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EXTENDING U.S. THEATER MISSILE DEFENSE TO NORTHEAST ASIA: RAMIFICATIONS FOR REGIONAL SECURITY

by

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June 2001

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The absence of a formidable U.S. and allied Theater Missile Defense (TMD) capability in the East Asian region has encouraged a build-up in offensive missile capability on the part of the People's Republic of China (PRC) and the Democratic People's Republic of Korea (DPRK). This build-up has destabilized a region of vital importance to the national interest of the United States by encouraging the idea that offensive military action can be utilized to attain national ambitions at a relatively acceptable cost. This thesis shows that the introduction of a layered missile defense capability will serve to enhance regional security for the United States and its allies by raising the costs associated with using missiles in an offensive manner and by underscoring the level of commitment the United States maintains in guaranteeing the security of its allies in the face of a growing regional threat. The political benefits associated with such a tangible defensive obligation on the part of the United States should not be underrated.

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EXTENDING U.S. THEATER MISSILE DEFENSE TO NORTHEAST ASIA: RAMIFICATIONS FOR REGIONAL SECURITY

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Submitted in partial fulfillment of the
requirements for the degree of

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ABSTRACT

The absence of a formidable U.S. and allied Theater Missile Defense (TMD) capability in the East Asian region has encouraged a build-up in offensive missile capability on the part of the People's Republic of China (PRC) and the Democratic People's Republic of Korea (DPRK). This build-up has destabilized a region of vital importance to the national interest of the United States by encouraging the idea that offensive military action can be utilized to attain national ambitions at a relatively acceptable cost. This thesis shows that the introduction of a layered missile defense capability will serve to enhance regional security for the United States and its allies by raising the costs associated with using missiles in an offensive manner and by underscoring the level of commitment the United States maintains in guaranteeing the security of its allies in the face of a growing regional threat. The political benefits associated with such a tangible defensive obligation on the part of the United States should not be underrated.

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EXECUTIVE SUMMARY

Northeast Asia has witnessed a build-up of offensive missile capability by the People's Republic of China (PRC) and the Democratic People's Republic of Korea (DPRK). This thesis examines the security ramifications of extending U.S. theater missile defenses (TMD) to the region and assesses the implications of such a deployment for the foreign policies of the United States, Japan, South Korea, Taiwan, China, and North Korea. How should the United States respond to the growing threat posed to its national interests and those of its friends and allies by the unsettling dilemma of widespread missile proliferation? What are the consequences going to be if the United States fails to counter this real and growing threat?

To answer these questions, this thesis will explore how ballistic missiles emerged into the prominent strategic position they occupy in Beijing and Pyongyang today. The U.S. TMD effort to date and the likely way these systems will be employed in the future will be described. The relevance of offense-defense theory in the TMD debate will be explored. Also, current U.S. TMD doctrine will be identified to determine if it balances an offense-defense approach to TMD. Finally, an in-depth assessment will be provided of the impact of TMD on the countries in the region.

If the United States fails to undertake a determined effort to deploy TMD systems and to convince its allies that these defensive systems are necessary, then the future stability of the region becomes highly uncertain

For the United States, the ability to stay engaged and relevant in Northeast Asia hinges on its capacity to introduce TMD to the region. Since the area currently lacks a

system of multilateral institutions and confidence building measures, the United States must reformulate its role in the region to fit the new realities that have emerged in Northeast Asia since the end of the Cold War.

For China, the consequences of a U.S. TMD umbrella, especially over Taiwan, are serious. A TMD capability that offers at least some degree of protection for U.S. forces, and the allies who offer host nation support to those forces, will serve to diminish the level of regional coercion that the PRC could bring to bear in any future crisis. A TMD capability extended to Taiwan would be grave enough that some intricate and possibly grievous decisions would literally be forced upon the leadership in Beijing.

However, the question of TMD coverage over Taiwan must be interspersed with all issues faced by the Chinese Communist Party (CCP). Faced with a diminishing consent to rule since 1989, the CCP has sought to fortify its waning legitimacy by making its priority number one the continuation of economic modernization and growth, started in the late 1970s by Deng Xiaoping, followed by an increasing emphasis on fostering a rising sense of nationalism within Chinese society, of which Taiwan is a clear manifestation. This is the context that must be taken into consideration when discussing whether or not to extend TMD to Taiwan.

Since the arsenal of ballistic and cruise missiles in the inventory of the People's Liberation Army (PLA) continues to multiply at an alarming pace, it is reasonable to conclude that the lack of an effective counter to these weapons has convinced some influential elements within the Chinese leadership that Taiwan can be coerced back into the fold of Chinese unity quickly and cheap.

By injecting TMD into this strategic calculation, the United States can stabilize the security dilemma across the Taiwan Straits by introducing a defensive system that will be able to at least partially mitigate the threat posed by these weapons.

By upping the stakes of military conquest, the United States will essentially force the CCP to choose which path it will follow in Northeast Asia. Since the standard and authoritative position in Beijing has always been since the late 1970s that economic development is and will remain the number one priority of the party, it is realistic to assume that this will continue to be the choice over other competing priorities. If raising the perceived costs of such a conquest diminishes the prospect of reunifying Taiwan with the mainland through force, then a peaceful resolution to the Taiwan issue may be achieved at some point in the future.

If the choice is to still resort to war to settle the Taiwan issue, even in the face of TMD, then the CCP will run the dual risk of foisting economic collapse upon China along with the very real prospect of being irretrievably disgraced on the battlefield. Such dreadful possibilities, partially enabled by TMD, may be just what it takes to keep the peace in Northeast Asia for the foreseeable future.

I. INTRODUCTION

A. BACKGROUND

One of the enduring legacies of the Cold War has been the recurring debate about the various incarnations of U.S. Ballistic Missile Defense (BMD). Missile defense technology first emerged in the 1960s with the Sentinel and Safeguard programs. As offensive technology has progressed, new threats have emerged. Debate about whether or not missile defenses should be developed or abandoned continues.

The proliferation of ballistic and cruise missile technologies throughout the world has added a new twist to the question of whether or not missile defense systems should be developed. The quantitative and qualitative expansion of the missile programs of the People's Republic of China (PRC) and the Democratic People's Republic of Korea (DPRK, also referred to as North Korea), coupled with the willingness of these two governments to export this technology to unstable areas of the globe, has initiated a heightened level of vigilance on the part of the United States and its allies as to the destabilizing impact this phenomenon has on the security environment of regions of the world which are critical to maintaining international peace and prosperity.

B. RESEARCH QUESTION

How should the United States respond to the growing threat posed to its national interests, and those of its friends and allies, by widespread missile proliferation? The case study used to illustrate the problem will be confined geographically to Northeast Asia -- namely China, the Korean peninsula, Japan, and Taiwan. Also, when discussing missile defense systems as a response to the missile development programs of the PRC

and the DPRK, the focus will be on those systems capable of Theater Missile Defense (TMD), meaning systems that, for the most part, do not have the capability to intercept Inter-Continental Ballistic Missiles (ICBMs). Table 1 provides a classification of ballistic missiles by range:

Table 1. Classification of Ballistic Missiles by Range

CLASSIFICATION	RANGE
Short-range ballistic missile (SRBM)	Under 1,000 km
Medium-range ballistic missile (MRBM)	1,000 to 3,000 km
Intermediate-range ballistic missile (IRBM)	3,000 to 5,500 km
Intercontinental-range ballistic missile (ICBM)	Over 5,500 km

From: National Intelligence Council, Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015. September 1999.

While the issue of United States National Missile Defense (NMD) has significant implications for the PRC and its ability to maintain a credible strategic deterrent, it will not be included in this work. Keeping TMD and NMD separate makes sense because they are each designed to counter threats posed at different levels along the ladder of crisis and conflict escalation. Furthermore, conventional or even nuclear-equipped theater missiles are intended to serve a far different purpose than nuclear-tipped ICBMs because that they are envisioned to be usable on the battlefield without necessarily provoking a response from an adversary that jeopardizes national survival. Theater missiles are imagined to be a viable weapon a military commander can use regardless of whatever level of conflict in which he may find himself involved. This fact alone makes their use in future disputes highly probable, bringing with it a set of considerations far different and more complex

than those brought about by the existence of strategic ballistic missiles and the theories surrounding their use or non-use in international conflict.

C. METHODOLOGY

This thesis examines the TMD debate by first emphasizing the guiding concepts behind the PRC and DPRK missile programs and how these ideas have been shaped by the perceived security circumstances and outlook of the political leadership in each country. Second, a brief summary of U.S. TMD programs is described. Finally, the security needs of Japan, Taiwan, and South Korea and their relations with the United States will be described to validate a future TMD deployment to the region.

The research will draw primarily from the scholarly work of various experts on East Asia. However, some primary documents, such as US government publications also will be used as a way of explaining why TMD in the region should be pursued.

D. ORGANIZATION

The following chapter will analyze the rise of the Chinese missile program and explain how the country's experiences have shaped its missile development. A heavy influence will be placed on the various formulations of deterrence theory that have emerged in China since the country detonated its first nuclear weapon in October of 1964. Furthermore, an in-depth analysis of the expanding Chinese missile capabilities and their attempts at proliferating these weapons abroad will be put forth as a way of underscoring the heightening sense of insecurity that has begun to permeate the region.

Chapter III will explain how the North Korean missile program has magnified the sense of looming threat that now pervades much of Asia. The motivations for the North Korean program seem to emanate from a completely different set of goals than those of

China. This chapter also will describe how the North Korean leadership views its security situation in the post-Cold War era.

Chapter IV will summarize the U.S. effort to develop and deploy TMD systems. This section will look at four programs that have been developed and are now undergoing rigorous testing. Three other programs that will be discussed are based around laser technology, but they are many years away from becoming operational. The concept of laser-based missile defense, however, is a radical departure from the standard assessment that missiles offer the optimal means of intercepting another missile in flight.

Chapter V describes the balance between offensive and defensive methods. Two examples will be used to illustrate how an over-reliance on offensive measures can lead to disastrous consequences. The British experience in countering German U-boats during the World Wars and the American experience with counterinsurgency in Southeast Asia in the 1960's relate to questions about how to counter theater missiles. This chapter then wraps up with an overview of current U.S. TMD doctrine as promulgated by the Joint Chiefs of Staff and whether or not this doctrine reflects the need to balance offensive and defensive options in formulating a solution to the dilemma presented by these weapons.

Chapter VI returns to Northeast Asia by examining what is at stake for the United States and its three major allies in the region: Japan, South Korea, and Taiwan. The analysis will focus on how a U.S. TMD umbrella fits into the security calculus of each of these countries in light of the new and growing dangers in the region. Specifically, has the emerging threat of ballistic and cruise missiles in the region altered the perception for the worse that the United States can and will continue to be the guarantor of regional

peace and stability, or will making the effort to extend TMD coverage to these three countries strengthen the position of the United States in this important area of the world?

Chapter VII flips this last question around and examines the implications of a U.S. TMD umbrella on the national security outlook of both China and North Korea. Most importantly, how will a U.S. TMD deployment in the region impact the behavior of these two countries towards their neighbors? Will such a symbol of U.S. resolve serve to moderate their objectives and force them to adopt a more responsible posture in the region or will such a deployment only provide them with a sense that a window of opportunity to realize their national ambitions is being closed?

E. ASSUMPTIONS

A number of assumptions have to be made regarding the subject material as many of the issue being debated here are either still conceptual and have yet to be actually applied in reality or they are disputable from a theoretical standpoint.

First of all, it is assumed that the international relations theory of *realism* is the most applicable for the region of Northeast Asia today. Though there are various types of realism ranging from classical realism, which states that insecurity is a universal and permanent feature of the international order, due to the latter's abidingly anarchic character,[1] to the neo-realism of Kenneth Waltz, which rejects the "reductionist" theory of realism in favor of a "systemic" approach which disregards any domestic factors within a nation-state that may influence its international behavior in favor of the idea that the international system itself, be it bipolar or multipolar in nature, is wholly responsible

[1] Francis Fukuyama, *The End of History and the Last Man*, (New York: The Free Press, 1992).

for the intrigues created when nation-states interact with one another.[2] There is even a school of thought that makes the assertion that China has always practiced its own brand of "cultural realism" which is remarkably similar in appearance to the realism that emerged in the Western world following the Treaty of Westphalia in 1648.[3]

No matter which version of realism one chooses to apply to East Asia, it is implicit from the behavior of states in the region that the dictates of *realpolitik*, or power politics, guide the decision-making process of national leaders across Northeast Asia. As evidence of this, it is only necessary to draw attention to the similarities of the Northeast Asian security pattern to the example provided by Europe during the decade previous to the outbreak of World War I, a time often considered to be the high water mark of realism. Like Wilhelmine Germany before it, the PRC is a late-blooming great power emerging into a world already ordered strategically by earlier rivals.[4] Also, there exists an irretrievable grievance across the Taiwan Strait (similar to Alsace-Lorraine between Germany and France), an arms race that is beginning to gather momentum, and a strategic alliance between a powerful maritime nation (the United States) and another powerful, though weakened, state (Japan) that closely resembles the Anglo-Russian entente that developed against a Germany that was suddenly emboldened by the stunning and humiliating loss suffered by Czarist Russia at the hands of the Japanese during the Russo-Japanese War of 1904-05.

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[2] Kenneth N. Waltz, *Theory of International Politics*, (New York: McGraw-Hill, 1979).

[3] For further reading on this topic, see Alastair Iain Johnston, *Cultural Realism: Strategic Culture and Grand Strategy in Chinese History*, (Princeton, NJ: Princeton University Press, 1995); Also, see Arthur Waldron's review of this book titled "The Art of Shi," *The New Republic*, 23 June 1997.

[4] Richard K. Betts and Thomas J. Christensen, "China: Getting the Questions Right," *The National Interest*, Winter 2000/2001, Issue no. 62.

A second assumption is that the various TMD development programs currently underway in the United States and Japan will eventually result in the fielding of a plausible defense against at least an initial missile attack. Many critics of missile defense systems complain that it is technically impossible to detect, track, and intercept an incoming missile with another missile because the speeds involved are too great or that effective countermeasures will be too easy to develop and deploy. Technical hurdles do indeed exist, but it is difficult to support the idea that missile defense itself is impossible. Technical innovation has a long history of turning what was once believed to be hopelessly unachievable into the ordinary occurrences of daily life. Circumnavigating the globe, achieving powered flight, and routine space travel are all examples that underscore the point of the impossible becoming the possible. Clinging to the notion that missile defense is technically infeasible simply because it is a "pipe dream" starts to look like nothing more than the ranting of a shrieking Luddite.

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II. THE PRC - ASIA'S "MISSILE BULLY"[5]

A. DEVELOPMENT OF THE PRC MISSILE PROGRAM

The impetus for the PRC to pursue the development of ballistic missiles was generated by events that occurred in the 1950s. But it is now propelled by a much more intricate set of motivations that reflect the altered strategic atmosphere of modern day Asia.

On three separate occasions throughout the 1950s, the PRC found itself on the receiving end of implied nuclear threats from the United States. The first occurred as the Korean War dragged on in a bloody stalemate in 1953 and the newly elected Eisenhower administration came to power in Washington, partly on the promise that it would end the fighting on the Korean peninsula. While the threat was promulgated by the United States, it is not clear that this was the overarching reason that pushed the Chinese into agreement on an armistice, as the timing virtually coincided with the death of Stalin in the Soviet Union in March 1953. Which event more influenced the Chinese to break the deadlock at the negotiating table is still a matter of debate.[6]

The second time the PRC was threatened with U.S. nuclear weapons was during the 1954-55 Taiwan Strait Crisis, which was set in motion by the negotiations that led to the signing of the U.S.-Taiwan defense treaty. As a way of testing the resolve of the United States, Mao Zedong ordered the People's Liberation Army (PLA) to begin shelling a number of islands close to the Chinese mainland that were occupied by

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[5] The author first heard this term used by Rear Admiral Eric McVadon, USN, (Ret.), during a lecture presented at the Naval Postgraduate School in October, 2000.

[6] Denny Roy, *China's Foreign Relations* (Lanham, Maryland: Rowman & Littlefield Publishers, Inc., 1998).

Taiwanese forces. Tension continued to escalate through March 1955, when both President Eisenhower and Vice-President Richard Nixon publicly suggested the United States might use nuclear weapons against China in connection with the Straits crisis.[7]

A third instance of such threats occurred during the 1958 Taiwan Straits crisis which resulted in the deployment of several U.S. aircraft carriers armed with nuclear-capable aircraft along with numerous escort ships. By that time, however, the first two occasions had been enough to convince Chinese leaders and their allies in Moscow that the PRC required its own nuclear capability and delivery system to avoid being subjected to future U.S. nuclear threats. Development of nuclear warheads and ballistic missiles proceeded concurrently, and both programs enjoyed continuously disproportionate shares of the PRC defense budget throughout the Mao years and beyond, even during times when the country was suffering famine and intense domestic political turmoil.

On September 13, 1956, Moscow agreed to sell the PRC two R-1 missiles (these missiles were essentially copies of the German V-2) and relevant technical documents.[8] The Chinese gained little useful knowledge from this primitive missile, but its procurement was followed by the Chinese acquisition of its more sophisticated follow-on system. Under the Sino-Soviet New Defense Technical Accord signed on October 15, 1957, a Soviet Army missile battalion with two R-2 missiles and their associated launching equipment reached Beijing on December 24. This date marked the real beginning of the Chinese ballistic missile program.[9]

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[7] Ibid.

[8] John Wilson Lewis and Hua Di, "China's Ballistic Missile Programs: Technologies, Strategies, Goals," *International Security*, Fall 1992 (Vol. 17, No. 2).

[9] Ibid.

What emerged out of these initial technology transfers was to become known as the *Dongfeng* (DF or East Wind) indigenous development program within the PRC. By 1960, the need for self-reliance was forced upon the Chinese as the Sino-Soviet split intensified, making further military cooperation impossible. The PLA's missile designers quickly understood that they were on their own.[10]

However, Chinese scientists who had trained in the Soviet Union during the 1950s had gathered enough information about Soviet missile systems to carry on their own effort to develop ballistic missiles without further assistance.

After the first successful Chinese atomic bomb test on October 16, 1964, the need to finish working out the remaining technical difficulties became pressing as China's strategic environment began to deteriorate rapidly. The year 1965 saw the start of the huge Soviet military build-up along China's northern border and the rapid escalation of U.S. military intervention in Vietnam along China's southern border. This simultaneous encroachment along China's borders by the world's two superpowers, both now overtly hostile to the PRC, was deeply troublesome to the leadership in Beijing as it had no meaningful allies to turn to for help.

Fortuitously for the PRC, on October 27 1966, the missile crews at the Shuangchengzi test base in Gansu Province launched a DF-2A (design range of 1250km with a payload of 1500kg). China's first strategic missile system had become operational."[11]

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[10] Ibid.

[11] Ibid.

Over the next 15 years, Chinese scientists were guided by nothing more than the technical requirements generated by the need to strike targets further away from China as a way of enhancing the deterrent potential of the PRC's limited number of nuclear warheads. In sequence, these missiles were designated the DF-2 (targeted on U.S. bases in Japan), DF-3 (the Philippines), DF-4 (Guam), and the DF-5 (continental United States).[12]

B. EVOLVING FROM "MINIMUM" TO "LIMITED" DETERRENCE

With the coming to power of Deng Xiaoping in 1978, the PRC's strategic outlook began to change drastically. By the mid-1980s, the notion that the PLA would have to project power along the vast periphery of China in order to defend Chinese interests came to dominate the once sacred strategy of "People's War." This Maoist vision, which emphasized the need to "lure the enemy in deep" to weaken and ultimately defeat an anticipated Soviet invasion, was no longer considered necessary in light of the diminishing power of the Soviet Union. This new strategy, initially referred to as "people's war under modern conditions," altered the direction of the Chinese ballistic missile program in two significant ways.

First, there has been a distinctive shift away from what had been a consistent emphasis in China on maintaining a small and relatively inaccurate nuclear arsenal as a means of launching a retaliatory second-strike against any nation that first attacked China with nuclear weapons. Reliance upon such a strategy is what Western scholars refer to as "minimal deterrence," which essentially relies on countervalue targeting of a few enemy population centers as a means to deter nuclear attacks against the PRC. While Chinese

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[12] Ibid.

officials never openly professed any nuclear strategy other than that of no-first use, (NFU), it is plausible that the PRC was forced into adopting a minimal deterrence posture in the 1960s due to its lack of resources. The country could barely afford a handful of nuclear warheads and ballistic missiles with which to deliver them and what it did acquire came at a steep price in terms of the overall economy.

By the mid-1980s, the idea that China still had a credible deterrent against the superpowers was called into question. The enhanced reconnaissance capabilities and the improved accuracy of the U.S. and Soviet nuclear arsenals alerted Beijing to the reality that China was again becoming dangerously exposed to possible nuclear coercion. It became accepted that minimum deterrence capabilities are in practice too vulnerable to a disarming first strike, and thus have little deterrent value.[13]

The new approach the Chinese adopted is what has come to be known as "limited deterrence." This concept, much more intricate in detail and far more complex in requirements than minimal deterrence, emphasizes operational flexibility and maintaining a war-fighting potential against a technologically superior adversary. As Alastair Iain Johnston writes:

> A limited deterrent means having enough capabilities to deter conventional, theater, and strategic nuclear war, and to control and suppress escalation during a nuclear war. That is, a limited deterrent should be able to respond to any level or type of attack from tactical to strategic, and the initial response should be calibrated to the scope of the initial attack.[14]

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[13] Alastair Iain Johnston, "China's New 'Old Thinking': The Concept of Limited Deterrence,'" *International Security*, Winter 1995/96.

[14] Ibid.

With this change, the focus of Chinese nuclear deterrence has shifted more to what strategists call "counterforce" targeting, which entails the ability to strike at an enemy's military assets or logistical bases before attacks can be unleashed against China during a conflict. While the large warheads situated atop the Chinese ICBM force would still play a countervalue role in the event of an all-out nuclear attack upon Chinese territory, the need to develop smaller, more accurate warheads and a more diverse means of delivering them became priority development items for the PRC leadership.

As a result of this new stance, the Chinese missile program assumed a high profile role in meeting the demands placed on the PLA, primarily due to the fact that the military-industrial complex within China could offer little else in the way of bridging the gap between PRC ambitions and PLA capabilities. As opposed to manned long-range aircraft, submarines, or surface naval vessels, missiles are relatively cheap, comparatively simple, and potentially very effective.[15] The ability of Chinese industry to produce a variety of missiles in large numbers also is more than likely the result of this sector enjoying disproportionate levels of resources over time. The accumulated knowledge and experience that has logically developed within this industry is now paying large dividends to China as it races to build-up and modernize the PLA.

A key feature in the expansion of Chinese missile capabilities has been the move away from reliance on liquid-fueled missiles, which require several hours to prepare for launch once ordered, to solid-fueled missiles which are smaller, can be made mobile by using transporter-erector-launcher's (TELs), and can be launched far more rapidly. However, shifting to solid fuels required China to develop smaller, lighter warheads with

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[15] Aaron L. Friedberg, "The Struggle For Mastery in Asia," *Commentary*, November 2000.

much better yield-to-weight ratios than its older weapons because solid fuel contains less thrust than liquid fuel.[16] Table 2 encapsulates the progression of Chinese ballistic missiles from the 1960s to the present day.

Table 2. Chinese Ballistic Missiles

Designator	Range (km)	Payload (kg)	Fuel Type	Use
DF-2A	1250	1500	Liquid	Strategic
DF-3A	2800	2150	Liquid	Strategic
DF-4	4750	2200	Liquid	Strategic
DF-5A	13,000	3200	Liquid	Strategic
DF-21A	1800	600	Solid	Strategic
DF-25	1700	2000	Solid	Strategic
DF-31	8000	700	Solid	Strategic
DF-15/M-9	600	500	Solid	Tactical
DF-11/M-11	300	500	Solid	Tactical

From: Derived From Lewis and Di, "China's Ballistic Missile Programs," p. 9-11.

Another interesting facet of recent Chinese ballistic missile developments has been the Chinese high command raising its assessment of battlefield tactical ballistic missiles (TBMs) as a supplement to the PLA's inadequate strike aircraft.[17] While these new weapons first emerged from attempts by Chinese industry to take advantage of the lucrative export market for TBMs (discussed in more detail below), PLA strategists were

[16] Paul H. B. Godwin, "China's Nuclear Forces: An Assessment," *Current History*, September 1999.

[17] Lewis and Di, *China's Ballistic Missile Programs.*

quick to recognize the utility that such assets could provide them in any number of potential conflicts that required the PLA to extend fire-support outside the borders of the PRC. The DF-11 and DF-15 are both short-range ballistic missiles capable of delivering a wide variety of conventional warheads or even a single tactical nuclear warhead.

C. MISSILE EXPORTS: REVENUE AND GEOPOLITICS

The second major change in the Chinese ballistic missile program brought about by Deng's revision of the PRC's strategic outlook was his encouragement of the export of missiles as a viable means of raising hard currency to subsidize an insufficient PLA budget. The reform efforts set in motion by Deng established as the overriding priority of the Chinese leadership the development and modernization of the Chinese economy at the expense of the military. This emphasis rested on the assumption that the surplus resources generated by a market-oriented economy would eventually provide the wherewithal to modernize the PLA, whose conventional technology and doctrine had been stagnant since the mid-1960s.

The insatiable appetite for weapons created by the Iran-Iraq war of the 1980s provided a convenient opportunity for the Chinese to begin marketing their hardware, which they offered to both sides participating in the conflict. Witnessing the Iraqis barrage Tehran with Soviet-made SCUD missiles during the latter stages of the war, the Chinese were impressed by the effectiveness of conventional ballistic missiles in substituting for a lack of adequate strike aircraft in a conflict. The Chinese also paid close attention to the considerable profits realized by the Soviets, who were supplying the Iraqis with as many short-range missiles as their oil-based economy could afford.

Attempts by the Chinese to sell the Iranians missiles to counter the Iraqi SCUDs fell apart as a satisfactory method of payment could not be agreed upon.[18] Yet, by 1988, the PRC was able to negotiate a deal with Saudi Arabia whereby the Chinese would provide the Saudis with 30 outdated DF-3 IRBMs, though no nuclear warheads were included in the agreement.

By 1984, engineers in the First Academy (responsible for surface-to-surface missile research and development) concluded that they could easily and cheaply adapt the technologies from China's second-generation strategic missiles to a new class of short-range tactical ballistic missiles.[19] Upon receiving approval for the concept from the space ministry, First Academy scientists began an accelerated effort to generate a missile that would be superior in range and accuracy compared to the Soviet SCUD's that were filling this niche in the global arms market. The resulting 600km-range DF-15 missile, known by its export designation M-9, was showcased at the first Asian Defense Exhibition (ASIANDEX) in Beijing in 1986. This new weapon attracted not only the attention of foreign buyers, but also that of the PLA's Secondary Artillery, which maintains all of the PRC's rocket forces and operates in a similar fashion to the former Soviet Strategic Rocket Forces. High-level officers within the Secondary Artillery were quick to realize just how much flexibility these missiles offered to the evolving war-fighting doctrines of the PLA and immediately moved to add it to their own inventory, naming it the DF-15. An additional missile with a 300km range, the M-11, came into

[18] Ibid.

[19] Ibid.

production two years after the M-9/DF-15 and was given the designator DF-11 by the Secondary Artillery.

Foreign buyers for these new, more capable conventional missiles were quick to conclude deals with Beijing. The Syrians paid a deposit for future delivery of a number of M-9s in 1988, and it is believed that the Chinese sold the M-11 to Pakistan as early as 1991.[20] Even in light of this apparent eagerness to sell missiles to anyone willing to pay for them, China has emerged as a calculating, strategic proliferator.[21] The PRC sells its tactical missiles to countries that are either located far away from its own borders to ensure that these weapons will not one day be used against the PRC or to countries that conveniently act as a counter to another strategic rival, such as is the case with Pakistan vis-à-vis India. China's rumored cooperation on nuclear and missile technology transfers with Iran also have aided the PRC's efforts to build an additional power center in a region that currently preoccupies the United States, probably in the hope that continued instability in the Persian Gulf region will stretch out the military might of the world's only superpower. In Beijing's strategic calculations, faced with two regional crises simultaneously, the USA would have to select which one is more important for its national security interests, leaving the other to China to sort out.[22]

China, a country that was once subjected to nuclear bullying, has now expanded its missile capability and embedded it so deeply into the PLA's doctrinal thinking that it has now assumed a bullying role in East Asia. Such developments even inspired former

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[20] Ibid.

[21] Mohan Malik, "China Plays the Proliferation Card," *Jane's Intelligence Review*, July 2000.

[22] Ibid.

President Richard Nixon to wonder if his opening of the PRC in the early 1970s might have actually created "a Frankenstein."[23]

Many of the PRC's neighbors, along with the United States, have begun reacting to this turn of events by beefing up their own military capabilities, a process that could eventually see the PLA falling even further behind wealthier and more technologically advanced countries such as Japan and Taiwan. Even India, which is not as developed economically or militarily as China, was motivated to join the group of declared nuclear states in 1998, primarily as a result of its regional rivalry with Pakistan, but also by the threat of Chinese missiles and nuclear weapons. These warning signs point to an ominous future in this critical area of the world if the status quo powers in the region do not react to the continuing missile build-up in the correct manner.

[23] Quoted in Joseph A. Bosco, "Has China Turned Into A Frankenstein?" *Los Angeles Times*, 05 March 2001.

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III. CALCULATED IRRATIONALITY – THE NORTH KOREAN MISSILE PROGRAM

A. BACKGROUND

The first known instance of North Korea expressing a desire to obtain a ballistic missile capability came in April 1975, when North Korean Defense Minister Oh Jin-U, accompanying Kim Il-Sung during his visit to Beijing, inquired whether China could equip his forces with 600km missiles.[24] While China had no such weapon in its inventory at the time, the request coincided with China's growing interest in the possible use of tactical ballistic missiles on the battlefield. This mutual interest led to an agreement between the Chinese and the North Koreans in late 1976 for the joint development of the Chinese-designated DF-61 single-stage mobile tactical missile, which would carry cluster munitions or fuel-air explosive warheads.[25] This program collapsed, however, when its primary Chinese supporter, Chen Xilian, was ousted from office in 1978.[26] While this effort did not result in North Korea obtaining a missile system, it did provide North Korean technicians and scientists who worked on the project valuable knowledge on missile design that proved to be crucial within a few short years.[27]

Following their unsuccessful attempt at cooperating on missile development with the PRC, the North Koreans began to look for anyone who was willing to provide assistance. In 1981, they were able to purchase Soviet-made SCUD-B SRBMs from

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[24] Lewis and Di, *China's Ballistic Missile Programs.*.

[25] Peter Saracino (ed.), "*North Korea's Ballistic Missile Program,*" Center for Nonproliferation Studies web site, Monterey Institute of International Studies, http://cns.miis.edu/research/korea.

[26] Lewis and Di, *China's Ballistic Missile Programs.*

[27] Saracino (ed.) *North Korea's Ballistic Missile Program.*

Egypt, reverse-engineer the missile, and then develop subsequent versions, which allowed it to gain expertise in the production and testing of missiles.[28] Table 3 classifies successful North Korean missile developments to date.

Table 3. North Korean Ballistic Missiles

SPECIFICATION	TYPE	RANGE (km)
SCUD-B	SRBM	300
SCUD-C	SRBM	550
NODONG	MRBM	1300
TAEPODONG-1	MRBM	2000
TAEPODONG-2	ICBM	6000

From: "North Korea's Missile Capability," *Jane's Intelligence Review*, March 2001.

By 1983, Iran also began playing a significant role in the North Korean missile program by acting as the primary financial supporter in exchange for the option to purchase production models.[29] A particular attraction of having the Iranians assume this role is that they were capable of paying the North Koreans with a highly-desired and much needed commodity: oil. Moreover, the potential use of Iranian test-sites for North Korean missiles has not gone unnoticed in recent years. The Iranian Shahab-3 ballistic missile is based on the North Korean Nodong MRBM.[30] Any information shared by the

[28] Ibid.

[29] Ibid.

[30] Bill Gertz, "Iran Set for Another Flight Test of Missile," *The Washington Times*, 08 September 2000.

Iranians from their test launches not only provides the North Koreans with an opportunity to improve their own designs and components, but also allows the Iranians access to any technical improvements made by North Korean scientists.

The most recent milestone in the North Korean missile program was achieved on 31 August 1998, when the first flight test of the two-stage Taepodong-1 occurred. The missile flew due east across the Sea of Japan. The first stage separated 300km east of the launch site. The second stage continued over the main Japanese island of Honshu, and impacted in the Pacific Ocean 330km east of the Japanese port city of Hachinohe, after flying approximately 1380km.[31]

This single event underscored the threat posed to Japan and its neighbors by the existence of North Korean ballistic missiles. While North Korea claimed that this launch was an attempt to place its first satellite into orbit, the message sent was unmistakable. This tiny, isolated country, suffering from severe material deprivations since the end of the Cold War due to the loss of its Soviet benefactor, is still capable of producing weapons that terrify the countries that it perceives as posing a threat to its existence. Namely South Korea, Japan, and the United States.

B. MOTIVATIONS

As is common with many developing countries, North Korea originally turned to missile forces to compensate for its air force's lack of a long-range strike capability.[32] The inability of the North Korean to strike at the rear staging areas of Pusan and U.S. bases in Japan proved to be nearly fatal for the Pyongyang regime during the 1950-53

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[31] Joseph Bermudez, "North Koreans Test Two-Stage [MRBM] Over Japan," *Jane's Defence Weekly*, 09 September 1998.

[32] Peter Saracino (ed.), *North Korea's Ballistic Missile Program.*

Korean War, and this lesson was not lost on North Korean leaders. However, for much of the time since the war ended in an armistice, North Korea was mainly dependent upon the generosity of the Soviet Union and, to an extent, China for its armaments. Therefore, the country could do little on its own to advance the technological sophistication of its weapons unless its major power benefactors agreed to provide the necessary material and operating expertise.

During the brief period of cooperation with China on ballistic missile development in the 1970s, the North Koreans were able to obtain enough working knowledge of missiles from the Chinese to reverse-engineer the Egyptian SCUD-B and produce much-improved follow-on versions of this missile. This well-timed success provided the North Korean leadership with a unique opportunity at the end of the Cold War to use these weapons as a means to both extract monetary and security concessions from the West as a way of compensating for the loss of Soviet and Chinese aid. It also provided a way of generating hard currency for its struggling economy through the sale of these weapons to countries that were willing to pay the price to acquire them. The ongoing attempts by North Korea to develop a nuclear warhead and its advanced efforts at producing chemical and biological weapons also give the country a significant deterrent capability.

One Western perception of the North Korean missile program has been based on the assumption that such missiles are simply too dangerous in the hands of a country with such a long history of committing acts of irrational violence. Rather than as an irrational state, however, North Korea is better understood as an alienated state. Pyongyang does

not abide by the rules of the system because it has no stake or place in the present international order.[33]

The many instances of confrontational behavior exhibited by North Korea, especially since the end of the Cold War, need to be put in proper context by Western strategists. Since the early 1990s, Pyongyang has lost most of the political and economic support of its two former sponsors, Russia and China, while the U.S. remains Seoul's closest ally, permanently basing its military forces in South Korea.[34] This deep-seated sense of insecurity makes the asymmetric deterrent provided by ballistic missiles all the more attractive as the North Korean military is so far behind the militaries of the United States and South Korea in terms of technology and doctrine that there is little chance it can succeed on the battlefield for any significant length of time if the country ever finds itself at war.

Japan also occupies a position of considerable weight in the North Korean strategic calculus. The Japanese colonization of the Korean Peninsula following the Sino-Japanese War of 1895 lasted until the end of World War II and the memory of this time deeply impacts the collective psyche of the North Korean people and their leadership in Pyongyang. Government propaganda often emphasizes the fact that the Japanese were once the brutal oppressors of the Korean people. Because of the profound memories of being once subjugated by Japan, North Korea is seriously concerned that

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[33] Denny Roy, "North Korea as an Alienated State," *Survival*, Winter 1996/97.

[34] Ibid.

Japan might develop nuclear weapons and wants to retain the Nodong to maximize its leverage in dealing with Tokyo.[35]

Brinksmanship has been the hallmark of North Korean foreign policy over much of the last decade and missile technology has been an integral part of this strategy. Fearful of settir in motion any kind of reform that could possibly lead to the demise of the North Korean leadership, Pyongyang has relied on maintaining a threatening posture to the U.S. and its East Asian allies as a means of extorting aid needed to supplement the material shortcomings within its society that its economy is incapable of meeting. The 1994 showdown over inspection of North Korea's Yongbyon nuclear facility resulted in concessions by the U.S. to eventually provide two light-water reactors for production of electricity and up to 500,000 tons of heavy fuel oil per year to meet the needs of North Korean industry while the reactors are being built. It is suspected that the launch of the Taepodong missile that flew over Japan in 1998 may have been an expression of dissatisfaction by the North Koreans as to the slow pace of implementing the 1994 nuclear agreement, as U.S. domestic politics have made it difficult to appropriate the required funding.

Finally, fully assembled missiles or their component parts provide North Korea with one of the few items produced by its economy that is in worldwide demand and, therefore, offer the country one of the limited means it has at its disposal to generate desperately needed convertible revenue. This pressure to acquire hard currency shows no signs of abating as the North Korean economy remains in a steady condition of stagnation.

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[35] Selig S. Harrison, "Time to Leave Korea?" *Foreign Affairs*, March/April 2001.

C. TECHNOLOGICAL ADVANCES – A WORRISOME OUTLOOK

Perhaps the most unsettling feature of the North Korean missile program has been the progression of missile technology that continually surprises analysts in the West. While it may seem reasonable that an impoverished and backward country like North Korea would lack enough innovation and resources to successfully achieve multiple stage missile systems or make the switch from liquid to solid propellant, that is exactly what scientists working on the North Korean missile program have been able to accomplish.

Then again, it is worth mentioning that all significant North Korean missile development successes have been achieved with outside financing and/or technological assistance.[36] Countries like Iran and Pakistan may be providing the financial assistance that is crucial to North Korea. But it is the importation of Russian missile specialists, many of whom are no longer able to find gainful employment in Russia's dwindling military-industrial complex, who are providing the enabling expertise for the accelerating advances in North Korean missile technology.[37]

The most troublesome aspect of the developments in North Korea's missile program has to do with the extended ranges of each subsequent generation of North Korean missiles. According to David Wright of the Union of Concerned Scientists, the Nodong's range marks the developmental limits of [single-stage] SCUD technology.[38] But it is the ability to launch a multiple-stage missile, as demonstrated by the Taepodong

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[36] Peter Saracino (ed.), *North Korea's Ballistic Missile Program.*

[37] Ibid.

[38] Ibid.

launch in 1998 that has laid the groundwork for the destabilizing prospect of widespread ICBM proliferation throughout the world.

Terminal velocity is the key performance parameter of a missile since it determines range. As George P. Sutton writes:

> Multi-stage rocket vehicles permit higher vehicle velocity and improved performance for long-range missiles. As the propellant is consumed in each stage, it is dropped from the vehicle, and the operation of the propulsion system of the next step is started. The last stage, which is usually the smallest, carries the useful load. The empty mass of the expended step or stage is separated from the useful remainder of the vehicle because it avoids expending the additional energy to accelerate it further. *The start of the operation of the next rocket stage must be carefully timed* [emphasis added].[39]

It is this qualitative leap in technology, represented by successfully testing a multi-staged missile, that is opening the door for the North Korean missile program to become a global threat instead of the contained regional threat it had been up until 1998.

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[39] George P. Sutton, *Rocket Propulsion Elements: An Introduction to the Engineering of Rockets,* Sixth Edition, (New York: John Wiley & Sons, Inc. 1992).

IV. THE RESPONSE

The United States has devoted significant resources over the past two decades towards developing theater missile defense systems capable of countering the threat posed by the proliferation of ballistic and cruise missile technology throughout the world. What has evolved out of this effort is a number of "upper-tier" and "lower-tier" systems that will ideally be fused together to form a "defense-in-depth" family of systems designed to work effectively against a multitude of missile threats. Also, a number of laser-based systems designed to intercept hostile missiles in their "boost-phase" -- before they have the ability to launch countermeasures or decoys -- have been conceptualized and are in the early stages of development. The following is a brief description of TMD programs that are currently progressing through the testing and procurement pipeline or are already being fielded by U.S. and allied militaries around the world.[40]

A. UPPER-TIER TMD SYSTEMS

1. Theater High-Altitude Area Defense (THAAD)

THAAD is run by the Army and is designed to defend a limited geographic area, such as a battlefield. THAAD's primary purpose is to defend US troops in the field against the ballistic missile threat. It is a portable, ground-based system that will give U.S. forces the best chance to shoot down incoming missiles far enough out so that post-intercept debris will not harm our troops – a vital consideration if a missile carries a weapon of mass destruction (WMD).[41] THAAD is capable of intercepting targets both

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[40] For purposes of this thesis, TMD will encompass those systems designed to defend against both ballistic and cruise missiles.

[41] Ballistic Missile Defense Organization (BMDO) Fact Sheet AQ-00-05, March 2000, (www.acq.osd.mil/bmdo/bmdolink/pdf/aq9905.pdf)

within and outside the atmosphere and utilizes kinetic hit-to-kill technology instead of a fragmentation warhead to destroy its target. This system, however, has suffered a series of setbacks during its development that has necessitated the re-engineering of its missile component. The system will not be deployed until 2007 at the earliest.

2. Navy Theater Wide (NTW)

NTW will utilize existing AEGIS technology and a modified Standard missile (SM-3) to provide an exoatmospheric TMD capability that will ideally intercept an incoming ballistic missile in its "ascent" phase. This capability to achieve ascent-phase intercept is considered the "holy grail of Naval TMD"[42] as this early interception allows for multiple attempts at intercept and gives the added benefit of incinerating any WMD warheads as the intercept debris re-enters the atmosphere.

This program has the advantage of tens of billions of dollars already spent procuring and decades of experience in utilizing the Aegis Weapons System (AWS) throughout the fleet. By expanding the capability of a system that is already operational and well understood, the US Navy should be able to assimilate the TMD mission relatively quickly once the acquisition phase of this program is reached by the end of the decade. NTW will offer exceptional missile defense coverage to islands or beachheads and multiple platforms could be linked together to safeguard the entire land-mass of an island nation.

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[42] CDR Charles Swicker, *Theater Ballistic Missile Defense From The Sea,* Newport Paper Number Fourteen, (Naval War College: Newport, RI, 1998).

B. LOWER-TIER TMD SYSTEMS

1. Patriot (PAC-2/PAC-3)

Patriot was originally developed as an advanced Anti-Air Warfare (AAW) weapon but evolved out of necessity into the US military's first TMD system, which made its combat debut during the Gulf War in 1991. It is now designed to be a last-ditch "point defense" weapon that protects only limited geographic areas such as airfields, port facilities, or military bases. It also can offer some protection to urban areas although its capabilities in this regard are limited. PAC-2 and PAC-3 are systems upgrades that have replaced the Gulf War version of the Patriot with the PAC-2 currently being fielded by the United States, Germany, Greece, Israel, Japan, Kuwait, the Netherlands, Saudi Arabia, and Taiwan.[43] PAC-3 is now in the final stages of development and is expected to be operational in 2001.

2. Navy Area Wide (NAW)

NAW will offer a point defense capability against enemy ballistic missiles and is designed for use in protecting ports, troop disembarkation points, and airfields. This program also builds upon the existing AEGIS infrastructure and utilizes an advanced Standard missile, the SM-2 Block IVA. Possible future uses for this weapons system could be with Japan for use on the Japanese AEGIS-equipped *Kongo*-class destroyers or if the Bush administration ever decides to sell AEGIS ships to Taiwan.

C. LASER SYSTEMS

While high-energy lasers have been in existence for several decades, it has been only recently that successes in the miniaturization of laser and computer technology have

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[43] Henry L. Stimson Center Working Group Report, *Theater Missile Defenses in the Asia-Pacific Region*, Report No. 34, June 2000.

made it possible to envision the use of lasers in a TMD role. The problem in developing a workable laser weapon is not with the laser itself, but with the bulky, balky supporting systems: the chemical mixing modules to power it, the coolants to keep it from melting itself, and – above all – the computers to control, aim, and focus it.[44] With significant progress being made in designing systems that can be installed on large aircraft, ships, or even satellites, the possibility of a revolution in the way missile defense is traditionally conceptualized could be underway.

The drawback of anti-missile missiles is that they are roughly comparable in cost and speed to the incoming missile, so enemies can cost-effectively deluge any defense with more offense.[45] In the face of repeated saturation attacks, any missile based TMD system will rapidly deplete its magazine(s), leaving commanders with the prospect of having to carry out their assigned mission without the ability to defend their troops, airfields, or logistical centers.

1. Airborne Laser (ABL)

The ABL is an Air Force program that exploits the concept of Boost-Phase Intercept (BPI) by developing laser technology to the point where a powerful Chemical Oxygen Iodine Laser (COIL) will be mounted in the nose assembly of a Boeing 747 freighter aircraft. This aircraft will then fly at high altitudes over friendly territory while searching for any indications of a ballistic missile launch.

What BPI capability brings to the TMD effort is a quick, first-shot attempt at destroying an enemy ballistic missile shortly after it leaves its Transporter-Erector-

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[44] Sydney J. Freedberg Jr., "Flash! Zap! Boom! Lasers Come of Age," *National Journal*, 21 April 2001.

[45] Ibid.

Launcher (TEL) when it is producing tremendous amounts of heat (thus, easily detectable), is moving relatively slowly, and has not had the opportunity to deploy any decoy warheads or other countermeasures. One additional benefit of BPI is that any ballistic missile carrying a WMD warhead would be destroyed over enemy territory, which would have a significant deterrent impact on any adversary.

ABL Program Manager Col. Ellen Pawlikowski has stated that "ABL is on target and ready to go" for an initial test flight in 2002, a first attempt at a shoot down of a SCUD-type missile in 2003, and initial operational capability by 2007.[46]

2. Solid-State Laser (SSL)

The decision to utilize an electric drive propulsion system onboard the Navy's next generation destroyer, the DD-21 Zumwalt-Class, has made it feasible to arm this ship with a weapon system designed around a Solid-State Laser, which is the system believed to be most suitable for operating at sea as the chemicals needed to operate the ABL's COIL laser present storage safety concerns for a ship.[47] With traditional shipboard electrical plants unable to generate the power necessary to operate an SSL, the DD-21's electrical plant as currently envisioned could conceivably supply the energy to make an SSL a highly effective weapon against a missile threat. According to Rear Admiral Michael Mathis of the Naval Sea Systems Command, this weapon would offer the Navy, "speed of light delivery, short engagement time per target, low cost of engagement, deep magazine [and] covert engagement."[48]

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[46] Catherine MacRae, "Airborne Laser On Track For Scud-Type Missile Shootdown in 2003", *Inside the Pentagon*, September 14, 2000.

[47] Catherine MacRae, "Top Navy Scientist Approves High-Energy Laser Development Plans," *Inside the Pentagon*, January 4, 2001.

[48] Ibid.

3. Space-Based Laser (SBL)

The SBL is an Air Force program. It is a possible successor to ABL and was first envisioned as part of the Reagan Administration's Strategic Defense Initiative (SDI) during the 1980s and has seen many of the technical issues associated with it demonstrated as feasible.[49] However, the high price tag associated with this system has been the major impediment towards its development during the reduced budget cycles of the 1990s.

The major benefit of deploying a constellation of SBL satellites is that they would provide a BPI capability without prior knowledge of the launch site.[50] Each satellite would carry an acquisition, tracking and pointing system using a low-power illuminator...and a high-energy laser, with a range of more than 3,000km, able to engage approximately 100 targets with the fuel stored onboard (on-orbit refueling is also foreseen).[51]

D. SUMMARY

As robust as the overall U.S. TMD effort may appear, it is important to note that many of the systems mentioned above are still many years away from being operational. Due to the extended research and development cycle, along with sporadic funding levels throughout much of the last decade, many of the systems described above will not factor into the military and political calculus of the East Asian region until later this decade or well into the next decade. With the PAC-2 already widely deployed, only the lower-tier PAC-3 and Navy Area Wide systems are poised to achieve Initial Operational Capability

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[49] Mark Hewish, "Beam Weapons Revolution," *Jane's International Defense Review*, August 2000.

[50] Ibid.

[51] Ibid.

(IOC) in the near term. The upper-tier THAAD and NTW systems, as well as the ABL, are estimated to be on track to reach IOC by the end of the decade.

The most pertinent aspect of the current TMD debate regarding East Asia revolves around the notion of extending upper-tier systems such as THAAD or NTW to U.S. allies in the region. Introducing this new capability, either solely in the hands of the U.S. military or in a coalition arrangement, will alter the way security has been provided in East Asia for the past several decades. Will this change act as a stabilizing force in the region by illuminating the futility of relying on theater missiles as the sole means of power projection? Or, will it merely escalate an already spiraling regional arms race?

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V. OFFENSE, DEFENSE, OR BOTH?

A. "OFFENSE-DEFENSE" THEORY – THE SEARCH FOR STABILITY

The most troubling consequence of the PRC missile program has been that it invited the destabilizing perception that an offensive military mindset has taken hold of the civilian and military leadership in Beijing. The provocative build-up in overall missile numbers and capabilities suggest that it has embraced a new logic that heavy reliance upon theater missiles is the critical factor that will allow China to conquer territory quickly and on the relative cheap.

It is the willingness of the DPRK to sell its ballistic missiles to virtually anyone with the means to pay for them that makes the North Korean missile program so dangerous. But, the destabilizing influence regarding China's missile program is the apparent embrace of the idea within the PRC -- an irredentist state with unresolved territorial claims or disputes all across its extended periphery -- that rapid military action (with barrages of ballistic missiles acting as the key component of an operation) can and will act as a sufficient resolution to any territorial differences not resolved in Beijing's favor. As Steven Van Evera writes:

> When conquest is easy [or perceived to be easy], the incentive to strike first is larger because a successful attack provides larger rewards and averts greater dangers...Conversely, if the defense dominates, the first-move dividend is small because little can be done with any material advantage gained by moving first...[And] when conquest is easy, states adopt more dangerous diplomatic tactics – specifically, fait accompli tactics – and these tactics are more likely to cause war.[52]

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[52] Stephen Van Evera, "Offense, Defense, and the Causes of War," *International Security*, Spring 1998.

War also is far more common when elites believe that the offense dominates, and states are far more belligerent when they perceive large defensive vulnerabilities and offensive opportunities for themselves.[53]

It is quite evident that the overwhelming performance of U.S. conventional forces during the Gulf War (against an Iraqi Army that was extensively equipped with Chinese made armaments) has brought about a feeling of vulnerability on the part of Chinese leaders when assessing the combat potential of the PLA in confrontation with the United States. The virtual impunity with which the U.S. military acted during the Kosovo conflict in 1999 did nothing to assuage this feeling of military weakness. Furthermore, the emphasis now placed upon the acquisition of offensive-oriented weapons systems such as theater ballistic missiles, diesel-electric submarines, and long-range fighter/attack aircraft with in-flight refueling capability are indicative of a military being tailored to take advantage of opportunities for conquest beyond the current borders of the PRC.

B. OPERATIONAL CHOICES – THE PURSUIT OF BALANCE

When trying to conceptualize an effective response to a perplexing problem, it is best to focus on what can be done instead of what one would like to do. As the situation stands today, the only capability that the U.S. military could bring to bear on the PRC or any country with a significant ballistic missile arsenal at its disposal is to conduct offensively oriented strike operations against either the missiles themselves or the support infrastructure and command and control networks that direct them. The limited point defense capability provided by the lower-tier Patriot systems currently in the field or in development is of minimal use in countering a full-scale saturation attack. At best, these

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[53] Ibid.

systems can offer some protection to vital command, control, and communication nodes but could be easily overwhelmed in the event of a sustained and determined effort.

Recent experience in the Gulf War of 1991 provides some insight as to the depth of the problem facing U.S. and allied military commanders as they seek to defeat a future ballistic missile threat. Once Iraq began using its short-range ballistic missiles against targets in Israel and Saudi Arabia, coalition forces were forced to divert disproportionate numbers of tactical aircraft to "SCUD-hunt" operations in western Iraq in an effort to defeat the Iraqi missile threat by destroying the limited number of transporter-erector-launchers (TEL's) in the Iraqi arsenal. After thousands of sorties and almost incalculable man-hours expended in support of those operations, not a single Iraqi TEL had been destroyed and Iraq continued to launch its missiles until the end of the conflict, albeit at a reduced rate compared to the start of the war.

This experience mimics that of the Allied Air Forces in World War II when they tried to respond to the German V-1 and V-2 threat against Great Britain. Operation CROSSBOW took seventy-seven days and 16,566 sorties but did not stop the attacks launched upon Great Britain from occupied French territory.[54] Only when allied armies overran the launch areas did the German campaign come to an end.

The lesson to be learned is that an offensive posture is not always the appropriate response when trying to counter a dangerous threat. A prominent example of this lesson learned almost too late was the British reaction to the German U-boat campaign in World War I.

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[54] Richard G. Davis, *Carl A. Spaatz and the Air War in Europe,* (Washington DC: Center for Air Force History, 1992).

The resumption of unrestricted submarine warfare by Germany in 1917 had brought Great Britain to the brink of capitulation. While its vital supply link to the United States was being shut off, the British Admiralty sought to defeat the problem by going on the offensive and hunting down the problematic German U-boats. As George Baer writes, "In the tradition of offensive action, the foe was sought out and, if found, visually engaged and destroyed...Hunting the hunters, however, did not solve the problem."[55] The U-Boats proved to be too elusive and too focused on sinking merchant shipping. Engaging British warships was not the mission at hand for German U-Boat commanders.

As shipping losses continued to mount in the spring of 1917, a drastic change was in order. To defeat the German strategy and to protect shipping, a better counterstrategy was needed. This was found in the venerable practice of convoy, a form of direct and strictly defensive sea control.[56] Once this approach was adopted, allied shipping losses started to decline steadily. While the convoy system did not result in a sharp increase of German U-Boat losses, its impact proved decisive in the overall war effort. The true measure of effectiveness was the amount of tonnage that reached allied harbors safely, not the number of confirmed U-Boat kills recorded.

A further illustration of this point about offensive and defensive responses lies in the divergent experiences of the British and Americans in Southeast Asia in the 1950s and 1960s.

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[55] George W. Baer, *One Hundred Years of Sea Power*, (Stanford University Press, 1994).

[56] Ibid.

British rule on the Malay peninsula faced a strong and well-organized insurgency throughout the 1950s and into the early 1960s. Without significant military forces at its disposal to deal with the problem, the British relied heavily on non-military solutions, combined with small-scale military engagements with guerrilla forces as a counterinsurgency strategy. This emphasis on the "hearts and minds" approach, which is more operationally defensive in nature, contrasted dramatically with the American experience in South Vietnam in the 1960s.

In South Vietnam, the American military sought to defeat an insurgency primarily through superior firepower. The "search and destroy" strategy relied on an essentially offensive approach to defeat an enemy that was adept at hiding or dispersing itself away from the brunt of U.S. air and artillery bombardment. Escalation of the conflict did not solve the problem, either. As Sir Robert Thompson, who served in Malaya throughout the emergency as an administrator and later headed the British Advisory Mission to South Vietnam stated, "doubling the effort... only squared the error."[57]

The fundamental flaw in the U.S. approach to its insurgency problem was that it failed to understand the need to moderate its emphasis on coercion in favor of a more effective effort at winning the hearts and minds of the South Vietnamese who were assisting the insurgents. As Richard Stubbs has written, "These two approaches should not be considered as a dichotomy but rather as two poles of a continuum. Any counter-guerrilla campaign will contain elements of both strategies although one will usually

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[57] Richard Stubbs, *Hearts and Minds in Guerilla Warfare: The Malayan Emergency 1948-1960,* (Oxford University Press, 1989).

predominate."[58] Finding the right way to blend offensive and defensive measures when faced with a specific threat is the key to minimizing the risk that that threat poses to your own forces and those of your allies.

C. CURRENT U.S. TMD DOCTRINE

Since Operation Desert Storm, U.S. TMD doctrine has evolved toward an approach that is composed of four operational elements which combine the inherent advantages of both offensive and defensive measures. They are: passive defense, active defense, attack operations, and command, control, communications, computers, and intelligence (C4I).[59]

Passive defense measures are measures taken to position military forces and critical logistical nodes to reduce vulnerability and minimize the effects of a missile attack through combining such methods as providing tactical warning of an impending attack, hardening vulnerable targets, dispersal of forces, and maintaining a recovery and reconstitution capability.[60]

Active defense measures are the heart and soul of the TMD effort. Here, TMD assets are dedicated to the interception in flight of enemy theater ballistic or cruise missiles. To accomplish this task, emphasis must be placed on the following requirements:

- The need for the earliest possible warning of TBM preparation and launch.
- Highly automated coordination of complimentary defensive systems.

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[58] Ibid.

[59] Joint Pub 3-01.5, *Doctrine for Joint Theater Missile Defense.*

[60] Ibid.

- A tactical preference for systems that achieve intercept early in the TBM trajectory in order to mitigate WMD warhead effects and avoid the need for single-target endgame [point] defense; and,
- Rigorous fire discipline and reliable kill assessment to prevent wasteful expenditure of a limited interceptor inventory.[61]

Attack operations involve efforts to prevent the launch of TBM's by attacking each element of the overall system, including such actions as destroying launch platforms, reconnaissance, surveillance, and target acquisition platforms, C2 nodes, and missile stocks and infrastructure.[62] This is the U.S. military's preferred method of countering enemy TMD operations.

The final element of U.S. TMD doctrine -- C4I -- has been described more as a "plinth" than a pillar as all the other elements are so heavily dependent upon the successful integration of this effort into the overall attempt to field a capable defense against ballistic missiles.[63]

C4I for the TMD battle encompasses far more than issues of command and control. It is indeed and "architecture," a commander's "system of systems." C4I seeks to overcome the greatest difficulties of TMD – distance (great) and time (little) – by integrating focused intelligence collection, early warning, sensor cueing, defensive system response, and assessment of system effectiveness.[64]

What is most obvious from this synopsis of U.S. TMD doctrine is that capabilities have yet to evolve to a point where they can fulfill the ambitions of U.S. military

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[61] Swicker, *Theater Ballistic Missile Defense From The Sea.*

[62] Joint Pub 3-01.5.

[63] Swicker, *Theater Ballistic Missile Defense From The Sea.*

[64] Ibid.

strategists. Continuing to rely so heavily upon offensive strike elements as the preferred method of dealing with a future missile threat is bound to limit the effectiveness of the U.S. military response. It also may provoke a crisis by openly relying on an ineffective means of deterrence. As Bernard Brodie has written, "There is a rough rule-of-thumb principle that no enemy vehicle of attack must be permitted to a have a 'free ride.' The enemy should not be relieved of uncertainty with respect to any avenue of attack which it is feasible for him to use."[65]

Such a compelling and militarily prudent attitude should be the cornerstone of U.S. TMD efforts in East Asia. As the following chapter outlines, maintaining the peace in this region of the world is essential to U.S. national interests and is going to require a concerted effort between the U.S. and its allies if the status quo is to be maintained.

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[65] Bernard Brodie, *Strategy in the Missile Age*, (Princeton, NJ: Princeton University Press, 1959).

VI. THE STAKES FOR THE U.S. AND ITS ALLIES

For much of the past several decades, Northeast Asia has witnessed a remarkable level of political stability and economic prosperity that has been made possible by the presence of U.S. military forces in the region. In fact, it has been the preponderance of U.S. forward deployed forces in Asia during the Cold War and afterwards that has served to mitigate the traditional security dilemma competition that would have normally been expected in the absence of such an overwhelming capability.

As opposed to the experience of Europe since the end of World War II, the Asia-Pacific region did not witness the development of a rich network of institutions and confidence building measures during the Cold War, and there was no reconciliation between China and Japan comparable to that between France and Germany in the context of the European Union or NATO.[66] Therefore, the presence of the U.S. military has been and remains the only reliable means of tempering a regional balance of power rivalry that could serve to destabilize the status quo environment and disrupt the efforts of so many countries in the region to enjoy a standard of living that has been rising much faster than the global average. Even the opening of the PRC by Deng Xiaoping in the late 1970s and the emphasis he placed upon economic growth, which has seen the relative prosperity level of tens of millions of PRC citizens rise substantially, was based upon the assumption that Asia would continue to enjoy the absence of major conflict made possible by the continuation of the U.S. military presence.

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[66] Joseph S. Nye, "China's Re-emergence and the Future of the Asia-Pacific," *Survival*, Winter 1997/1998.

Another factor that makes the basing of U.S. military forces possible in the region is that Washington is a distant power with no local territorial claims.[67] It also has expressed a desire to continue to devote considerable resources in maintaining its force posture in the region since the American economy is now more dependent upon trade with the growing economies of Asia than with those of Europe.

Yet the ability of the U.S. military to maintain its dominance in the region is being undermined by the growing threat it faces in the form of the prolific development of the PRC and DPRK missile programs. The current inability of the United States to credibly defend against this threat has had a provocative impact on the formation of strategy on the part of these two countries. Not only are U.S. military forces themselves now at risk from these long-range strike weapons, but the countries who host the bases which support this forward presence are also now open to the potential of coercion that could result in them being forced to deny the U.S. military access to their facilities during a future crisis. The paragraphs below will discuss in some detail how Japan, South Korea, and Taiwan each view the introduction of TMD into the region and the possible ramifications of failing to form a consensus on the issue.

A. JAPAN

The cornerstone of strategic stability in East Asia has been the 1951 U.S.-Japan alliance that played such a central role in checking the spread of Soviet power in Asia during the Cold War. Though this alliance was one of the major factors that made it possible for the Western powers to prevail over the Soviet Union, the problem of adapting it to the realities of the post-Cold War era in East Asia has been one of the

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[67] Ibid.

underlying causes of the muddled and uncertain outlook that jeopardizes future security in the region.

While this alliance remains the pillar not only of Japan's security policy but also of the U.S ability to project power into the region, there has been tremendous anxiety as to how this relationship will evolve to cope with the altered security situation in the Asia-Pacific of the early 21st century. The issue of TMD is at the forefront of the concerns currently shaping the debate.

More than any other event, the unannounced testing of the North Korean Taepodong multi-stage ballistic missile in August 1998 brought home to the Japanese public just how vulnerable their territory had become to the North Korean and Chinese missile threat. This test immediately resulted in an enhanced effort to cooperate with the United States on TMD research and development, with the eventual goal in mind of constructing an effective TMD system that can adequately provide defensive coverage for most of the home islands. Whether or not this coverage will be provided by a sea-borne system designed around the U.S. Navy's Area Wide and Theater Wide programs (taking advantage of the Japanese Maritime Self-Defense Force Aegis-equipped Kongo-class destroyers), or the U.S. Army's THAAD program remains to be seen at this point.

For the U.S. military, this future coverage will be imperative as the heavy concentration of forward deployed forces currently based in Japan are the logistical linchpin that permits it to conduct sustained operations in Northeast Asia. If those bases were to be attacked and made even temporarily inoperable during a crisis, then operational paralysis could be imposed upon the U.S. military in such a way that it may not be able to respond effectively to a hypothetical challenge in the region. It is just such

a window of opportunity that North Korean or Chinese strategists may be hoping to attain with their missile capability. If they feel that conflict with the United States is inevitable for whatever reason, a temporary reprieve from the brunt of the U.S. military may be all they feel they need to achieve their objective and present the world with a *fait accompli.* This scenario appears to rely on the calculation that a reversal of this new situation through military action would be deemed too expensive, thus allowing any gains made by the PLA or the North Korean army to stand.

Another aspect regarding Tokyo's interest in TMD has to do with its perception of the level of American commitment to its defense as the PRC continues to grow in overall economic and military power. In this respect, a strong and unambiguous obligation on the part of the United States to extend TMD to cover Japan would be a solid and tangible demonstration to this valuable ally that the United States has every intention of committing U.S. lives and resources to the defense of Japan, even in the face of a volatile and unsettling arms race in the region.

Furthermore, extension of a U.S. TMD umbrella to Japan would serve to assuage Japanese anxiety in facing the nuclear capability of its natural rival in the region, the PRC. Without a nuclear capacity of its own to deter the Chinese and absent any clear-cut commitment on the part of the United States to act in a way that negates or at least minimizes this threat, the Japanese could very well be inclined to pursue the development of their own nuclear weapons and delivery systems. Such an event would only serve to further undermine regional stability as many of Japan's neighbors, who experienced the grief of Japanese militarism firsthand during World War II, remain fearful that the militaristic element of Japanese society has not been eradicated but only suppressed by

Article IX of the Japanese Constitution. Most countries in the region even view the role of the U.S. military in Japan as providing the added bonus of restraining any effort by the Japanese to remilitarize.

The Chinese, who probably suffered the most atrocities at the hands of Japanese invaders, are particularly sensitive to any mention of a Japanese nuclear capability. As an illustrative example of this concern, the Chinese have deep suspicions about the huge stockpiles of high-grade nuclear fuel that was reprocessed in France and shipped back to Japan in the early 1990s. Many in China look upon Japan's acquisition of this plutonium as part of a strategy for the eventual development of nuclear weapons, which is something they suspect that Japanese scientists would have little difficulty producing.[68] Therefore, if the U.S. security guarantee is the cork in the bottle keeping the genie of Japanese militarism from escaping, TMD makes the cork all the stronger.[69]

B. SOUTH KOREA

For South Korea, the TMD debate is complicated by efforts to reconcile relations with North Korea. As Pyongyang's missile program is one of the leading justifications for TMD, the decision-makers in Seoul must walk a fine line that balances their desire to negotiate a resolution with North Korea through President Kim Dae-Jung's "Sunshine Policy" while at the same time trying to find a way to accommodate the needs of the U.S.-ROK alliance, which has served the national interests of South Korea very well over the past several decades and remains a cornerstone of South Korean national security today.

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[68] Thomas J. Christensen, "China, the U.S. Japan Alliance, and the Security Dilemma in East Asia," *International Security*, Spring 1999.

[69] Unattributed editorial, "Rocket Fuel," *Asian Wall Street Journal*, 08 May 2001.

The possibility that South Korea will participate in a co-development effort of TMD technology are remote because the opportunity costs of such an expensive undertaking are considered too steep for Seoul to shoulder. TMD would do little to resolve South Korea's immediate security problem, which is the massive deployment of North Korean artillery that is currently arrayed just north of the demilitarized zone and that has the range to devastate the South Korean capital within twenty-four hours from current positions. The North Korean ballistic missile inventory certainly poses a threat to the crucial rear staging areas (i.e. Pusan) that the U.S. and South Korean militaries would rely on in the event of a renewed conflict on the peninsula, but it is only one of many operational considerations for South Korea that are unique due to their geographic proximity to the problem.

The most likely formula for introducing TMD coverage into South Korea would have to do with providing coverage to the U.S. military bases and the approximately 37,000 American troops currently stationed on Korean soil. The domestic political ramifications within the United States for leaving these troops without any degree of protection would be disastrous for many elected officials in Washington. The South Korean government has been sympathetic in this regard, as evidenced by their allowing the introduction of the PAC-2 and soon to be deployed PAC-3 lower-tier TMD systems into the country to protect such critical military nodes. In the event of a crisis, it is easily imaginable that a sea-based upper tier component such as NTW or the Air Force's ABL would be brought in to supplement the lower-tier capability of the Patriot. It is far more difficult to envision the deployment of the Army's THAAD system as the permanent

presence of a land-based upper tier system is bound to be considered too provocative not only to North Korea, but to the PRC as well.

Perhaps the most complicating aspect of South Korea's efforts to balance its policy on TMD revolves around its long-term relationship with its Chinese neighbor. Korea's traditional tributary relationship with various Chinese dynasties throughout the centuries suggests it is not inconceivable that South Korea, or even a post-reunification Korean peninsula, would find itself forced to gravitate or even bandwagon towards a more accommodating rapport with the PRC. The level of trade between South Korea and the PRC has grown tremendously over the last decade, and this fact, along with the geographic contiguity of the Korean peninsula to the Chinese mainland, requires the South Korean leadership to be extremely sensitive towards the interests of the PRC. A fateful misstep on TMD policy by South Korea could prove to have debilitating consequences for its long-range security stance vis-à-vis China. This especially holds true if the nature of the American military posture on the peninsula or the U.S.-ROK security alliance undergoes a fundamental alteration in the coming years.

C. TAIWAN

The question of Taiwan and its future lies at the heart of any discussion on security issues in East Asia. The intractable nature of this predicament only serves to highlight the difficult policy choices surrounding the idea of TMD and its applicability to Taiwanese security.

From the Taiwanese perspective, the daunting specter of hundreds of PLA SRBMs deployed within range of the island, along with a myriad of additional weapons systems such as fourth-generation fighter-bombers and diesel-electric submarines,

compel it to seek out as many defensive systems available to counter this growing threat to its immediate survival. To say that Taipei is enthusiastic about the idea of being included into some form of U.S. TMD coverage would be an understatement.

As a matter of U.S. law, the Taiwan Relations Act (TRA) of 1979 requires the United States to "provide arms of a defensive character" to the island nation. While this phrase is open to various interpretations, the PRC and the United States did issue a joint communiqué on August 17, 1982 that announced that the United States had agreed "that its arms sales to Taiwan will not exceed, either in qualitative or quantitative terms, the level of those supplied in recent years...and that it intends to reduce gradually its sales of arms to Taiwan."[70] However, this commitment on the part of the United States to slowly shut off its arms pipeline to Taiwan was based on the assumption that the PRC would continue to emphasize the goal of *peaceful* reunification with the mainland. As former President Reagan stated in a message to Taiwan's then-President Chiang Ching-kuo just before the signing of the communiqué:

> I want to point out...this decision [on the communiqué with Beijing] is based on a PRC decision only to use peaceful means to resolve the Taiwan issue. On this point, the U.S. will not only pay attention to what the PRC says, but will also use all methods to achieve surveillance of PRC military production and military deployments. If there is any change with regard to their commitment to a peaceful solution of the Taiwan issue, the U.S. commitments would become invalidated.[71]

In light of the burgeoning military threat posed by the PLA and its attempts to modernize its force structure to a point where it can credibly attack Taiwan and seize it in

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[70] U.S.-PRC Joint communiqué of August 17, 1982. Paragraph 6.

[71] Quoted in Harvey Feldman, "Reagan's Commitment to Taiwan," *The Washington Times*, 24 April 2001.

the event of the Taiwanese government declaring independence, it is perfectly reasonable to assume that the leadership in Beijing has altered its approach to the Taiwan issue over the last decade from one that emphasized a peaceful resolution to one that now stresses a viable military option as the probable method it will turn to in order to reunify with the island. This shift to a more belligerent strategy on the part of Beijing has nullified any argument that the United States cannot either sell TMD technology to Taiwan or simply deploy its future TMD assets to the vicinity of Taiwan should the PLA attempt a forceful coercion of the island. Also, the question of Taiwan's inclusion into a U.S.-led TMD umbrella is looked upon as a litmus test for the United States by its key allies in the region. Japan, Korea, and even Australia and the Philippines in Southeast Asia are watching closely to see if the United States has the strength to manage the rise of China and to remain the guarantor of East Asian stability and security.[72]

One further aspect of the debate surrounding TMD and Taiwan, but one that is rarely mentioned, is the strong inclination that Taiwan has to pursue its own WMD and ballistic missile capabilities as a deterrent against Chinese aggression. Taiwan has shown an interest in such weapons as far back as the mid-1960s when the PRC first detonated its own atomic weapon. Through a series of overt and covert methods, Taiwan sought to obtain adequate technology and expertise that would allow it to produce its own nuclear device all the way into the 1980s, when the United States was able to apply enough pressure on Taipei to stop its efforts.[73] Some suggest, however, that Taiwan continued to conduct research on nuclear weapons technology at its Chungshan Institute of Science

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[72] Tom Donnelly, "Dire Strait," *Jane's Defence Weekly*, 14 March 2001.

[73] William Ide, "How the U.S. Stopped Taiwan's Bomb," *Taipei Times*, 14 October 1999.

and Technology (CSIST), which serves as its advanced weapons laboratory.[74] What spurred this effort was the perception in Taipei that the United States was in the process of abandoning its commitment to guarantee Taiwan's security as the 1970s was the timeframe in which President Nixon's opening towards the PRC, a move intended as a counterbalance against the Soviet Union during the Cold War, took place. In order to normalize relations with the PRC, the United States had to sever official relations with Taiwan and end any formal military ties to the island. Until recently, the notion of "strategic ambiguity" had remained the underlying principle of U.S. policy towards Taiwan and its security needs.

Though the question of Taiwan's nuclear capability has been muted since the 1980s, rumors still abound as to whether or not Taiwan is continuing its efforts to develop and build ballistic and cruise missiles as a way of gaining the capability to strike at targets on the mainland, either in a counterforce or countervalue role, as a means of self-protection.[75] Further evidence of such a possibility exists in a controversial speech delivered by Taiwanese President Chen Shui-bian at the anniversary of Taiwan's Army Academy in June 2000 where he discussed the concept of "offshore engagement."[76] Many analysts believe that this phrase, along with others such as "fighting a decisive

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[74] The author is grateful to Dr. Denny Roy of the Asia-Pacific Center for Security Studies in Hawaii and Dr. Damon Bristow of the Royal United Services Institute in London for the insights provided on Taiwan's efforts to build nuclear weapons and a ballistic missile capability. Also, further information on the Chungshan Institute can be found at the Federation of American Scientists web site, www.fas.org/nuke/guide/taiwan/agency/csist.htm.

[75] Personal correspondence with Dr. Denny Roy.

[76] Brian Hsu, "Chen's Offshore Warfare Strategy Nothing New: Tang," *Taipei Times*, 08 July 2000.

battle away from Taiwan's shores," are indeed cryptic references to Taiwan's missile program that are directed at the mainland.[77]

For the United States and its allies in East Asia, the notion of an unrestrained and out of control arms race fostered by an overbearing reliance on offensive weapons systems does not bode well for future stability and continuing prosperity. Should the United States not choose to impose its considerable military and diplomatic influence as a tempering authority over this volatile security environment, it will relinquish any control it maintains over the current situation and abandon the region to its own fate, which is beginning to share many of the same characteristics of Europe prior to World War I.

[77] Personal correspondence with Dr. Damon Bristow.

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VII. THE THREAT OF TMD TO THE DPRK AND THE PRC

A. TMD AND THE DPRK

While it is clear that a form of frantic deterrence lies at the heart of the North Korean missile program, it is important to state clearly that the style of deterrence this strategy resembles is of the "minimal" variety. The number of long-range ballistic missiles (i.e. Nodong's and Taepodong's) in Pyongyang's inventory is assessed to be small and their warheads are inaccurate to the point that they are not capable of performing a counterforce role. Therefore, they are confined to a countervalue mission that targets "soft" and immovable targets, such as population centers or large military bases.

The enormous expenditure these weapons represent in the overall North Korean economy has meant that Pyongyang is now completely reliant upon these missiles to further the perception that they can inflict an unacceptable level of destruction on any of its neighbors who may participate in a war against North Korea. Any potential defensive system that negates the effectiveness of these missiles will have a devastating impact on the mindset of North Korea's leaders and will ultimately force them to alter their behavior in one of two ways.

First, they could choose to enhance efforts to developing their missile technology to the point where it can defeat whatever operational TMD system is eventually deployed to the region. While accurate economic data on the state of the North Korean economy are difficult to obtain, it is reasonable to surmise that the current level of sophistication and production of ballistic missiles in North Korea has come at an extreme cost to that

society and has only been made possible by the sources of foreign funding that have kept the industry afloat. It is not clear that such an effort can be sustained if it became necessary to get into a debilitating competition over missile technology, especially against some of the most wealthy and advanced industrial economies in the world. Also, by spurring efforts by the U.S. and its allies to develop and deploy TMD, North Korea has in all likelihood initiated a contest that it cannot hope to win. The lesson learned by the Soviet Union during the Cold War, and one that is probably lurking deep in the minds of the North Korean leadership, is that it is impossible to win a military spending contest with capitalist societies.

In addition, there has been and will continue to be enormous pressure placed upon North Korea, especially by the PRC, to tone down its missile program. Beijing is motivated by its recognition that political forces within the United States and Japan have seized upon North Korean missile development and proliferation as an acceptable fig leaf of cover to tout the necessity of deploying a TMD capability to the region that, in all likelihood, will also be directed at the PRC.

Finally, North Korea's missile proliferation activities which are a lucrative source of convertible revenue for the cash-strapped country, are eventually going to reach a threshold where relying on their export for purely economic reasons becomes unsustainable. A consensus is growing among many nations that this activity is unacceptable and directly threatens their own national interests. In addition, the level of resources it takes for most developing countries to acquire missiles serves as an impediment to their unlimited procurement. Eventually, the emerging U.S. TMD capability will escalate the costs of this competition beyond a sustainable level for many

countries. Most governments involved in buying these weapons will be unable to afford any additional upgrades or follow-on generations of missiles as they become available. TMD will then serve to highlight the futility and wastefulness of the initial decision to obtain these weapons as they become obsolete.

A second possible alteration of policy for North Korea is to accept the fact that it is time to become a more integrated actor within the international system and begin to accrue some of the benefits that are conferred upon countries that conform, at least to some degree, to the norms of international behavior. While that may seem an obvious choice to most people on the outside looking into North Korea, such a course of action is a dangerous prospect for the Pyongyang regime because it may hasten or at least risk the downfall of Kim Jong-Il and his leadership clique by weakening the ultimate and unquestioned authority they currently possess. Nevertheless, this danger does not preclude the leadership from embarking on such a path as the most acceptable option available. Perhaps the prospect of facing an impermeable strength, buttressed by the deployment of TMD south of the DMZ and across the Sea of Japan, will ultimately provide North Korea with enough incentive to reform itself into a more benign actor on the world stage.

However events unfold in Pyongyang, it will be imperative that the United States and its allies shape their policies towards North Korea in the most prudent manner possible. Developing a TMD system as a means of coping with a North Korean threat will only serve to pressure elements within the North Korean leadership to make a difficult choice that results either in something resembling the status quo *ad infinitum* or

something that offers at least the promise of an improvement in physical security and living standards.

B. TMD AND THE PRC

The primary concern of Chinese strategists is the possibility that a U.S. NMD system could nullify its strategic deterrent, and quite rightly so. Few would argue that the PRC does not have the inherent interest in maintaining a survivable nuclear deterrent in a world that places a high value on such a capability. In light of this fact, it is not surprising nor should it be viewed necessarily as destabilizing for the PRC to engage in a build-up and modernization of its strategic nuclear forces into something that could at least offer the possibility of a survivable second strike capability.

Conversely, the notion of TMD and Chinese security exists at a different level and takes into account an entirely different set of circumstances. As mentioned previously, the PLA is undergoing a perilous shift in deterrence policy from one that emphasizes a "minimal" approach at the strategic level to one that accentuates a "limited" role for nuclear weapons and ballistic missiles in theater-level conflicts. This is especially pertinent due to the fact that China has a significant number of territorial disputes along its periphery, any one of which could result in an armed conflict somewhere in the future. The potential of combustible irredentist quarrels among states makes reliance on theater ballistic missiles, either conventionally armed or tipped with WMD warheads, as a means of applying military force to a situation intrinsically risky due to the speed at which these weapons travel. The potential for a conflict to escalate out of control in such a case is overwhelming.

The most relevant factor that has influenced China's thinking about the prospect of U.S. TMD in East Asia revolves around Taiwan and the possibility of the island formally declaring independence from the mainland. Judging by extensive dialogue in the press and diplomatic negotiations, this prospect is totally unacceptable to Beijing and would be met with a violent reaction, leading to devastating consequences not only for Taiwan, but also to any nation that would help defend the island.

There are many reasons for such a visceral reaction on the part of the PRC. First, the mere existence of a thriving and democratic Taiwan on the verge of declaring its formal independence from the mainland poses a deep-seated threat to the preeminence of the Chinese Communist Party (CCP) within Chinese society. The mere fact that over 22 million people who share a cultural heritage with the Chinese can create and maintain a thriving democracy casts a pall over the accomplishments of the CCP in the past fifty years. Coercing Taiwan into reunifying with the mainland would conveniently eliminate a democratic alternative to the regime in Beijing.[78] Second, since the collapse of the Soviet Union and the discrediting of Communist ideology throughout the world, the CCP has been forced to turn to not only the promise of furthering economic gains in China but also to an intense level of nationalism as legitimating sources for its rule. Only by promising a future of continuing economic prosperity and maintaining a unified nation, of which they consider Taiwan a part, will the CCP be able to retain any basis for its continuation in power. If the leadership in Beijing ever displays an inability to guarantee either of these two pillars of its legitimacy, then it runs the risk of being disgraced in front of the Chinese people, with possibly dire consequences as a result.

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[78] Constantine C. Menges, "A Look At...The China Puzzle," *The Washington Post*, 05 March 2000.

In light of the importance the PRC places on not only preventing Taiwan from declaring independence but also eventually forcing it to reunify with the mainland, the Chinese are vehemently opposed to any idea that involves U.S. military intervention in a future Taiwan Straits crisis. Besides asserting that all weapons sales to Taiwan are a violation of Chinese sovereignty, Beijing articulates its opposition to U.S. TMD coverage for Taiwan along three lines. First, any introduction of an upper tier TMD system to the island would necessitate a close working relationship between the militaries of the United States and Taiwan as any such system, in order to be effective, would require the C4I assets that only the United States possesses. Such a working relationship would serve to act as a *de facto* military alliance that would resemble the defunct 1954 U.S.-ROC alliance that Washington abandoned in 1979 as a price for the normalization of relations between the United States and the PRC.

Second, Chinese strategists believe that any inclusion of Taiwan in a TMD umbrella would serve to embolden advocates of independence within Taiwanese society who have been muted somewhat by the threat of a military assault in some form by the PLA if independence is declared. The Chinese are so concerned by this prospect that they even consider such defensive weapon systems as TMD in the hands of Taiwan and any of its potential allies to be dangerous and destabilizing.[79] The assumption here appears to be that by eliminating or at least minimizing the one credible military option available against Taiwan, then the prospect of maintaining regional peace will be diminished.

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[79] Christiensen, China, The U.S.-Japan Alliance, and the Security Dilemma in East Asia.

Finally, Beijing claims that the extension of any capable upper tier TMD system will be a firm and unambiguous commitment on the part of the United States towards guaranteeing Taiwanese security. While the notion of strategic clarity has been implied if not enunciated by U.S. statements and actions (e.g. the deployment of two U.S. aircraft carriers to the vicinity of Taiwan during the 1996 Taiwan Straits crisis and the recent pronouncement by President Bush that the United States would do "whatever it took" to defend Taiwan), the tangible presence of TMD assets in or around Taiwan on a continuing basis would underscore the political support that the island maintains to carry on the status quo. Even if such a future system could be easily defeated by saturation or advancements in decoy technology by the Chinese, its presence would still strengthen the resolve of the island's populace if it came under enhanced pressure to reunify.

For Beijing, the idea that Taiwan will remain outside the fold of Chinese unity for the foreseeable future is becoming less and less palatable as the visible shortcomings of the PRC become more glaring and more obvious as time moves forward. The issue of Taiwan's reunification with the mainland, which was once considered a "fifty-year problem" by Deng Xiaoping as late as the 1980s, is now a far more pressing concern for the members of the Politburo as they grapple with the complexity of governing such a large country while their ruling mandate dissipates with each passing year.

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VIII. CONCLUSIONS

While the overall debate surrounding TMD in Northeast Asia will continue unabated in the near term, it is important to remember that the threat these defensive systems are designed to counter has evolved in a context of provocatively limited military capabilities of the United States and its allies in the region. The lack of an effective response to the growing inventories of ballistic and cruise missiles in Northeast Asia has only encouraged their preeminence in the minds of strategic planners in Beijing and Pyongyang.

While it is plausible to assume that a future deployment of TMD systems to the region will spark an intense and negative response from Beijing and Pyongyang, the consequences of failing to deploy such a capability as part of a prudent approach to regional stability should dominate the concerns of decision-makers in Washington, Tokyo, Seoul, and Taipei. Such a failure to act could be interpreted as a tacit acceptance of the possession of theater ballistic and cruise missile arsenals by regional powers and of the danger they pose to states without a retaliatory capability.[80] Encouraging such behavior by failing to respond to it is an alarming and reckless breach in the fundamental security approach that has kept the peace in the region for the past several decades.

Ultimately, the question that merits asking in this debate is not how will the security environment in Northeast Asia be affected if the United States introduces TMD

[80] Stephen A. Cambone, "The United States and Theater Missile Defense in Northeast Asia," *Survival*, Autumn 1997.

to the region, but rather how will the security environment be affected if the United States does *not* introduce this capability?

As it currently stands, U.S. and allied decision-makers and military commanders have few options in the region when it comes to facing down such a pervasive threat. This lack of a viable alternative diminishes the ability of any future U.S./allied coalition to successfully manage a crisis by inhibiting its ability to inject uncertainty into the decision-making cycle of planners in either Beijing or Pyongyang. By encouraging reluctance when it comes to using the missile option, as any capable TMD system is sure to do, then the possibility exists that an escalation of a future crisis into a military confrontation could be avoided.

Finally, the most contentious issue in the region regarding the TMD debate has to do with the very nature of the China-Taiwan problem. By offering TMD coverage to Taiwan, the United States will be sending the appropriate message to the PRC that forceful resolution of this difficult impasse cannot be tolerated. Furthermore, since the problem of Taiwan for the Chinese is essentially borne out of the endemic nationalism now percolating in Chinese society, then in all likelihood a successful attempt to coerce Taipei back into the fold of the PRC will only signal the beginning of a series of such efforts to resolve the remaining territorial disputes along its periphery that could be used to feed nationalistic appetites within the PRC. Only by choosing to openly delineate a threshold of tolerance for what is acceptable and unacceptable when it comes to Taiwan will the United States retain any hope of preventing future confrontations over disputes such as freedom of navigation in the South China Sea, the disposition of the Senkaku islands, and even the unresolved border problem between China and India.

Extending TMD to Taiwan will ultimately force the CCP leadership in Beijing to choose between the two pillars of its legitimacy – the guarantee of future economic growth and the agenda nationalism. It is becoming hard to see how both of these goals can be met in a peaceful environment. The political impact of TMD could be just enough to give a stronger voice to the more moderate elements within the PRC who favor the continuation of economic growth and modernization over those who prefer antagonistic military competitions as a way of legitimizing the continuation of CCP rule. Only by grasping this opportunity to demonstrate to China the futility of choosing the military approach will the United States maintain any expectation that peace and stability will continue to be the defining characteristics of this prosperous and vibrant region.

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LIST OF REFERENCES

Baer, George W., *One Hundred Years of Sea Power*, Stanford University Press, 1994.

Bermudez, Joseph, "North Koreans Test Two-Stage [MRBM] Over Japan," *Jane's Defence Weekly*, 09 September 1998.

Betts, Richard K. and Christensen, Thomas J., "China: Getting the Questions Right," *The National Interest*, Winter 2000/2001.

Bosco, Joseph A., "Has China Turned Into a Frankenstein?," *The Los Angeles Times*, 05 March 2001.

Brodie, Bernard, *Strategy in the Missile Age*, Princeton University Press, 1959.

Cambone, Stephen A., "The United States and Theater Missile Defense in Northeast Asia," *Survival*, Autumn 1997.

Christensen, Thomas J., "China, the U.S.-Japan Alliance, and the Security Dilemma in East Asia," *International Security*, Spring 1999.

Davis, Richard G., *Carl A. Spaatz and the Air War in Europe*, Center for Air Force History, 1992.

Donnelly, Tom, "Dire Strait," *Jane's Defence Weekly*, 14 March 2001.

Feldman, Harvey, "Reagan's Commitment to Taiwan," *The Washington Times*, 24 April 2001.

Freedberg, Sydney J., "Flash! Zap! Boom! Lasers Come of Age," *National Journal*, 21 April 2001.

Friedberg, Aaron L., "The Struggle for Mastery in Asia," *Commentary*, November 2000.

Fukuyama, Francis, *The End of History and the Last Man*, The Free Press, 1992.

Gertz, Bill, "Iran Set for Another Flight Test of Missile," *The Washington Times*, 08 September 2000.

Godwin, Paul H. B., "China's Nuclear Forces: An Assessment," *Current History*, September 1999.

Harrison, Selig S., "Time to Leave Korea?," *Foreign Affairs*, March/April 2001.

Hewish, Mark, "Beam Weapons Revolution," *Jane's International Defense Review*, August 2000.

Hsu, Brian, "Chen's Offshore Warfare Strategy Nothing New: Tang," *Taipei Times*, 08 July 2000.

Ide, William, "How the U.S. Stopped Taiwan's Bomb," *Taipei Times*, 14 October 1999.

Johnston, Alastair I., *Cultural Realism: Strategic Culture and Grand Strategy in Chinese History*, Princeton University Press, 1995.

_____., "China's Old 'New Thinking': The Concept of Limited Deterrence," *International Security*, Winter 1995/1996.

Lewis, John W. and Di, Hua, "China's Ballistic Missile Programs: Technologies, Strategies, Goals," *International Security*, Fall 1992.

MacRae, Catherine, "Airborne Laser on Fast Track for Scud-Type Missile Shootdown in 2003," *Inside the Pentagon*, 14 September 2000.

_____, "Top Navy Scientist Approves High-Energy Laser Development Plans," *Inside the Pentagon*, 04 January 2001.

Malik, Mohan, "China Plays the Proliferation Card," *Jane's Intelligence Review*, July 2000.

Menges, Constantine C., "A Look at...The China Puzzle," *The Washington Post*, 05 March 2000.

Nye, Joseph S., "China's Re-emergence and the Future of the Asia-Pacific," *Survival*, Winter 1997/1998.

Roy, Denny, *China's Foreign Relations*, Rowman & Littlefield Publishers, Inc., 1998.

_____, "North Korea as an Alienated State," *Survival*, Winter 1996/1997.

Saracino, Peter (ed.), "North Korea's Ballistic Missile Program," *Center for Nonproliferation Studies web site*, Monterey Institute of International Studies, http://cns.miis.edu/research/korea.

Stubbs, Richard, *Hearts and Minds in Guerilla Warfare: The Malayan Emergency 1948-1960*, Oxford University Press, 1989.

Sutton, George P., *Rocket Propulsion Elements: An Introduction to the Engineering of Rockets*, 6th Edition, John Wiley & Sons, Inc., 1992.

Swicker, Charles, *Theater Ballistic Missile Defense From the Sea*, Naval War College, 1998.

Unattributed editorial, "Rocket Fuel," *Asian Wall Street Journal*, 08 May 2001.

United States Department of Defense, Ballistic Missile Defense Organization, "Theater High Altitude Area Defense Program," BMDO Fact Sheet AQ-00-05.

_____, Joint Chiefs of Staff, Joint Publication 3-01.5, *Doctrine for Joint Theater Missile Defense*, 22 February 1996.

Van Evera, Stephen, "Offense, Defense, and the Causes of War," *International Security*, Spring 1998.

Waldron, Arthur, "The Art of Shi," *The New Republic*, 23 June 1997.

Waltz, Kenneth N., *Theory of International Politics*, McGraw-Hill, 1979.

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