward military deployments (Danny Paau and Herbert Yee 2005: 33).

b) Arms Sales, Race and Regional Instability

Concerns regarding arms sales, arms race, and regional stability also drive China's arguments against TMD deployment in its periphery. The US plans for the region are to supply or co produce systems as to create architecture that would provide security to its allies, and forward deployed troops. However, the US has also included the term "friends" where weapons systems would be provided or involved in the research and development. China's belief is that US cooperation with Japan and other countries to develop TMD to protect US forces and allies in East Asia or other regions will have a serious adverse impact on the security and stability of these regions (Sutter 1999).

China asserts that TMD deployment in East Asia would drive other states to increase their offensive missiles to counter missile defence, triggering an arms race in the

¹⁰ China often argues that one cannot distinguish between an offensive and defensive weapon. That defensive weapon can also be used for offensive purposes.

region. In the view of many Chinese analysts, a post-ABM world would simply drive countries including China, to develop and deploy more, not fewer, sophisticated missiles in order to counter missile defences and ensure their legitimate national security interests (Gill 2007: 83). Thus, China asserts that US' TMD cooperation with countries and sales to regional actors would cause arms race in the region. This would promote regional instability brought on by arms race and security dilemma in the region. China has objected to missile defence in Japan since the issue appeared because China believes missile defence in Japan will disturb regional stability (Li Bin 2000).

The United States TMD cooperation with Taiwan is embedded in the larger issue of US military sales to the island (Wilkening 2000: 21). The arms sales by the United States to Taiwan are an issue that China feels strongly. What the United States considers as important to the self-defence of Taiwan, China considers it as interference in its internal affairs. Thus, China asserts that TMD sales to Taiwan promotes arms race in the region whereby China is compelled to seek a response. Moreover, Beijing has linked arms sales issue to Taiwan to its support for arms control regimes.

China also asserts that anti-missile interceptor technologies are closer to technologies used in missiles. By transferring to allies and friends, the Chinese assert that the US would also potentially perpetuate missile proliferation. This in turn would rise in the production of offensive missile technologies due to higher level of sophistication in the missile defence system. A country that does not possess advanced offensive missile technology and receives TMD from another state might be tempted to attempt to convert TMD technology to their offensive missiles if this proved a useful way to upgrade their offensive missile capability (Yan Xuetong 1999: 66). China asserts that missile proliferation due to TMD technology transfer would undermine arms control agreements such as MTCR where it controls the spread of missile delivery technologies. China asserts development of TMD systems in East Asia would hinder non-proliferation efforts in the region to stop the spread of missile-related technologies leading to regional instability. Li Bin advances the point arguing that programmes such as NTW system do violate the MTCR regime calculations since he points out that it is not difficult to convert a NTW interceptor into surface-to-surface missiles (Li Bin 2000).

This would prove dangerous to the regional instability, China argues. It maintains that as China has worked meticulously in several arms control committees and this would derail several in China's points of view that are crucial to world stability. Moreover, there would be increase in offensive technologies within countries as a response to missile defence in East Asia as it is only way to counter defensive capabilities (Chu Shulong 2000). Another way in terms of arms race is also defensive technologies, as China along with Russia would develop their own missile defence systems (Chu Shulong 2000). TMD systems would undermine nuclear disarmament and international non-proliferation efforts (Gu Guoliang 2000).

Since missile defence systems include space-based systems, China argues that it would lead to the weaponisation of space. Hu Xiaodi in a statements remarks that 'what worries us is that certain country is trying to seek military superiority in outer space and strategic superiority on the Earth through outer space' (Xinhua 10 March 2000). The space-based research on military utility is one of the significant worries for China. Since technologies such as early warning radars, satellite technologies would markedly increase the state's space-based assets. China views research on TMD as contributing to steady increase in space research undermining China's efforts in arms control committees to control such research of states like the United States. The US development and deployment of TMD system in Asia will upset the regional military balance and undermine stability in Asia-Pacific region (Gu Guoliang 2000).

c) Strategic Order and Hegemony

Thirdly, China perceives that TMD would preserve the strategic order dominated by the US and ensure 'US hegemonism' in the future. China perceives that TMD deployment would increase the US influence through these renewed interest in the regional affairs and the ability to affect regional security outcomes. China perceives that the pursuit of these systems in the region would preserve American dominance in the region. Chinese analysts believed missile defences 'would embolden the United States to act with less restraint and pursue unilateralist, hegemonic policies potentially detrimental to Chinese interests' (Gill 2007). China believes that the developments would further promote asymmetries between states.

China increasingly views US-Japan alliance as further evidence of US hegemonic policies. It views that TMD cooperation between the US and Japan would result in Japan used in an eventual regional conflict involving Taiwan. They argue that such an integration of Taiwan with the US-Japan security alliance would reduce the likelihood of Taipei's accommodation of the mainland and increase the likelihood of long-term diplomatic adventurism by Taiwan (Christensen 2002: 14).

China views US push for TMD as a sign for increasing United States hostile intentions towards China. China views TMD as a pretext and perceives it as an intention of the United States 'to do something against China'. Moreover, there would be changes in the security cooperation would be engaged between the United States and states participating in missile defence programme or buying these systems. This would cause friction and cooperation in bilateral relations between major states in East Asian region.

Moreover, China believes that the TMD deployments in East Asia would ultimately used against its deterrence. Should China attempt a more assertive, limited nuclear-deterrence strategy, TMD deployment provides both Japan and the US with a wider set of response options (Cambone 1997: 81). Thus, China perceives that TMD deployments in East Asia would prompt the US to intervene in regional conflicts involving China. US interventions in regional conflicts in Gulf, Kosovo, and presently Iraq are used as examples where the Chinese assert that the US would use unilateral force for protecting their interests in the region.

Strategic Implications of TMD in Taiwan to China's Security

On September 30 1997, the House Committee on International Relations recommended the US administration to transfer materials to help Taiwan to establish a local area ballistic missile defence system (Yan Xuetong 1999). On November 1997, the House of Representatives passed a bill demanding the Secretary of Defence to study and report to the Congress by July 1998 on the establishment and operation of a TMD system in the Asia-pacific region capable of protecting Taiwan from missile attacks and the possibility of transferring the systems to Taiwan (Chen 2002: 3).

Before 1997, Taiwan only had three batteries of PAC -2 plus systems called the Modified Air Defence (MAD) deployed in Taipei. Taiwan was cautious of TMD systems

because of intense debate about its feasibility and cost of the technologies. However, later Taiwan has steadily shown support for TMD transfers as it recognised the strategic value of participation in the programme. In 1999, a study group established within the General Staff Headquarters studied Taiwan's possible participation in a US proposed TMD scheme (Asian Political News January 18 1999). Later Taiwan announced its interest for receiving lower-tier TMD systems after approval for the purchase was made clear by senior officials.

Taipei has strong political motivations for acquiring TMD from the United States. Taiwan perceives that by acquiring TMD it would provide huge psychological reassurance to the people of Taiwan. In the future, our "Patriot Advanced Capability-3 missile" purchase will not only effectively defend governmental, economic, and military installations, but will also aid in building up the public confidence in the national security (Sun, February 03, 2008). Taiwan perceives that by acquiring TMD from the United States, it would promote Taiwan to coordinate with the United States on information sharing and satellite technologies. Taiwan perceives this would virtually embed closer relations with the United States thus deter China by employing force to reunify. These are exactly the reasons why China considers the transfer of TMD systems, especially upper-tier TMD as problematic.

Taiwan perceives that China uses its theatre ballistic missiles as a coercive tool to influence Taiwanese actions or prevent any movement towards independence. Taiwanese analysts also perceived Chinese expansion of missile bases in Fujian and Jiangxi provinces, directly across the Taiwan Strait, as another attempt at missile intimidation prior to 2000 presidential election (Lee 2001: 5). Thus, they argue that TMD deployments can offer limited protection against China's theatre missiles (Christensen 2002: 13).

To China, Taiwan's interests in acquiring TMD systems have both political and strategic implications. This is because Beijing views the reunification of Taiwan as the most significant national security goal. China does not desire any development, which would weaken its claim on Taiwan or complicate its reunification. China repeatedly emphasise the importance of Taiwan to China and warns states not to interfere in Taiwanese politics nor boost its defence. 'The Chinese people are resolutely opposed to

all separatist activities in whatever manifestation aimed at "Taiwan independence," to foreign interference of any form, and to arms sales to Taiwan or entrance to military alliance of any form with Taiwan by any country in the world. We will never allow anyone to split Taiwan from China through whatever means. Should the Taiwan authorities go so far as to make a reckless attempt that constitutes a major incident of "Taiwan independence," the Chinese people and armed forces will resolutely and thoroughly crush it at any cost' (Defence White Paper 2004).

Thus, China views any efforts to improve Taiwan's defence by the United States to have implications for their security. Meanwhile, it is wise for the United States and China – including the people on Taiwan to avoid anything that might lead to a physical confrontation between the United States and China (Shen 2000).

a) Political Implications

There are political implications for China concerning the TMD transfers to Taiwan. The implications are two fold. First, China's concern portrays its apprehensions that Taiwan by receiving technologies would come under the United States' security umbrella and transform the relations into a *de facto* military alliance. Second, China is also concerned that Taiwan would embolden to either seek independence or maintain the status quo forever.

China's goal has been to isolate Taiwan internationally and reduce its space in the international system. In the case of transferring TMD technologies to Taiwan, China is concerned about the changing nature of relations between Taiwan and the United States. The political relations between the United States and Taiwan would become closer. China believes that by receiving TMD technologies Taiwan would want to move closer to the US as it was before 1970s. After the cancellation of Mutual Defence Treaty (MDT) with the United States, TMD would consider as a viable option of achieving real time cooperation with the United States in terms of access, information, and military-to-military contacts.

Moreover, China perceives that with the TMD transfers to Taiwan might promote defence network between the United States, Japan, and Taiwan. Thus, this would drag Taiwan into the security architecture of the United States. China warns that 'it's [U.S.

deployment of TMD in Taiwan] like playing with fire. That will completely disrupt the current world situation, and instead a new cold war will appear' (Faison 1999).

Beijing analysts believe that the transfer of TMD systems to Taiwan 'might restore a quasi-alliance between Washington and Taipei because Taiwanese systems would not function without sustained peacetime links to the US military intelligence network in the Pacific' (Christensen 2002: 13-14). If such an alliance network is established, China perceives that American intervention to Taiwanese reunification would become a reality. Even from Taipei's perspective, the political significance of TMD deployment is given more leeway than the military implications.

The transfers of TMD to Taiwan would necessitate closer military-to-military relations between the two states. Beijing argues that the transfer of advanced TMD to Taiwan would require more interaction between United States and Taiwanese militaries, leading to the creation of a de facto military alliance similar to the 1954 MDT between Taiwan and the United States (Goldwin, Medeiros 2000: 287). China frequently underscores the political significance of such contacts to point out that these activities would motivate Taiwan to permanently separate from China.

China's conflict about Taiwan is also about territorial status. China's claims to sovereignty over Taiwan are also linked to questions of national stability, regime survival, and legitimacy for the rulers in Beijing (Gill 2007: 140). China perceives any intention to maintain the status quo permanently or reverse the status quo in Taiwan's favour as a dire situation compromising its security. China perceives that TMD in Taiwan would attribute to the situation wherein the status quo would be permanently maintained. By linking sovereignty issues with Taiwan, China argues that transfer of TMD would constitute gross interference in its internal affairs. Ming guan argues that TMD in Taiwan would regard 'as an infringement on China's sovereignty and territorial integrity with the intention of obstructing China's peaceful unification' (Zhu Minguan 1999: 21-23).

Chinese analysts argue that TMD to Taiwan would exacerbate tension in the Taiwan Straits. China's short-term strategy has been to prevent Taiwanese separation. These analysts argue that TMD would give Taiwan the confidence that the United States would defend Taiwan if they opt for independence. The greater the conviction that TMD

would provide a shield for Taiwan from missile attacks, the further Taiwan would move in the direction of formal independence (Yan Xuotong 1999: 71).

Moreover, in the near future, at least while the Mainland is focused on developing modern economy, the PRC's main concern will be to block *de jure* independence, not to press for reunification (Romberg 2001). As for the TMD deployment, China perceives would complicate its planning of blocking Taiwan's attempt to move for independence.

b) Strategic Implications

China has shown vehement opposition in its statements about including Taiwan in the development or transfer of TMD in East Asia. Ambassador Sha Zukang spearheaded the campaign issuing many statements echoing the Chinese official position on its view on this matter. He states that 'transfer of TMD to Taiwan will touch off strong reactions from China. This is not good for peace and stability in that part of world' (Sha Zukang March 2001). The strong reaction from China regarding the TMD transfer to Taiwan certainly relayed a strong message to the United States that China will show its displeasure if such systems are transferred. China argues that even though TMD is a defensive weapon, the offensive capabilities of Taiwan would increase. 'The US transfer of TMD systems to Taiwan, such as PAC-3, Aegis and other missile defence systems, together with the provision of advanced early warning assistance, will significantly enhance Taiwan's overall offensive as well as defensive capabilities' (Sha February 2001).

However, China's disapproval is severe towards mainly upper-tier TMD systems where the Chinese believe has the capacity to also destroy long-range ballistic missiles. However, they have reluctantly shown assent to lower tier systems. Sha further explains these points. He states that TMD which 'can play and function the role of NMD and can be used as a front of NMD' and if 'such TMD will be used to enhance military alliances or exceeds legitimate defence requirements by covering areas beyond their scope of their defence; China would certainly oppose such kind of TMD' (Sha March 2001). China has reluctantly accepted the argument for lower-tier TMD claimed to protect US troops or for point defences however has severe reservations against upper-tier TMD for regional defences.

TMD deployments such as PAC-3 missiles might not provide much protection against hundreds of Chinese theatre missiles. However, TMD deployment in the end with complete systems and combined systems in other East Asian actors would prove instrumental in tilting the military balance in the region. In other words, various land based and sea based TMD systems woven together provide some chances against Chinese missiles. Moreover, once the technology is proven, increasing interceptors with regard to the missiles are not problematic. Moreover, TMD systems in Taiwan, along with US offensive capabilities would provide sufficient challenge to the Chinese strategy of using its missile forces.

Moreover, China argues that if Taiwan receives advanced TMD technologies it would affect China's airspace over the Taiwan straits. China has a weak air force and naval force when compared to states like Japan, the United States, and Taiwan. China argues TMD systems would threaten China's airspace thus emboldening the Taiwan separatists to take reckless actions towards independence. More seriously, the provision of such missile defence systems by the United States will further encourage the small number of separatists in Taiwan in their efforts against reunification, and may even prompt them to take reckless actions and aggravate tensions over the Taiwan Straits (Sha February 2000).

There are also several other reasons why TMD would prove detrimental to Chinese security. If there were active TMD cooperation or provision of TMD technologies between Taiwan and the United States, the two militaries would achieve certain degree of interoperability. There would be high degree of coordination in command and control level of the two militaries and would provide higher degree of cooperation and political dialogue between the two. Moreover, as the degree of cooperation increases, cooperation in terms of policymaking would increase. Thus, Taiwan would move more closely to the United States and can potentially use it to its advantage of tilting the balance in favour of Taiwan.

China has often reiterated its options of even resorting to use 'non-peaceful' means to achieve reunification. China's assertions are made credible by its large missile forces particularly theatre missile forces. TMD can offer partial protection from Chinese missiles against key area defences and cities. TMD deployment in or near Taiwan could

therefore reduce China's ability to use missile threats to politically intimate Taiwan's leaders to prevent the island's permanent break from the mainland (Yuan 2005: 39).

In future, Taiwan will probably seek to acquire lower-tier and upper-tier warning systems and C3I infrastructure (Swaine and Runyon 2002: 37). China is also concerned that Taiwan will slowly accumulate TMD sub-systems so as not to create panic in the cross-strait relations.

The Japan Factor in TMD cooperation and Impact on Chinese Security

US-Japan dialogue on missile defence, especially theatre missile defence, is well-established (O'Donogue 2000: 5). In 1989, 'Western Pacific Missile Defence Architecture Study' was launched to examine defending Western Pacific and Japan from North Korean missile attacks. In 1994, the US-Japan Theatre Missile Defence Working Group was established to explore the requirements for Japanese missile defence. In 1995, JDA issued a report 'On Research Concerning Ballistic Missile Defence' where it stressed the deficiencies in Japanese defence to meet the emerging ballistic missile threats (Swaine 2001: 30). However, these measures were not serious, as Japan did not consider TMD as a viable security option. The initial lack of enthusiasm was soon overrun by the North Korean missile test in 1998 resulting in genuine interest in TMD research.

China's steady missile production also proved a point for Japan to consider TMD deployment. In December 1998, the National Security Council of Japan approved to begin cooperative approach with the United States on BMD. On December 13 2003, the Japanese Cabinet decided to introduce multi-layered defence system based on Aegis BMD system and PAC-3. The Japanese government also gave assurance that this would not be an extension of US NMD and the government would take independent decisions. Even though Japan is concerned about the implications for missile defence for Japan's security (Funabashi 2003: 135-144), it has acceded for jointly developing the upper-tier systems. On December 25 2005, the Japanese Cabinet decided that Japan would jointly develop the more advanced SM-3 for the BMD system (WMD Insights July/August 2007).

The Japanese government especially sped the deployment of missile defence deployment after North Korea's missile launches in July 2006 and October 2006 nuclear

test. In October 2006, the United States deployed a PAC-3 unit at Kadena Air Base on Okinawa and in March 2007, Japan deployed its first PAC-3 at Iruma Air Base in Saitama prefecture, near Tokyo. Japan now plans to expedite modifications on four Aegis ships to be equipped with the SM-3 between 2007 and early 2011, at the rate of about one ship per year (Toki and Diehl 2007).

For the Chinese government, the speeding up of missile defence developments are worrisome. Few developments are particularly disturbing to China. In 2007 fiscal year, Japan has increased 56 per cent from the current spending and requested 219 billion yen (1.80 billion dollars). Moreover, Japan and the United States are participating sea based BMD tests, which are proving successful in the recent times. The United States reportedly will also provide 80 PAC-3 interceptors to Japan, although this has not been confirmed by JDA (WMD Insights October 2006). At present, eight Aegis-equipped warships, including the Ticonderoga class Cruiser *USS Shiloh*, are stationed at the base (Masaki 2003).

China is also worried about the incremental rescheduling of the deployment of missile defence systems. After North Korean missile tests, Japan decided to deploy its PAC-3 missiles ahead of schedule in 2007 rather than the set date of March 2008. Japan and the United States also formed the joint centre for missile defence gathering and information sharing triggering closer relations between the two militaries in terms of interoperability. China is also concerned that through the deployment of missile defence Japan would incur changes in its constitution Article 9 and would become a military power and would project power further.

The United States maintains that TMD in Japan is necessary to protect its forward deployed troops and Japan from ballistic missile threats. This is because the role of the Japan's SDF is to protect the US troops in Japan as these troops provide security for Japan. This sends out a message that TMD is actually a reaction to the growing missile threats rather than one triggering missile developments in East Asia. Under the 'sword and shield' framework, JSDF concentrate on protecting Japanese territory, including US bases, while US forces focus on offensive missions (Allen and others, 2000). Moreover, steps are taken to skip decision-making channels to quickly activate the missile defence system to respond quickly if Japan is under missile attack (Shimoyachi 2005).

Japan would deploy its own missile defence in accordance with its various political debates about its self-defence forces, its operational integration with the United States, debates over the joint command and control with the United States. It is likely that many of the elements of Japanese BMD system will be built on existing foundations in the Patriot, the Maritime Self-Defence Force (MSDF)'s AEGIS ships, and ongoing improvement of the ASDF Command, Control and Communication (C3) and individual radar tracking systems (Swaine and Runyon 2002: 62).

a) Political Implications

Japan's role in the TMD cooperation holds special reference for China. China views to a lesser extent that Japan's role in TMD cooperation would play a negative role in region's stability. Japan's activities denote that there is an increased security role for it to play in regional affairs after the 1997 revised guidelines between the United States. The result being that Japan has expanded its role in the post-September 11 world and has provided assistance in US war on terrorism.

Japan has converted its Defence Agency to full fledged Defence Department to effectively meet its defence needs and play better role in the alliance. The US administration report for the future of Japan-US alliance derives for a more robust role for Japan in the region. This is evident in the Nye – Armitage report in 2000 and 2007. It has specifically calls for increasing Japan's security role in East Asia and an important ally in ensuring peace and prosperity in the region. Hong Yuan (1998) reasons that there is TMD cooperation between Japan and the United States since the both states view China as a threat in the post-Cold War era. He argues that TMD cooperation is to counter China.

b) Strategic Implications

i) Japan's Remilitarisation

China perceives that by cooperating in TMD cooperation Japan would go nuclear¹¹ (Hong Yuan 1998) and move back to remilitarisation (Medeiros 2001: 11) (Hong 2000). In this sense, China views that the research and development of TMD jointly by the United States and Japan can greatly enhance Japan's military capability to pursue

¹¹ Japanese analysts however argue that Japan's nuclear options would only further complicate its security situation and that the costs benefits and public support for such a venture is not positive. See Mataka Kamiya (2002), Nuclear Japan: Oxymoron or Coming Soon?, *The Washington Quarterly*, 26(1): 63-75

offensive goals (Hong 2000) (Zhu Minguan 1999: 21-23). This they believe would prove dangerous to the regional stability given the violent history of Japanese militarism. China argues that once Japan improves on its security role in the region, it would spread its aggressive designs on its Asian neighbours. Adding to this concern is the belief that a stronger, more assertive Japan could precipitate a weakening of China's political power in the region (Urayama 2000: 602).

China asserts that the way in which both states are conducting research indicates that it is not aimed at providing defence to Japan but to improve its defensive and offensive capabilities, exceeding beyond its defence needs. In a statement, Foreign Minister Tang Jiaxuan asserts that 'the U.S. studying the TMD system with one of its allies would be damaging to peace and security in the Asia-Pacific' and the research 'will go far beyond the legitimate defence needs which the relevant country has repeatedly indicated' (Associated Press 7 March 1999). Thus, the Chinese concern on Japanese remilitarisation points out to its reluctance to let Japan to have increased role to the security of the region.

China grudgingly accepted US presence and support for Japan, as it perceived to be beneficial in limiting Japan's military growth and subverting Japan's nuclear ambitions. However, there are reservations regarding Japan's active role because of changes in the alliance due to TMD cooperation between the United States and Japan. The sophisticated TMD systems, especially NTW systems currently under the joint development by the United States and Japan, given its inherent strategic capability, once deployed in East Asia, will undoubtedly serve as an indispensable link within US NMD (Wang Qun 2000).

ii) Expanding Scope of US-Japan Alliance

Japan's historic connections with Taiwan as a coloniser partly explain its concern on Taiwan's security (Yoshihide 2001: 130-146). China's foremost concern of US-Japan TMD cooperation and joint development is that it would eventually aim to intervene in the Taiwan conflict or include Taiwan in the regional security network (Wang Qun 2000). These concerns were fuelled by few developments. In the September 1997 Guidelines of US-Japan Defence Cooperation added that the alliance would also focus on cooperation in "situations in areas surrounding Japan that will have an important

influence on Japan's peace and security'; China perceived that the reference is indirectly towards Taiwan.

In a statement on April 30, 1998, Foreign Ministry Spokesman Zhu Bangzao warned, 'China firmly opposes any direct or indirect activities which attempt to include the Taiwan Straits in the scope of the Japan-US security cooperation relationship. China holds a clear-cut and consistent stand that Japan-US security cooperation is a bilateral arrangement formed with a specific historical background that should be strictly limited to the scope of bilateral relations between the two countries. Otherwise it will upset surrounding countries in Asia and create complexity affecting the security situation in this region (Beijing News Briefing 30 April 1998).'

By maintaining strategic ambiguity, Japan has been able to retain the decision to enter into any regional contingencies involving China according to its own security needs. This would give China some degree of doubt of Japan's involvement in a possible Taiwan conflict. However, China believes Japan would have no choice but to follow US actions since TMD cooperation integrate Japanese and the US forces whereby Japan would be forced to give logistical support.

China perceives that Japan would provide logistical support in the Taiwan reunification process due to the security commitment in the US bilateral security alliance. Chinese analysts believe that Japan would be dragged into the Taiwan conflict in order to preserve its alliance with the United States due to the revised security guidelines (Wang 2000: 353-373). China perceives that as Japan develops upper-tier TMD, it would use these technologies to protect Taiwan (Medeiros 2001: 11).

The US-Japan alliance has also significantly changed due to the revised guidelines and TMD cooperation. China has not missed the increasingly military significance. Hughes contends that Japan and the United States developed parallel structures and command in the alliance to defend US troops in Japan (Hughes 2001). He points out due to the TMD cooperation the alliance these parallel structures would become an integrated command and control, whereby Japan would rely on US information and would operate within US command.

Moreover, there are also indications that the Sino-Japanese rivalry is deepening. Japan has identified China as a military threat for the first time. The concerns have

spiralled as Japan – US joint statements in February 2005 which declared Taiwan as a common security threat” only confirmed Chinese assumptions of the role of Japanese-American alliance in East Asia. Chinese analysts understood that the combination of enhanced alliance responsibility for Tokyo and the US policy of “strategic ambiguity” toward Taiwan increased the chances that Japan would be involved in a Taiwan contingency (Gill 2007: 147).

While discussing a potential Japanese missile defence system, some Chinese experts contends that Japan’s real intention is to protect Taiwan should a direct military confrontation occur between Beijing and Taipei in the future (Urayama 2000: 601). China believes that the once Japanese missile system in place, it could be reduce the significance of its short-rand and medium range missiles.

iii) Interoperability

Japan follows two strategies of deploying TMD. One is to buy PAC – 3 missiles from the United States and deploying in Japan. Another is to develop upper-tier TMD systems in a joint development with the United States, for example the NTW system. Japan has been pushing for sea based TMD system as their navy is one of the sophisticated in their armed forces and to one to exhibit power for any regional contingencies. Thus, by joint research and development, there is a complex process of assimilation of the US and Japan’s C4I capabilities and information sharing systems. This would make the Japanese forces within the US command to work in an integrated manner but also to work independently. How much independence that Japan would have is a debatable point.

It is likely that many of the elements of a Japanese BMD system will be built on existing foundations in the Patriot, the MSDF’s AEGIS ships, and the ongoing improvement of the ASDF C3 and individual radar tracking systems (Swaine, Runyon 2002: 62). These measures would increase the sophistication of the existing system and provide integration into US TMD systems in the region. By integrating the command, control, computers, communications, and Intelligence (C4I), there are several implications beyond this. Japan’s poor C4I capabilities would be overhauled to match the US capabilities and to boost interoperability. There would be extensive improvements in the joint battle management to meet the coordination of launch interceptors.

The cooperation on TMD between the United States and Japan brings two states' foreign policy making, their assessments on regional security situation, and their responses to a more cohesive manner. These are evident in joint statements in US – Japan security consultative whereby both countries show concerns on issues like Taiwan, arms control, and non-proliferation. For example, discussions are ongoing with Japan on Pacific security issues (US DOD report 2001). Moreover, as cooperation between Japan and the US on BMD operations in Northeast Asia will require a level of cooperation between US and Japanese defence forces that gives unprecedented meaning to the term 'interoperability' (Rubinstein 2007).

As TMD cooperation between Japan and the United States increases, increased regional role for Japan would fast become a reality. China is concerned that with the military alliance reaching a regional arrangement, Japan from being a passive partner would share a pro-active role in regional affairs. Moreover, this will upgrade the integrated capabilities of offence and defence of the US-Japan military alliance to a level higher than that in the Cold War (Sha 28 April 1999).

However, bulk of its concern remains on the effect of cooperation between Japan and United States on their alliance partnership. China is concerned that the alliance would gain greater emphases thereby allowing Japan to have an interdependent role in the partnership. China regarded itself as an indirect benefactor of the alliance since they believed that it prevented Japan from remilitarising and asserting itself politically or militarily. However, with the changes in the alliance patterns, the United States is urging Japan to take a more proactive role in the regional affairs citing the responsibility of sharing the burden of the alliance.

Moreover, there would be redefinition of the role of Japan's SDF in regional affairs due to TMD cooperation. There are extensive changes chartered to deal with regional contingencies between the United States and Japan. This is to increase the response-time of the Japanese forces and to help them to coordinate better with the US forces. The United States needs Japanese military to give sufficient support to its operations. There will be more peacetime operations between both the militaries to have sufficient coordination and command for regional contingencies

In East Asia, Japan would become the forefront for the United States' strategy for regional arms control and regional stability. What may start as an alliance management initiative may become an alliance-defining initiative, on the leading edge of the revolution in military affairs as part of a system that boasts unprecedented connectivity, interoperability and seamless command and control (Donogue 2000: 15).

China's Military Choices in East Asia: TMD as a source of "constraint"

BMD systems pose a problem for China's theatre ballistic missiles, if deployed in Taiwan or off the Chinese coast (Andrew 2006). A significant component of China's military modernisation has been its development of SRBMs and MRBMs and cruise missiles. Its missile modernisation has over the years attained more attention as it gives China more military choices. The missile forces are also command attention due to poor quality and development of its air and naval forces. Modernisation in its missile forces is given priority to make its deterrence credible. The command-and-control equipment in the mobile missile forces have been extensively modernized in the past few years and thoroughly trialled and evaluated in a series of recent exercises (China Brief March 15 2006).

China's SLBMs, IRBMs, and SRBMs have distinct advantages over ICBMs because they are mobile, concealable and accurate, thus less vulnerable to a first strike. With the continuous missile modernisation, these missiles have attained greater sophistication in accuracy and survivability. China's current ability to retaliate, therefore, seems most credible at the theatre level (McGuire 1999). In terms of theatre ballistic missiles, China has a variety of MRBMs and SRBMs. The DF-1 in the DF series is the first missile that was designed to have a range of 2000 km. Not surprisingly, the development of DF-1 proved difficult. Thus, based on the Soviet missile R-2, a newer version DF-2 was prioritised and on June 29 1964, it completed its first successful test flight to 1050km (Lewis, Hua 1992: 15).

China's first nuclear tipped missile was DF-2A missile however gave way to DF-3. The DF-3 was successfully launched in May 1971 with the range of 2,650 km. A newer version of DF-3A with the range of 2,800 km replaced the DF-3. The DF-4, the first two-stage rocket is a liquid-fuelled first targeted at 4000 km. Later, there were improvements

to make it 5500 km. The DF-4 missiles were deployed in 1980 and the exact numbers of the missiles are unknown. The DF-3, DF-3A, the single stage, liquid-fuelled MRBM that was indigenously built around approximately 2650 km. Another version is the DF-3A, which has the capability of 3000 km. The missile has also tested with a depressed trajectory for a shorter range of 1,150 km at an altitude of 100 k, a useful capability to overcome missile defences (Swaine, Runyon 2002:14).

The solid-fuelled DF-21, a two-stage MRBM with a range up to 2000 km gradually replaced the DF-3A. These were deployed in 1991 after its successful tests in 1985. The DF-15 is a 600 kilometre SRBM, which is single stage and solid-fuelled and deployed since 1995. It is also nuclear capable and to diversify a faster range of this missile type is being developed. This range would permit a faster re-entry speed to counter lower-tier missile defence systems and enable missile to be fired at Taiwan from a greater distance. The DF-11 is a SRBM with a range of 300 km and presents challenges for lower-tier TMD because of the short-flight time of three minutes. However, upper-tier TMD systems would be able to intercept these SRBMs.

i) TMD constrains China's use of Missile Forces

The deployment of TMD in East Asia constrains China's attempt to use its missile forces. It has viability as an important political and military option. TMD systems such as PAC-3 systems are exclusively used against short-range missiles and cruise missiles. Moreover, upper-tier systems would intercept its medium-range missiles making it vulnerable. A TMD would undercut its missile forces where it compensates for its lack of superior air and naval force. TMD transfers would complicate China's military options and reduce the military effectiveness of Chinese missile forces (Allen and others 2000: 50). Mark Stokes in Taipei Times contends that acquisition of missile defense systems such as PAC-3 would undercut the limited, coercive use of ballistic missiles (Minnick 2007).

Moreover, these defences would play a challenging role in China's military planning towards Taiwan. Mark Stokes points out "Taiwan's fielding of a modest terminal missile defence capability would complicate China's military planning for a coercive campaign involving limited use of conventional short-range ballistic missiles. Terminal missile defences, linked with other measures such as hardening, also would help protect high-priority assets and enhance the ability of Taiwan's defence

establishment to sustain operations” (Minnick 2008). However, TMD systems do not offer leak-proof defence against all missiles. It is effective when states combine their systems and operation during any regional contingency. This would tilt the advantage relatively towards states owning TMD systems.

ii) TMD as a constraint in China’s Deterrence

Sea-based TMD systems affect China’s deterrence. The extensive cooperation between Japan and US on aegis ballistic missile system is one such that affects China’s sea-based deterrence. In the face of continuing shifts in US positions on maritime BMD programs, Japan has consistently pressed for joint efforts focused on Aegis system and SM-3 upgrades (Rubinstein 2007: 4). Sea-based BMD systems are effective as it is highly mobile and can be positioned near China’s missile launches to intercept medium-range missiles. Here, Japanese cooperation with the United States on Aegis BMD system proves quite a challenge for China.

China is on the path of increasing the credibility of its deterrence. China’s apprehension borders on the possibility that upper-tier TMD systems such as NTW systems would intercept and can target China’s missiles and launch pads. More so, there are also concerns regarding the utility of upper-tier TMD systems to intercept ICBMs. China perceives that Japan and the US would use its sea-based system to weaken its deterrence and intervene in the potential Taiwan Strait conflict.

China’s military modernisation in terms of contingency and war fighting capability also rests on the probability of the US intervention. Its modernisation consists to deny the US the access to intervene. By observing the regional conflicts in Kosovo and Gulf, the Chinese have understood that the US has problems in logistics and transportation. Thus, China’s strategy for the United States for regional contingency is to delay the US, take the initiative, and deny the US to control the escalation. Thus, China wants to take the initiative quickly and force the results before the US can effectively intervene in the conflict. However, TMD increases the options so that the US can rely on its allies until it transports its troops.

The United States can send their own NTW deployed ships to Taiwan in case of a conflict. Rather than deploying NTW in Taiwanese ships, which will require intense modernisation of C3 in an integrated fashion that would leave the United States not able

control Taiwanese behaviour. The United States could conceivably blunt or deter provocative Taiwanese behaviour by refusing to deploy TMD-capable ships during a crisis (Swaine and Runyon 2002: 68).

iii) TMD would promote Interference in military contingencies

The deployment of TMD also complicates these factors. Primarily, the TMD deployments would increase the military preparedness of the US and Japanese forces in East Asia. Thus, as the two forces gain operational integration, the role of the forces to intervene in a regional conflict becomes quicker. From the statements from the US-Japan Security Consultative, preserving regional stability plays a big role in the alliance. Thus, it echoes the fact the forces would increase its military capabilities to deal better with regional contingencies. This proposes a bigger challenge for China where it seeks to delay the US from intervening effectively through various anti-access strategies.

The United States maintains its hold in East Asia through a string of military relationships with countries and therefore can offset Chinese military might by enhancing them. Christensen argues that the United States should maintain military superiority over regional actors especially in East Asia and should provide robust defensive capabilities to Taiwan for self-defence' (Christensen 2002: 7). The United States would intervene in the Taiwan Straits in the event of a military confrontation nor for the sake of a separate Taiwan, but for the sake of the geo-political interests of the United States in the Asia-Pacific region (Danny Paau and Herbert Yee 2005: 126).

China also is concerned that by deploying TMD in East Asia would place the US in an advantageous position to interfere. Thus, it believes that it would interfere in the contingency in Taiwan. Sha states this position clearly saying that 'to introduce advanced TMD systems into North-East Asia will further enhance US capabilities to interfere in regional affairs' (Sha February 2000). China's concern with the US TMD systems is linked to its ability to dissuade the US from regional intervention, especially in defence of Taiwan (Wilkening 2000: 19).

Conclusion

This chapter had analysed the role of deployment of TMD to Chinese security in two different frameworks. The first theme centres on the regional implications that China

perceives due to the deployment. The first framework articulates the broader consequences of TMD to China's security. As mentioned above, the perceptions reflect Chinese attitudes towards the East Asian region in the wake of American dominance. These perceptions include its negative attitude towards the regional security architecture, which it predicts would constrain China's influence further in the region.

China's arguments on arms race and arms sales also resonates its discomfiture regarding its future role in the region. By transferring sophisticated technologies like the TMD systems, China forecasts that it would be at disadvantage to states like Japan and the United States. This is because the overall military capabilities of states would increase and China would be forced to increase its own weaponry. The arms race is not appreciated as 'peace and development' still remains an important goal for the state. Arms sales to Taiwan remain an irritant in China's bilateral relations with the United States.

The second framework solely concentrates on the involvement of Taiwan and Japan. The analyses show that China's concern as to the implications due to the deployment rests on the political and strategic reasoning. The deployment of TMD systems does affect China's reunification plans for Taiwan. The involvement of Japan poses long-term threat to China's security goals in the region. China's apprehension centres Japan's possible support to the United States in a Taiwan contingency.

China's military choices are also constrained due to the deployment of TMD in East Asia. If the United States continues with its success on upper-tier systems, China's missile forces would become vulnerable to interception. Even if the system does not give foolproof defence, it would have considerable impact in titling the military balance in the region.

The rationale for deploying TMD is to find an active response to missile proliferation. What China considers as a general security issue addressed by arms control efforts, the United States considers as an eminent threat that has to be countered. China's concerns are not about the actual deployment but about the intentions of the United States to pursue TMD systems particularly in East Asia. China is concerned about the consequences for its security due to the deployment dynamics. The reason being China is suspicious of the US's motivation in the region. China regards the United States as a

major force in East Asia and key obstacle to its eventual reunification – that is reintegrating Taiwan with the Mainland (Shen Dingli 2000).

China's prominent argument is that the United States seeks to contain its ascendancy as it contained the Soviet Union. However, these claims are often exaggerated as it reflects China's deep distrust towards US intentions and actions. Christensen argues that the US has not adopted Cold War style containment policy towards China, in fact has contributed to China rise by its investment and trade policies. He argues that most of the containment policies are followed in military arena however not to disrupt Chinese growth (Christensen 2006: 109-110).

China attaches special attention to the US reports such as the Quadrennial Defense Review (QDR) and National Security Strategy. Increasingly, languages in these reports worry China providing that the United States increasingly view it as a military threat in the future. For example, QDR released in 2001 states that 'a military competitor with a formidable resource base will emerge in the region'.

China thus views the deployment of TMD as an extension in the US' strategy to limit its influence. Whereas the lower-tier TMD might not pose considerable threat to its missile forces, the political significance of such cooperation would affect China's defence planning.

Chapter 5
COUNTERMEASURES - CHINA'S STRATEGIC FORCE
MODERNISATION

China will not sit idly by and watch its strategic interests being jeopardized without taking necessary countermeasures. China will be forced to take some steps, which it is reluctant to take
-(Sha Zukang 1999)

Introduction

China has been modernising its strategic forces to boost its military power. In the west, China's modernisation especially its missile and nuclear forces has always aroused considerable debate and suspicion exacerbated by lack of transparency. States along China's periphery watch its modernisation with concern. Thus, change in pace and scale of China's strategic force modernisation would have implications for the Asian region. The deployment of missile defence may shoulder potential changes in China's strategic force modernisation to include countermeasures thus accelerating the pace.

China views the development and deployment of NMD and TMD systems to have implications for its deterrence and inflict challenges for its regional security. The chapter addresses the political and strategic consequences of missile defence plans for China. The chapter addresses the possible countermeasures that China would develop in due course of its strategic force modernisation given the developments in the United States' missile defence plans.

The chapter raises the following questions. What are the changes that China could potentially adopt in its nuclear strategy? What are the political and strategic consequences of missile defence? What are the countermeasures that China could adopt in its strategic force modernisation to counter missile defence systems? The chapter put forth the following arguments. China could increasingly compensate by adjusting its nuclear strategy to as to counter perceived increase in the military strength of the states involved in the East Asian region. China could see shift from minimum deterrence to assured minimum deterrence as an active response to the growing threat it perceives from missile defence deployments. There are also calls for shifting to limited deterrence if the United States deploys full-scale missile defence systems. In the post-Cold War, China has been

relentlessly pursuing mobile land-based ICBMs with a benchmark of holding 20 US cities as counter-value targeting. China's changing nuclear strategy has resulted in changing nuclear targeting doctrines. China has increased its density of air-missile defences with S-300 series.

China could initiate countermeasures in its missile deployments and warheads to evade or overwhelm the missile shield. By addressing possible offensive technologies to increase its credibility in a strategic environment operated under missile defence shield, China could invariably accelerate its strategic force modernisation. Variables that would affect China's decision are the cost of the countermeasures and the international image. China would be cautious in increasing its missile and nuclear forces to dangerous levels, as it does not serve its overall economic interests.

China would also not jeopardise its international image and would keep in mind when expanding its nuclear and missile forces. China is mindful of entering an arms race with the United States as it drawn lessons from the collapse of Soviet Union due to arms race. For China, the economic development should precede military modernisation. The consideration of not entering an arms race poses a constraint for China in accelerating its strategic force modernisation.

China would portray several revised political and strategic decisions regarding its compliance on arms control assurances as fallout of insensitivity of the United States in failing to address Chinese security. China views its support to arms control treaties, political involvement in international security issues as an act of reciprocity against perceived gains and stabilisation from US-China relations. China's assessment of its security environment would tend to harden because of renewed suspicions about the US military activities in the East Asian region due to missile defence participation.

Political Countermeasures to Missile Defence

China in order to escape the diplomatic isolation after 1989 Tiananmen Square incident launched a diplomatic offensive to improve its international image and foster further economic growth. A relevant issue here is its support for controlling the development of weapons and export of sensitive technologies, thus contributing to arms control treaties like Comprehensive Test Ban Treaty (CTBT), Fissile Material Cut-off Treaty (FMCT),

and MTCR. By stressing its commitment to arms control initiatives, China has criticised the United States for withdrawing from the ABM treaty in order to deploy missile defence systems. China has hinted that the continuous pursuit of missile defence programmes contrary to its interests would affect China's support for arms control. The pursuit of NMD is not good for the effective implementation of CTBT (Sha 2001).

China's involvement in arms control and disarmament committees are increasing. China has criticised the US on Conference on Disarmament (CD) for obstructing stability and peace and contributing to weaponisation of space. China realises that its support in limiting missile proliferation is essential for the United States. If China views missile defence deployments as challenging its strategic interests, China could retaliate on its missile proliferation commitments. A more radical approach, which would represent significant problem for Washington, could be 'horizontal escalation' (Goldstein, Erickson 2005: 78).

China has linked its compliance on several arms export assurances with the United States to that of military sales to Taiwan by the US. China would view the sale of TMD systems in this fashion. China uses multilateral forums such as CD to oppose missile defence. It is quite possible for China to review its policies on various arms control, disarmament and non-proliferation issues including the FMCT negotiations (Sha Zukang 1999). China can revise its support for FMCT if it perceives that the United States continues to ignore its security concerns regarding the deployment.

China's cooperation in MTCR is also crucial for the United States. Its support for MTCR also rests on the case that if the United States progresses on NMD, China's compliance on MTCR would be revised. China would become less interested in legally accepting the MTCR, including its annexes, as China's export control law if the U.S. does not respond to China's concern over NMD (Li Bin 2001). China's concern on missile defence systems in both the United States and East Asia would prompt to revisit its compliance on CTBT.

Bilaterally, China views its compliance as a reciprocal arrangement between the United States and China for bilateral gains. For example, China has curtailed nuclear, and missile exports to Iran due to intense US pressure (Gill, Medeiros 2000). In return, China negotiates with the United States to provide various technologies helpful for Chinese

growth. As China perceives these arrangements in reciprocal basis, the deployment of missile defence especially in places along its periphery would force China to bargain based on these compliances. Moreover, if the NMD programme attains beyond initial capability of 100 interceptors, China would look for serious changes in its modernisation. Extreme measures would include the resumption of nuclear testing to enhance its credibility to overwhelm the shield. The resumption of nuclear testing would violate arms control treaties like CTBT.

TMD technologies to states sensitive to China would affect its compliance on arms exports to states of concern to the United States. However, China desire for normalising and maintaining good bilateral relations with the United States has often overridden its other concerns. China has publicised its displeasure on future sales of possible upper-TMD technologies and emphasised on how it can cause considerable damage to US-China relations. In addition, given the tacit linkage between Sino-US relations and China's ban on nuclear exports to Iran, if bilateral relations sour significantly then Sino-Iranian nuclear cooperation may be restarted (Gill, Medeiros 2000: 82). Moreover, China's transfers have reached certain sophistication whereby it does not transfer whole systems rather sub-systems, technologies, via assistance.

China has been involved in various arms transfers in the region to countries like Syria, Iran, Saudi Arabia, Libya, and Pakistan. China's 285 million dollars contract with Syria for 30 M-9 missiles were cancelled due to US pressure (Swaine and Runyon 2002: 38). There were also various dual-use technologies that were exported by Chinese individual companies to some these countries. China cancelled various projects due to intense pressure from Washington. It continues to view its compliances as reciprocal arrangements, whereby China expects the United States to control its arms sales to states like Taiwan.

Chinese Foreign Ministry argues that 'only when the United States respects China's security concerns about US weapons exports to Taiwan will China seriously consider US security concerns about China's missile technology cooperation with Iran and Pakistan (Swaine and Runyon 2002: 41). Thus, China always views its commitments on arms control with the United States as tied to its security interests regarding Taiwan. Moreover, China would argue that it would not accept future treaties like FMCR treaty if

the United States continues with the development and deployment of missile defence. It will be difficult for China to accept a FMCT, one that puts a ceiling on the size of the Chinese nuclear force and makes China lose an option for countering the NMD (Li Bin 2001).

Chinese BMD Plans and Russian Collaboration

There are several strategic consequences due to the missile defence programme pursued by the United States. 'I hope that the U.S. will abandon NMD and China won't need to take any counter measures' (Sha 2001). Yan Xuetong of Institute of International Studies in Tsinghua University states that as a countermeasure, other countries will be stimulated to develop more complicated and advanced defensive and offensive military technology (China Daily 2001). China's perceptions of the security environment changes with the deployment of missile defence system. Thus, it can elicit changes in its assessments of security environment and threat perceptions. It can lead to changes in perception about the application of use of force across the region. These would include its policy of strategic force targeting against regional actors.

In addition to renewed assessments, China is also developing its own missile defence systems (see Table 2). Partly, China receives air defence systems from Russia and indigenously develops its own missile defence. In 2004, Russia delivered four S-300PMU1 air-defence system battalions to China as a part of a contract (BBC Monitoring Online 8 May 2004). In July 2007, the PLA Air Force (PLAAF) received upgraded SA-20 S-300 PMU-2 S-300 long-range of 200 km (Military Report to the Congress 2008). PMU1 is armed with single-stage, solid-fuel propelled 48 N6 missiles, and has the capability to shoot down tactical ballistic missiles in addition to cruise missiles and aircraft at ranges of 5-150 kilometers and altitudes between 10-27,000 metres (missilethreat.com 2008). China has four types of missiles defences. Hongqi-9 is surface-to-air system, which has been in development since mid-1990s and incorporates technologies from Russian S-300P air defence system. China is developing a sea variant of HQ-9 called the HQ-2 (missile threat.com 2008).

China is also developing and deploying Hongqi-10 is another long-range surface-to-air missile, which is a Chinese version of Russian S-300PMU-1. The HQ-10 plays an

critical role in China's air shield and along with S-300 are deployed near Taiwan Strait engaged in tracking Taiwan's mirage fighters and tactical missiles (missile threat.com 2008). Upgraded version of version of the S-300PMU-1 known as the Hongqi-15 (HQ-15) has an extended range of up to 200 kilometers. China's multi-level air and missile defense system—including the S-300PMU-1/HQ-10, the HQ-15, the HQ-16, the HQ-17, and the HQ-18—has surpassed even that of Russia, and is now the best in Asia (missile threat.com 2008). Most of these are deployed near Taiwan.

HQ-2 is based on Russian S-75 consisting anti-jamming capabilities and on September 8 1967, HQ-2 tracked and destroyed Taiwan flown U-2 reconnaissance aircrafts. Variants of HQ-2 were developed and used as exports to various states (missilethreat.com 2008). Another SAM system is the FT-2000, which is designed to counter and neutralise air-borne jamming devices.

To ensure the viability of its nuclear deterrent and for its expanding SRBMS and IRBMS, China has implemented numerous measures to counter missile defence (Stokes 2002). Moreover in 2006, China test flight an own interceptor missiles similar to the Patriot missile, the commanding officer who led the test launch said, "This marks the official launch of the interceptor missile unit. We can intercept not only high-flying reconnaissance planes or missiles but also low-flying targets. Our accuracy is significantly high as well (Yoo-Seong Hwang, 2006). Besides, developing its own BMD systems, China would also look for strategic partners who would help in opposing US actions.

China would also look for strategic partners such as Russia to strengthen its stand against missile defence deployment. China has strategic partnership with Russia based on common principles such as US uni-polarity, interventionist policies, international order and change towards multi-polarity, terrorism and separatism (Hill 2006: 51). The relationship's stronger points are the arms transfers between the two states. However, one of the consequences that could affect the cross-strait relations is that if the Chinese view the TMD systems to be effective in a theatre of war, China would force the issue forward and to end it pre-emptively before a full-blown system is deployed.

A widening of the US-China military imbalance brought about by US homeland defence would make it easier for the United States to intervene in an armed conflict

between China and Taiwan, as long as the United States remains committed to defending Taiwan. An enhanced US intervention capability would be conducive to Taiwan's status quo, or in the worst case, encourage Taiwan's aspirations for independence from China. Put another way, US deployment of its NMD systems could put pressure on China to abandon Taiwan. Since China is unlikely to do so, it will be left with no choice but to take measures to counter the US NMD systems (East Asian Strategic Review 2003: 111).

Changes in China's Nuclear Strategy

China's nuclear strategy, many argue is of minimum deterrence (Lewis and Xue 1988) (2006 defence white paper). However, its modernisation efforts suggest that China is moving towards a credible minimum deterrence. However, BMD development can impact changes in China's nuclear strategy to make cope better with improved US capability. It is certain that US BMD programs will result in Beijing deploying a more robust nuclear deterrent and preparing for an even more capable force structure (Goldwin 2001). The scope of exploring limited deterrence is not a policy but a strategy that China wishes to have in the future. Thus, many activities regarding limited deterrence is not active research rather elements acquired slowly. Nevertheless, missile defence plans would foster the Chinese to increase its activities for ensuring assured deterrence to increase its survivability of its deterrent power.

China portrays NFU policy as a pioneering policy of its nuclear strategy. The missile defence deployment could force China to change from no-first use to launch on warning. However, this strategy requires several space-based assets to inform about the attack. China is already working on several space reconnaissance system and development of satellites, and Global Positioning System (GPS). China would face difficulty in using the GPS once the hostilities between China and the United States commence and it would have to rely on Russian Global Navigation Satellite (GLONASS), which has very limited capabilities.¹² That is the reason why China is also participating in European Galileo system.

These measures include keeping their nuclear arsenal in higher alert than previously. China states that it would not indulge in first strike and emphasises its

¹² I thank Dr Lawrence Prabhakar for this input.

commitment on its strategic forces used only for retaliation. Thus, most of its components are in a de-alerted stage with the missiles and warhead separately. However, the Chinese might opt for launch on warning to increase its response time. However, there are cost associated with the launch-on-warning method. Thus, technological complications and costs of the technology might be a variable that would impinge upon this option.

China's nuclear strategy according to many Chinese analysts is based on uncertainty principle (Li Bin 2001). Thus, Goldwin argues that the Chinese would either increase their arsenal to maintain their uncertainty principle or move to assured minimum deterrence to maintain its retaliatory capability (Goldwin 2001). This would imply that China would have to bring some transparency to their missile and nuclear forces to inform the leaders of concern that China can retaliate even with missile defence system.

The requirement of a credible deterrent in the face of more sophisticated defences would also provide an additional incentive to mount multiple warheads allowing the employment of various penetration aids and this force structure is classified as assured minimum deterrence (Goldwin 2001: 5). Moreover, in assured minimum deterrence, China could increase the missiles and warheads and relying on uncertainty principle. The implications are such that there would be changes in the nuclear strategy. If China follows assured minimum deterrence then there would be changes in the nuclear posture because ultimately there would be increase in the missile and nuclear forces.

However, there could be doctrinal changes due to missile defence deployments. China can convert from minimum deterrence to limited nuclear deterrence where it means nuclear war-fighting capability. Limited nuclear deterrence would provide China to limit the escalation of a conventional or nuclear war and would provide the ability to respond to any level of attack ranging from tactical to strategic (Goldwin 2001). China can limit the escalation because if the adversary tries to escalate, China would have various options to respond to any higher level because of different levels of forces maintained in the limited nuclear deterrence. However, cost of shifting to limited deterrence and the reactions of its Asian neighbours could delay these changes.

The missile defence deployments can affect China's nuclear doctrine, which will change from a fundamentally 'minimalist' posture to a more variegated deterrent. China can develop a posture of credible minimal deterrence toward the continental United

States and Russia and a more offence-oriented and possibly war-fighting posture of limited deterrence with regard to China's theatre nuclear forces, especially in response to a Taiwan contingency. Moreover, an offensively configured, pre-emptive, counterforce war fighting posture of "active defence" or "offensive defence" for the conventional missile forces (Gill 2002).

Thus, continued missile defence deployment can prompt the Chinese to shift from assured minimum deterrence to limited deterrence explicitly. Thus, it would include expansion of its missile and nuclear arsenal to war fighting capabilities. Limited deterrence is also less intense than maximum deterrence whereby it has war-winning capabilities by reducing one own losses while have a first-strike advantage. Thus, limited deterrence is to have the capability to deter strategic, conventional and theatre nuclear war and suppress the escalation of nuclear war. It should also be able to respond to any theatre and strategic attack and should be able to hit a range of counter-value and hard and soft counterforce targets (Johnston 1995: 19).

This would involve instead of highly inaccurate ICBMs to shift to highly accurate survivable, penetrable ICBMs, SLBMs to sustain one's retaliatory capability if its ICBMs are attacked. Limited deterrence also needs a limited BMD to protect the limited ballistic force and ASAT weapons to enemy satellites so that attack the information for escalation, theatre and tactical nuclear weapons to control escalation and ones own space based early warning system (Johnston 1995: 20). China's modernisation seems to go in this direction. However, China does not have enough ICBMs to hit high target values and complete BMD systems to protect its limited deterrent force. Missile defence can increase the pace in which this doctrine changes. Moreover, there is no quality information on whether China developed or even deployed tactical nuclear weapons.

The Second Artillery Force and Strategic Force Modernisation

The Second Artillery Force (SAF) is the Strategic Rocket Force (SRF) of the People's Liberation Army (PLA). It is responsible for handling both nuclear and conventional ballistic missiles. From 1980s, the PLA has been involved in modernising its missile forces. The goal is to create a less vulnerable, more flexible, and more reliable strategic retaliatory force (Lewis, Hua 2006: 6). The strategic force modernisation reflects these

assessments. Especially in case of Taiwan, the missile forces are the primary rapid strike capability of the PLA (Mulvenon and others 2006: 101). This is evident in the importance that is given to the role of missiles forces in the Taiwan contingency.

The Second Artillery composes of missile brigades, launch battalions, launch companies, and launch platoons (Kondapalli 2006: 1). The Second Artillery has three main missions: deterrence, supporting conventional war with ballistic missile attacks and nuclear counter-attack. In terms of nuclear counter-attack, it uses its strategic missiles combined with other systems. The Second Artillery received its first strategic missiles, the DF-5 and DF-4 in 1980 for a trial operational basis (Lewis, Hua 1997: 18). After the deployment, the modernisation of these missiles to increase the survivability, range and reliability started. China was involved in two types of modernisation and production in its missile forces. One is the strategic forces, whereby the modernisation was underway in converting them from liquid-fuelled missiles to solid-fuelled missiles. China would eventually field solid propellant mobile missiles and would constitute the pillar of China's efforts in deploying a modern, mobile, and survivable strategic missile force (Mulvenon and others: 2006).

The Second Artillery's mission and funds have been increased to utilise at a strategic environment dominated by high technology and missile defences. The Second Artillery believes in utilising their limited ballistic long-range strikes against high-value targets. In taking initiative first, the Second Artillery can target the enemy's most valued targets such as space, C4I modules and weapons control centres, and logistics bases (Stokes 1999). In increase the efficiency of Second Artillery, command and control has given due importance. The command and control of the Second Artillery is highly centralised and is an independent arm of the Central Military Commission (CMC) (Kondapalli 2006).

The strategic missiles in SAF are expected to grow in a few years according to the growth in missile defence deployments. There are several new systems are expected to inculcated into the force structure. The new DF-31 is a nuclear tipped with 8000 kilometre carries a single warhead and can be equipped with penetration aids, decoys, and chaffs. An extended range of DF-31, called the DF-31A is to be developed for around 12000 kilometres and will be primarily targeted against the United States (Stokes

2002: 112). The JL-2 is also fielded for the sea-based deterrent and this deployment was accelerated in May 1999 (Stokes 2002).

China's modernisation efforts in its long-range ballistic missiles are long and complex. Several determinants influenced China's drive for modernising its forces, especially in post-reform and post-Cold War era. The economic rise facilitated for investing in military reforms and armaments. China benefited from globalisation as technologies for modernisation became easier to access. In the post-Cold War era, the PLA recognised its limitations after recognising the technological sophistication of the United States army in the Gulf War in 1991. The high-technology combat assured intense debate in the PLA and China critically began to modernise and informationalise its armed forces. The introduction of such issues such as modern C4I capabilities, impressive force projection, and logistical characteristics, rapid response capabilities, and combined arms training were on the top of their agenda (Ahrari 1999: 42). The 1990/91 Gulf War emerges as a prototype of future wars, and information-based warfare becomes a constant source of preoccupation for Chinese strategists (Ahrari 1999: 42).

China's strategic force modernisation acquired new realities of information warfare and progressed after the post-Cold War to generate new type of missiles that are mobile, survivable, and precise. The modernisation in these missiles has been going for many years to reduce their vulnerability in terms of the United States first-strike capability. The DF-5 is old, liquid-fuelled, stored under ground, and highly vulnerable to first strike. China began its modernisation efforts in a more sophisticated version of the ICBM to make it more accurate, survivable, mobile, and solid propellant. Thus, research and development started for DF-31, which is 8000 kilometres, DF-41 (12,000 kms), and JL-2 (sea-based version of DF-31). The DF-31 was intended to replace DF-4 and DF-41 intended to replace DF-5. However, the DF-41 project could be cancelled due to problems in warhead miniaturisation.

The DF-31, which was successfully test-flighted in August 1999 and DF-31A is principle in the new strategic missiles that are being deployed by China. The IISS estimates 2008 reports that 6 DF-31 have been deployed. The IISS 2008 estimate also reports that there are 20 DF-4, and 20 DF-5A strategic missiles in China's inventory totalling to 46 strategic missiles (IISS Military Balance 2008). However, these numbers

are contested. The DF-31 would be able to target the very northwest of the United States, and the DF-31A would be able to reach the rest of the United States (Hill 2006: 51). In comparison to DF-5, the DF-31 can be transported on its TEL (Transporters Erector Launcher) to many launch sites providing greater survivability in the event of a first strike (China's ballistic missiles update 2004, Risk report).

On the other hand, China was involved in mass production of theatre ballistic missiles for export and theatre warfare. One of the MRBM with nuclear warhead is the DF-21 is only for nuclear missions and the extended version reportedly being researched. The Chinese noted the missile defence developments from 1970s. Various defence establishments such as missile industry, space industry were abreast of US developments and concerned about its effect on China's nascent retaliatory capability.

China's strategic force modernisation is progressing rapidly than its other force modernisation projects in air, ground, and naval forces. China remains highly vulnerable to the United States in terms of conventional superiority. China's strategic force modernisation enables it to target the enemy's forward-based C4I, airbases, aircraft carriers and sea-based C2 platforms and space based systems (Stokes 1999). China's strategic force modernisation encountered increased significance with the Chinese assessment of increasing US military power. Thus, China has adopted a number of asymmetrical means to defeat US technological and conventional superiority. Stokes identifies that one of the key driver for Chinese strategic force modernisation was the US effort to build missile defence in the 1970s in its SDI (Stokes 1999).

China is developing a vast network of signal intelligence for monitoring traffic and responsible for early warning. The GSD Third Department and the GSD Electronic countermeasures and Radar department in Chinese SIGNIT apparatus is responsible for making electronic countermeasures (Stokes 1999: 34). China is also working on photoreconnaissance, remote sensing and has extensive missile and space tracking network. They are also working on systems that are proven to give information dominance in the military arena to the Chinese. China is thus, increasing its capabilities in tele-communications, unmanned aerial vehicles, command and control, communications, computers, and intelligence. Moreover, China is increasingly keen on satellite technologies to develop its space capabilities.

One of the important developments in its strategic force modernisation is the development of cruise missiles. China is increasing its focus on cruise missiles, as it is helpful in striking assets in grounds and command and control structures. There are different types of cruise missiles that China is building upon. They are anti-radiation strikes against radars, land attack cruise missiles against high value reconnaissance assets on the ground, strikes against C4I nodes. Moreover, China has also attempting to improve its command and control of its nuclear forces. This is to ensure that its military leaders will be able to use their nuclear forces in a timely, flexible, and controlled fashion, even under enemy attack (Kane 2003).

An ARM capability would be a significant leap in the PLA's ability to hit important targets protected by air defence assets (Stokes 1999: 82). Efforts are being made in making the cruise missiles faster, more accurate with better satellite imaging and terrain guidance available. Moreover, China is also conducting research to mask the launch sites and enhance the ability of the missiles to penetrate defences. This includes reducing the signature, concealing the location of the missile launches, integrating electronic and optical countermeasures to complicate adversarial detection, tracking, and discrimination systems.

There is a general drive in increasing the effectiveness of its strategic force. China focuses its modernisation on factors in increasing its information capabilities of its strategic force. In other words, China is modernising in reconnaissance satellite, early warning systems, space surveillance, counter-stealth radar, UAVs, telecommunications, infrared, sensors, radar, and C4I systems (Stokes 1999).

Countermeasures in China's Strategic Force Modernisation

In China, research and development of missile defence countermeasures is extensive and appears relatively sophisticated (Stokes 2002: 141). Countermeasures for missile defence can take many forms. Several Chinese analysts believe the government has already started developing countermeasures (Arms Control Today 2003). China can counter missile defence efforts in several ways. China has several options of increasing its missile forces, increasing its nuclear arsenal, developing MIRVs, Multiple Re-entry Vehicles

(MRVs) and Manoeuvrable Re-entry Vehicle (MARV) capabilities, penetration aids, and ASAT capabilities.

Chinese analysts such as Shen Dingli argues that missile defence systems can be overcome by using sub-munitions, high as well as low altitude countermeasures, balloon decoys, chaff and missile fragment decoys (Shen Dingli 2000). Simple countermeasures, such as chaff and employment of a limited number of decoys, likely already have been incorporated into some missiles such as the DF-21 MRBMs (Stokes 2002).

Decoys are one of the effective ways in which an attacker could defeat a planned NMD system. China can deploy decoys in several ways. Metal-coated balloons containing warheads and empty balloons can enclose a long-range missile. The interceptor would find it hard to distinguish between the empty balloons and balloons with warheads. The balloons can be manipulated to confuse the missile defence interceptor. It could be frustrated by an adversary in different ways: by firing a barrage of missiles rather than one or two at time, by concealing a nuclear warhead inside a mylar balloon and releasing dozens of decoy balloons, or by cooling the warhead's nose cone with liquid nitrogen to foil heat sensors (Chellaney 2000). Defences against medium and long-range missiles, because of their faster speed are technologically more challenging (Chellaney 2000).

Decoys are effective against exo-atmospheric phases. Since they are lightweight, they travel the same trajectory as the warhead since there is no atmospheric drag. However, once it reaches the atmosphere, it is slowed by the atmospheric drag allowing the warhead to emerge first. However, depending on the altitude at which such slowing and warhead identification occurs, it might be too late for the above the atmosphere interceptor to intercept the warhead before it passed below the interceptor's minimum intercept altitude (Sessler and others, UCS and MIT: 2000).

One type of decoys is replica decoys, which are of the same type and look of the warhead. Even it is lighter, the replica decoys have similar radar cross section, similar temperature and similar infrared energy by using heaters in the balloons. They also have the same dynamical characteristics of the warheads such as rotation of the axis and wobbling. Another effective way of using decoys is using anti-simulation strategy. In an anti-simulation, the warhead is modified and distinguished rather than the decoys. By

distinguishing the warhead, there is no need to replicate the decoys as well. Depending on the research and development, decoys similar to the distinguished warhead and warhead to varied signatures can be used.

By enclosing the warheads in balloons and deploying different balloons, the tracking and interception would become complicated. Each of the balloons would be coated with a thin metal coating so that the interceptor would be unable to determine what is inside the balloon. However to offset the heat emanated by the warhead in the balloon, the empty balloons would be equipped with a heater so that all balloons would generate heat. Another effective way of confusing the missile defence is also to conceal the warhead in a shroud of thermal multi-layer insulation and releasing within a large number of empty shrouds. The empty shroud can act as a decoy.

By using empty shrouds the state can deploy warhead and anti-simulation decoys. The thermal multi-layer simulation would be sufficient to conceal the thermal radiation of the warhead thus not making it distinguishable with other empty shrouds. These can be used against X-band radars, if the empty shrouds behave differently than the warhead shroud. To stop it wobbling, it can be properly weighted frame in which the insulation is attached.

Another variant of countermeasure, which is effective, is to use chaffs to counter missile defence. A warhead could be released within a cloud of radar-reflecting chaff strands, along with empty chaffs. The radar cross section of the warhead would be reduced and the chaffs would resemble the radar cross section of the warhead. Numerous chaff dispensers that are deployed create many chaff clouds, of one would have a warhead. Because of the radar reflections from the chaff, the X-band radar would be unable to detect the real warhead. To prevent the SBIRS-low satellite from distinguishing the real warhead, flares would be used in empty chaffs to create infrared signal that would overwhelm that of a warhead (Sessler *et.al*: 2000).

Another method is to use electronic decoys called the jammers. These would drown out the reflected radar signals from the nuclear warhead by placing an electronic radar source on the warhead, called electronic radar jammers. Electronic jammers jam the radar signal in the warhead hence creating signals in both warhead and decoys. Also by reducing radar signatures, the range at which the defence would detect the radar would be

reduced. There are ways in which the infrared signal can be reduced such as low-emissive coating, and cooled shroud.

Decoys form an effective countermeasure that is suited to the Chinese conditions due to its cost and simplicity. It does not require China to backtrack on any arms control initiatives. Decoys are lightweight that travel the same velocity as warheads making it difficult for the kill-vehicle to distinguish between the warhead and the balloon decoy. Decoys are also cost-effective and inexpensive compared to other countermeasures. Experts in China also view decoys as the one of the most effective countermeasures against a missile defence shield (Li Bin, Zhou Baogen, and Liu Zhiwei 2000).

There are two different ways in which decoys are used, such as for deception and saturation. These use the balloon type decoys. China has already begun to develop and test decoys to some extent (Goldstein, Erickson 2005: 80). The types of decoys are decoys like balloons to overwhelm mid-course and terminal defences, deception decoys like fast-burn motors and boost-phase manoeuvring to evade interceptor vehicles by complicating predictions of flight trajectory (Goldstein, Erickson 2005: 80). Deception decoys include electronic decoys or transponder jammers.

Decoys are also developed in ways that imitates the warhead thereby confusing the interceptor and the radars that identify the target. Moreover, decoys also use electronic countermeasures to jam radar signals. Research is also underway on active jammers that can broadcast a signal designed to interfere with the radar's ability to detect the target object or corrupt the signal in such a way as to cause the radar to receive false echo (Stokes 2002). Exo-atmospheric is tails the warhead during mid-course phase and separate during re-entry and endo-atmospheric decoys re-enter the atmospheric with the warhead. The Chinese are confident of employing countermeasures against a US missile defence successfully (Arms Control Today 2003). China is also intent on fast-burn motors against airborne laser and space-based lasers, which can be used in its solid-based strategic missiles.

Stokes talks about two kinds of technical countermeasures counter-surveillance and counter-intercept countermeasures. Counter-surveillance countermeasures include electronic countermeasures, stealth, decoys and fast burn motors and counter-intercept countermeasures include MIRV, MARV, hardening and saturation. If were to accept the

argument that Chinese deterrence is based on uncertainty based on the perception of the United States about Chinese retaliatory capability, the argument advances that to preserve this credibility China would undertake countermeasures.

Li Bin talks about possible countermeasures and divides in to four groups. First group, he argues aims to overwhelm the missile shield by building more ICBMs, MIRVs, decoys and dispersing chaff to undermine the sensors. The second group aims to apply stealth technology to lower the visibility of the warhead: radar stealth for radar reflection and infrared stealth for infrared reflection of the warhead. The third group is to equip with MARV capability to deflect from the interceptor and confuse the radars. The fourth group is to increase the survivability of ICBM by deploying more or building missile defences to protect them (Li Bin 2001).

He suggests the most effective one is to have more survivable ICBMs and thus having to deploy fewer warheads on them. MIRV and stealth technology would be the key. He has given a hypothetical nuclear arsenal of China of current modernisation and increase if missile defence programme becomes a reality. He argues that the arsenal would increase by 50.

Research is also underway on radio frequency and infrared countermeasures (Stokes 2002). National University of Defence Technology analysts have examined electronic countermeasure packages on board theatre ballistic missiles as a means to counter millimetre wave amplifiers used on the PAC-3 missile and infrared seekers on GBI, THAAD, and Sea-Based mid-course interceptors (Stokes 2002).

There are also counter-intercept measures such as developing MRVs, Multiple MIRVs, and MARVs. Many analysts contend that China already has mastered the ability to produce MIRVs and MRVs (Stokes 2002). China has the capability to develop and deploy a multiple re-entry vehicle for its CSS-4 ICBMs, according to an unclassified summary of the 2002 National Intelligence Estimate on foreign missile developments (Mulvenon and others 2006: 103). The research of MIRV started long since before Bush's missile defence developments and can delivered a boost because of the recent developments.

MRV is a payload for a ballistic missile, which has multiple warheads for a single target. MIRV on the other hand has multiple warheads for multiple targets. The Chinese

for terminal defences also actively consider MARV capabilities. Since PAC-3 missiles and many of them in East Asia are terminal, these technologies might prove challenging for the US missile defence system. Therefore, efforts are seen in making the vehicle manoeuvre either in the flight time or during their terminal phases. Through modelling and simulation, the CASC has determined that manoeuvring is a viable means to reduce land-based lower-tier missile defence system's probability of kill (Stokes 2002: 130-133).

Boost phase manoeuvring is also an active choice for the Chinese. While no hard evidence exists that the Chinese have an active programme to develop a boost phase manoeuvre, there is potential for cooperation between Russia and People's Republic of China (PRC) missile engineers on technology used on the Russian Topol-M program (SS-27) (Stokes 2002). Moreover, efforts are also looked in to the hardening and spinning of the ballistic missile. Chinese engineers also developing laser cladding, coating materials to protect the outer shell of ballistic missiles to complicate the use of high-powered lasers (Stokes 2002: 133)

Moreover, China is also deploying new missiles with improved accuracy. For example, CSS-4 missiles are replaced with CSS-4 Mod 2 missiles, which have simple adaptation of MIRV capability and other advanced re-entry and decoy systems (Mulvenon and others 2006: 104). Both DF-21 Mod 1 and Mod 2 missiles likely to have missile defence countermeasures including endo-atmospheric decoys that were tested in 1995 and 1996 (Stokes 2002: 113). In terms of lower-tier defences, China is increasing the terminal guidance system of its MRBMs and thus having military implications because the re-entry speed significantly reduces the footprint of the area that is defended by terminal interceptors such as PAC-3 (Stokes 2002). Thus, Taiwanese officials would be forced to opt for mid-course defences and upper-tier defences to deal with these missiles.

China is also increasing its ballistic missiles in the coming years. With many as 100 ICBMs entering PLA inventory over the next 10 years (Stokes 2002), the PRC is increasing its longer-range ballistic missiles to counter ground-based mid-course missile defence system.

China is also concentrating on stealth technology. Moreover, to reduce the ability of the tracking systems and radars in detecting ballistic missiles, China is reducing the

radar-cross section of the re-entry vehicle thus decreasing available reaction time and thus reducing the probability of kill and footprint of missile defence systems (Stokes 2002). Chinese researchers also have experimented with complex re-entry vehicle surfaces that use radar absorbent materials that can counter X-band radar systems used by THAAD and the GBI (Stokes 2002). China is also lowering the infrared signature of their re-entry vehicles to reduce the detection range to three metres by using cold-screen technology that thermally shrouds the re-entry vehicle.

Beijing also stresses on conventional SRBM for the Second Artillery for regional contingencies. To escape from missile defence system and hit target on the intended place, China is seeking to minimise its CEP (Circular Error Probability). Their DF-15 600 kilometres SRBM has a detachable warhead and potential manoeuvrability would complicate missile defence system's radar tracking, computations, and interceptions (Stokes 2002: 116).

China is reportedly developing an extended version of DF-15, which would reduce the defended area or footprint of land and sea-based lower-tier missile defence systems due to its re-entry speed (Stokes 2002 116). The DF-11 manufactured by the Chinese with 300 kilometres also presents challenges for missile defence systems because of its flight time of three minutes. Since its flight would remain within the atmosphere, upper tier systems would be unable to engage them and an extended version of DF-11 with 600 kilometres is well underway (Stokes 2002: 116).

Goldwin states that one of the feasible approaches to counter missile defence is to have a mix of mobile land-based missiles and SLBMs mounting MIRV/MRV warheads with penetration aids (Goldwin 2001). Chinese Academy of Launch Technology (CALT) is already working on an improved version of DF-5 that could incorporate MIRV technology (Stokes 2002: 111). There are also electronic countermeasures to counter missile defence. Especially China is looking passive measures such as chaff to confuse enemy radars such as X-B and UWR systems. Chinese testing has demonstrated that ballistic missiles can carry a significant amount of chaff that can affect large volume of space and developments are especially focused on targeting X-Band radars.

When conducted several interviews in China, Joanne Tompkins contended that dominant view in China about countermeasures is to increase the number of missiles by

100 or 200 and to develop MIRV capabilities (Joanne Tompkins 2003). Other countermeasures include cold launch, trajectory manipulation, and infrared stealth. Cold launch is where the infrared signature of the missile is reduced by propelling it out of a silo with compressed air or other gas before engine ignition. China has already mastered this technique and now cold launches its SLBM and DF-31 ICBMs. China is also actively engaged in developing cruise missiles, which can be used against missile defence, as it is difficult to detect or track throughout their low-flying profiles (Kopp 2006).

Secondly, China can plan countermeasures in their nuclear forces. BMD development and deployment is by far the most significant factor impacting China's nuclear calculus (Yao Yunzhu 2005). China has been modernising its nuclear forces to increase its survivability and accuracy. China does it by turning liquid to solid propellants and converting the ICBM to mobile ICBM. Most of its modernisation has been attributing to the above measures. However, this would imply that it is unclear whether China has currently expanding its nuclear arsenal to increase its credibility. However, if missile defence systems were deployed there would be measures to increase its nuclear arsenal as well. China will increase the size of its nuclear arsenal in response to missile defence; the group advocating a moderate response to U.S. missile defence represents the dominant view in China (Joanne Tompkins 2003).

Modernisation also encompasses efforts in warhead miniaturisation. China has stopped its nuclear testing after signing the CTBT. However, if the Chinese were confident about its nuclear testing, a halted nuclear testing would not stop it from increasing its survivability, accuracy, targeting flexibility and response time (Garrett, Glaser 1995-1996:56). Its nuclear modernisation however has been slow and consistent tandem with its other economic priorities. Missile defence developments changes these factors.

The development of missile defence systems by the United States does have the capacity to undermine China's cooperation in arms control agreements regarding its nuclear forces. China proceeds with its nuclear programme mainly to increase its credibility. One way to overwhelm the shield is to increase its quantitative capabilities. Johnston argues that even if China does not increase its size, it can however improve the penetrability of warheads against missile shield: with accurate ICBMs, larger SLBM

capability, and sub-strategic missile capability (Johnston 1995-1996: 6). This option is to maintain the offensive capability, and another option is to develop measures to undermine missile defence system. Johnston argues that many in China preferred counterforce war fighting options such as development of offensive capability to destroy enemy capabilities and defensive systems to use against a portion of enemy strategic forces (Johnston 1995-1996: 25).

China increasingly looks upon warhead miniaturisation as an option to undermine missile defence system. This is because when the warhead is miniaturised, it decreases the infrared signal of the re-entry vehicle making it difficult for the interceptor missile to identify and intercept it. The other set of countermeasures are trajectory techniques, longer-range development of non-nuclear Electro Magnetic Pulse (EMP) warheads, indigenous missile defence development, and multi-axis development. Lofted trajectories are used to increase the re-entry speed and fractional orbital bombardment system reduces the speed of the warhead, which hits the target with only a few minutes warning.

Chinese scientists warn that China will take military countermeasures to try to preserve the viability of its deterrent (Garrett, Glaser 1995-1996: 74). China is also keen on EMP to counter missile defences. These could negate space or ground-based sensors in a missile defence system. PLA writings indicate the fielding of an EMP warhead is a relatively high priority (Stokes 2002: 134). The developers of DF-11 SRBM the 066 Base have demonstrated the most interest in High Powered Microwave (HPM) warheads (Stokes 2002: 134).

In order to make the missile survivable, China is engaged in camouflage technology to counter US air and space-based reconnaissance platforms (Stokes 1999). Thus, by also increasing the accuracy of its missiles by terminal guidance system, China hopes to target missiles in exact locations.

Space Weapons and Satellites

China is also developing several space-based assets to counter missile defence. Anti-Satellite missiles form an important part of strategy to challenge the US space-based systems that are crucial for missile defence. Chinese strategists view US dependence on

space as an asymmetric vulnerability that could be exploited (Saunders 2005). China conducted an ASAT test on January 11 2007 to destroy an ageing weather satellite in a low-earth orbit. The test displays China's increasing capabilities in space-related activities and consequences for US space assets. Moreover, many PLA writers have concluded that US space-based systems are vulnerable to attack (Cliff and other: 2007).

China does not have the capability to compete directly with US military transformation, thus it increases its scope of asymmetrical victories by challenging US space assets crucial for effective US military action. Given that U.S. missile defense systems will rely heavily on satellite assistance, a Chinese ASAT capability could be a useful asymmetrical means of disabling U.S. satellites and thereby degrading U.S. missile defences (Saunders, Yuan and others 2002). With their ASAT capability, China now can target US military satellites. China probably already has sufficient tracking and space surveillance systems to identify and track US military satellites (Saunders 2005).

These direct-ascent weapons are effective against satellites flying in low earth orbits, where many of American satellites fly. Moreover, they can also threaten spacecraft in medium and geosynchronous orbits, where there is navigation and guidance satellites, military communication platforms, early warning, and nuclear-detonation system of the United States exist. These programmes come under space-denial systems whereby China seeks to deny US space-based systems to operate in an asymmetrical warfare.

China emphasis on its denial to indulge in space arms race with the United States and urges the US to stop weaponisation of space in arms control forums. However, its space programme is steadily progressing to engage in asymmetrical capabilities. The then Ambassador Sha Zukang had suggested that instead of engaging in a large, costly build-up, China would concentrate on a range of relatively low-cost responses, such as developing plans to attack the radar network and communication nodes that would form the nervous system of America's defence (Gordon, 2001). States possessing nuclear weapons could be even more effective, clearing whole regions of LEO space with nuclear explosions and the accompanying electro-magnetic pulse blasts aimed at destroying or disabling all satellites within hundreds of miles (Moltz 2001)

The counter-space research on countering satellites is developing and research is focused on distinguishing, tracking for targeting purposes. China is also keen on space-based satellite tracking system that would be part of the ASAT system. The second Artillery and China's space and missile industry have conducted modelling and simulation to test China's ability to break through the wide project of US missile defence deployments so as to use different land and air based missiles (Stokes 2002: 139).

China is also exploring research on depressed trajectories to counter space-based missile defence system. Normally an ICBM reaches an altitude of 2000 kilometres. However, with depressed trajectories the altitude of an ICBM would be reduced to 100 kilometres making it difficult for space-based missile defence to engage an ICBM. China has tested DF-3, which has a range of 2,780 km and 550 kilometre altitude and with depressed trajectory, the DF-3 travels 1550 kilometres and 100 kilometre altitude (Stokes 2002: 134).

Acceleration of Strategic Force Modernisation

China responded to the United States' SDI in the early 1980s. China conducted research on various countermeasures along with debates about increasing its strategic arsenal. The deployment of various missile defence system would depend as per technological capability of the system. As the operational capability of the missile defence system becomes thicker, China would have to penetrate missile defence by expanding its arsenal to exhaust the interceptors that the United States has. This would invariably inculcate changes in its strategic posture. Even though, China's research on countermeasures have been varied and limited in scope, the ante would be raised, as China would require more changes in its posture to overcome missile defences.

There is an increase in the force structure of its strategic missiles (see Table 1 and 3) as reported in the IISS estimates in 2008. China is fielding its new strategic missiles incorporated with countermeasures. Thus, there is already headway in the deployment of its new strategic missiles. However, whether there is an actual acceleration in its force modernisation and deployment is unclear. It remains unclear whether missile defence development has influenced these deployments. However, the deployment missile

defence may have had an effect in Chinese decision to equip the new strategic missiles with countermeasures.

Thus, as missile defence system progresses China would respond by accelerating its strategic force modernisation. The exact number of additional missiles that China would need will likely depend on the estimated number of ICBMs surviving a first strike and the ability of remaining missiles to penetrate missile defence with or without countermeasures (Yuan 2006: 97). Thus, China's strategic force modernisation would likely witness acceleration depending upon the number of interceptors that the United States would deploy in its Ground-based mid-course defence.

If the United States increases its interceptors from few to more than 100, then there could be likely acceleration in the strategic force modernisation of China. The Pentagon's 2008 Annual Report to the Congress states that China has increased its nuclear arsenal by 25 percent (Military Power of the PRC 2008). The report has also estimated that less than 10 DF-31A is said to be deployed to the Second Artillery (Military Power of the PRC 2008).

The ways in which China's response takes place will also be determined by whether it will seek to enhance the survivability of its limited nuclear forces, thus maintaining the uncertainty principle, or reformulate its nuclear doctrine to adopt a limited deterrence posture or launch on warning (Yuan 2006: 97). However, it is clear that China would adopt certain measures to counter missile defence. Whether China would accelerate however would be based on the number of interceptors that Washington deploys in its NMD system. As long as it is at a minimum, there would be few changes in its strategic force modernisation. However, if the United States deploys between 100-250 interceptors, China would accelerate its strategic force modernisation to protect its retaliatory capability. Thus, China's acceleration of its strategic force modernisation would depend upon C1, C2, and C3 capabilities progress in the US missile defence deployment.

Conclusion

China integration of more sophisticated countermeasures such as balloon decoys and fast burn motors are still many years away. Chinese specifically worried about SBIRS-Low satellite as it makes some of the electronic countermeasures such as radar, stealth, and

thermal shrouds ineffective (Stokes 2002). Therefore, counter-intercept measures are kept significant in responding to missile defence developments.

Li Bin states that the countermeasures should hinge on certain characteristics. He argues that measures should be feasible, visible, affordable, moderate, compatible, precautionary, and challenging. He argues that due to the uncertainty in several feasibility approaches, China must follow more than one approach. China should also make sure that their efforts are visible to the United States because the effect depends on US perceptions about Chinese capability. China should also take measures that are not financial strain on the state and should be moderate without increasing the threat perceptions of other countries about China. China also need to be prepared for any jump in technological progress in missile defence plans and have technical preparations for the plans.

However, it is unlikely that China will enter into an arms race with the United States by seeking a match or even approximate the US nuclear arsenal or build a similar Chinese NMD system (Swaine and Runyon 2003: 21). This is because, China does not believe in spending so much on weapons development and do not want to enhance the China threat theory. Moreover, China believes that by qualitative arrangement coupled with countermeasures would be sufficient to counter missile defence. Moreover, most Chinese missile development though directed at the United States, some of these are directed against neighbours such as India thus posing challenges for Indian security (Kondapalli 2006).

Thus, China's countermeasure research is elaborate and is highly sophisticated. Decisions to deploy these countermeasures would depend on several factors. China would look into its economic interests first and its international image. China is also keen on not entering an arms race with the United States. Thus, China's response would be measured, cautious and would depend on overall economic considerations.

Chapter 6

Summary

China's strategic force modernisation is an ongoing process influenced by several economic considerations and perceptions about its threat environment. In addition, China's quest for great power motivates its intention towards its modernisation. The process is long drawn and China is insistent that it would not follow in the steps of Soviet Union for competing with the United States. The United States is planning to deploy both NMD and TMD concurrently and research and deployment is underway on both upper-tier and lower-tier systems. The United States intends to deploy TMD systems in East Asia.

China's concern has been to increase the survivability of its strategic forces in the face of overwhelming offensive capability of the United States. From the period China deployed its strategic forces, it began to worry about its survivability against a first strike. The strategic orientation of survivability is based upon its assessments on nuclear coercion. China views its strategic forces to be defensive and rationalises its strategic weapons to have only retaliatory design. Thus, its concern is to have an assured retaliation so that superior power like the United States would not land a first strike on its strategic forces.

Missile defence, China argues increases the United States' offensive capability as it would prompt to engage in pre-emption and recklessness. China perceives that the United States would least consider China's interests in the region. China's concern is on Taiwan, where it perceives that the United States would intervene with the confidence of missile defence system. China's military capabilities do not measure enough to counter US intervention in the Taiwan conflict much less to the combined defensive and offensive capability of the United States. China's concern on missile defence is relatively easily to gauge because of the large discourse that China has articulated against TMD and NMD. Various officials, analysts, and statements have elaborated China's concerns. The arguments are consistent and intricate given the influence of the arms control committee in China. Various debates in the United States from the period of SDI have influenced

Chinese analysts on their discourse on missile defence. Moreover, China also closely follows the American debate about missile defence and its opponents.

However, China's response is much harder to assess and detect. Complexities surround assessments by the fact that China is modernising its strategic forces for a long period. Thus, it is difficult to assess the whether the changes are due to missile defence deployment or general facets of modernisation. However, there is evidence that suggest that China is considering countermeasures as an important tool to counter missile defence. China is cautious about increasing the size of its strategic forces and jeopardising its economic interests and international image.

China focuses its research on technical countermeasures and considers it less alarming to its image. The increase in the size of its long-range missile is a viable option. However, increasing its nuclear arsenal would depend on growth of missile defence technology and deployment patterns. China debate about its nuclear doctrine also reflects these assessments. China is focussing on increasing the credibility of its nuclear deterrence. However, judging by the intense debate about limited deterrence techniques, it would not be a surprise if China moves into limited deterrence if NMD has operational capability of more than 100 – 250 interceptors.

China's acceleration of its strategic force modernisation would also depend on the progress of technology in the missile defence deployment. Several factors would influence its acceleration. The reunification of Taiwan would remain the most important variant that would drive China's modernisation focus. China has maintained offensive capability vis-à-vis Taiwan. China would take note of any development that would upset its offensive balance. TMD deployment in East Asia has the capability to change the military balance of the region. Even though China would not lose advantage due to TMD deployment in East Asia, its military choice of using missile forces would increasingly come under strain.

Thus, TMD deployment would affect China's position in East Asia. Thus, both NMD and TMD have effects on China's strategic security. China has always linked its survival to its strategic security since it perceives that without its strategic deterrence, it would be subjected to nuclear coercion and interference in internal affairs. These perceptions dominate China's strategic thinking and its modernisation reflects its desire

to erase this vulnerability vis-à-vis the United States. The deployment of missile defence would increase China's vulnerability, as it perceives that the deployment would prompt nuclear coercion and interference as it negates its nuclear retaliatory capability.

Missile defence deployment has changed the way strategic environment operate. The strategic environment has changed in several ways significant to China. In China's context, the military activities between states in East Asia have realigned the US alliance system. The integration of military forces is on a rise. This would affect China's security, as it perceives itself as a target of the renewed alliance framework. China's assessment about its strategic environment would turn grim. Thus, it would influence its modernisation efforts, as it would cater to the perceived hostile strategic environment.

China's acceleration of its strategic force would depend heavily on the increase in interceptors or even the intention to increase the interceptors. However, assessing the pace of China's strategic force modernisation is a difficult process because of extreme secrecy in which Chinese defence deployments work. The secrecy and deception in China's strategic thinking also impacts on clearly assessing the pace and quality of its modernisation.

The study raises several issues regarding outcome of the testing of hypotheses. The study points out that China consider missile defence as a security threat due to combination of several factors. Foremost, China is suspicious of US intentions behind the deployment of missile defence. China is deeply critical of US uni-polarity and perceives that the United States prevents China from achieving its goals in the region. Its historic experiences with the United States with regard to nuclear coercion have shaped the Chinese perceptions to be hostile regarding US actions in the region. China's own threat perceptions regarding its role in the reunification of Taiwan in a military campaign and preventing intervention by the United States is on their agenda. Thus, the deployment of missile defence heightens their threat perceptions and inculcates further mistrust on China's discernment of the United States.

The study points out that the deployment of NMD undermines Chinese nuclear retaliatory capability because of factors inbuilt in the system and possible usage of the system for offensive and pre-emptive purposes. The study has argued that the effectiveness of NMD in intercepting missiles with countermeasures plays an important

role. The study points out the following possibilities regarding negation of Chinese nuclear retaliatory capability due to the functioning of NMD. As United States intend to increase the interceptors in its NMD to 100, it would have huge impact on few tens of Chinese strategic missiles. The study finds that China's strategic deterrence would under increasing strain as NMD becomes sophisticated.

The study details the ways in which the deployment of TMD challenge China's position in East Asia. China has several regional concerns regarding the deployment of TMD systems, which they have articulated well in their documents. The study finds that China has two significant concerns regarding TMD deployment. The foremost is the Taiwan involvement or transfer of technologies as troubling and having consequences for Chinese security. Secondly, China perceives Japan's involvement to be deeply destabilising to the region.

These twin concerns according to the findings are due to its perception that the involvement of Japan and Taiwan would complicate Chinese military choices in the region. The study finds that the deployment constrains Chinese military choices in various ways. The deployment of TMD systems constrains China's use of missile forces in the Taiwan Strait region. Missile campaigns considered effective by the Chinese in the Taiwan contingency would prove difficult with defences in the strait region. China's strategic deterrence is affected due to the deployment of upper-tier TMD systems. As China perceives, interference in military campaigns are a possibility with defences on the line.

China is concerned that the deployment of TMD would prompt Taiwan to recklessness and Japan to expand its military role in the region. Thus, its concerns on the reunification of Taiwan play an imminent role in the concerns regarding TMD. This undermines its position in East Asia as the military balance tilts in favour of the US regional security architecture. China would be constrained in the systemic structure thereby affecting its larger desire of maintaining a regional power with the capabilities to shape the region.

The study finds that both the deployment of NMD and TMD has sufficient concerns for the Chinese. China's concerns have prompted it to look into different measures aiming at ameliorating its disadvantage vis-à-vis missile defence. The study has

found several measures adopted by the Chinese to counter missile defence developments. The study has found several political and military countermeasures that China has adopted. The study shows that China would consider several diplomatic measures such as withdrawing its cooperation in the arms control regime to show its displeasure. The study has also found that China has reneged on its bilateral promises with the United States, especially on technology transfers.

The study found that China has considered and tested several countermeasures in its strategic force modernisation to counter missile defence. China would also incorporate several of these countermeasures to the new strategic missiles it is fielding. The study has found that there has been improvements in its strategic force modernisation with respect to its nuclear arsenal and new strategic missiles. However, the study is unclear upon the acceleration of the strategic force modernisation. The study, however found that China would accelerate if the United States increases its interceptors in its homeland against long-range missiles to few hundreds.

Table 1

China's Missile Forces 2006

China's Missile Inventory Total	Launchers/Missiles	Estimated Range
CSS-4 ICBM	20/20	8,460+ km
CSS-3 ICBM	10-14/20-24	5,470+ km
CSS-2 IRBM	6-10/14-18	2,790+ km
CSS-5 MRBM Mod 1/2	34-38/19-50	1,770+ km
JL-1 SLBM	10-14/10-14	1,770+ km
CSS-6 SRBM	70-80/275-315	600 km
CSS-7 SRBM	100-120/435-475	300 km
JL-2 SLBM	Developmental	8,000+ km
DF-31 ICBM	Developmental	7,250+ km
DF-31A ICBM	Developmental	11,270+ km

Source: **Military Power of the People's Republic of China 2006**

URL: <http://www.dod.mil/pubs/pdfs/China%20Report%202006.pdf>

Table 2

Inventory of PLAAF Surface-to-Air Missile Launchers System 2007

SA-20 (S-300PMU2)	32
SA-20 (S-300PMU1)	64
SA-10B (S-300PMU)	32
FT-2000*	0
HQ-9 follow-on	0
HQ-9	64
KS-1A	60
HQ-6	30
CSA-1 and variants	400

Source: **Military Power of the People's Republic of China 2008**

URL:

http://www.defenselink.mil/pubs/pdfs/China_Military_Report_08.pdf

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Table 3
China's Missile Forces 2007, 2008

IISS Military Estimates	2007	2008
DF-31 (CSS-9)	6	6
DF-4 (CSS-3)	20	20
DF-5A (CSS-4, Mod 2)	20	20
DF-21 (CSS-5)	33	33
DF-3A (CSS-2 Mod 2)	2	2
DF-11 (CSS-7 Mod2)	500	500
DF-15 (CSS-6)	225	225
JL-1	12	12
JL-2		12 (Operational status unknown)

Source: IISS Military Balance 2007, 2008 (Chapter 8, East Asia and Australasia)

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