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Confronting the Real Missile Threat: Iran or North Korea

by

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CONFRONTING THE REAL MISSILE THREAT: IRAN OR NORTH KOREA

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ABSTRACT

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CONFRONTING THE REAL MISSILE THREAT: IRAN OR NORTH KOREA

> I have made defending against near-term threats a top priority of our missile defense plans, programs, and capabilities. I have also directed that we sustain and enhance the U.S. military's ability to defend the homeland against attack by a small number of long-range ballistic missiles. This strategy has required careful analysis of the threat, reprioritization of investments, and improvements to the management of the program.[1]
>
> −Robert M. Gates

With the official end of combat operations in Iraq and as the conflict in Afghanistan appears to be drawing down, U.S. (U.S.) Air Defense Artillery (ADA) units remain deployed throughout countries in the Middle East. These ADA units remain on alert in countries including Qatar, Bahrain, and the United Arab Emirates (UAE) in response to Iran's provocative rhetoric and ballistic missile threat. While Iran does possess a formidable missile inventory and continues its efforts to become a nuclear power, the Democratic Peoples' Republic of Korea (DPRK) has also engaged in rhetoric, provocations and has a large missile inventory. The major difference between the two regions is that DPRK provocations have resulted in loss of life and property for a U.S. ally, the Republic of Korea (ROK). The DPRK has engaged in three provocative acts since 2009 that nearly resulted in a renewal of hostilities between the two Koreas. These provocations, coupled with its ballistic missile inventory, the recent death of Kim Jong Il, and the inexperience and uncertainty surrounding his son and successor Kim Jong Un, should cause the U.S. to deploy more of its limited number of missile defense units to Northeast Asia versus the Middle East.[2]

Currently, the U.S. considers Iran a greater threat to the U.S.' vital interests than DPRK based on the number of ballistic missile defense assets deployed to the Middle

East; there are currently more U.S. Phased Arrayed Tracking Radar Intercept On Target (U.S. PATRIOT) batteries and early warning radars deployed in the U.S. Central Command (USCENTCOM) Area of Responsibility (AOR) than the U.S. Pacific Command (USPACOM) AOR. The purpose of this paper is to provide facts and cited information which will show that the U.S. is focusing and directing its missile defense policy and assets on the less dangerous of these two threats. This paper will begin with an introduction and explanation of global ballistic missile proliferation followed by the history of ballistic missile proliferation in the Middle East and in Northeast Asia. Next, the paper will explore several international measures to limit or control proliferation followed by the U.S. government's policy regarding missile defense. The next section of the paper will provide a short overview of various missile defense assets followed by the history of U.S. missile defense assets currently employed in Southwest and Northeast Asia. The next portion of this paper will explore the provocations committed by Iran and the DPRK over the last several years and how these provocations may affect interests to include Homeland Security (HLS). Lastly, this paper will conclude with a comparison of the two threats as they relate to U.S. interests and provide several recommendations for the reader to consider.

Global Proliferation

Why do ballistic missiles matter? In the 1980s and 1990s ballistic missile technology and the missiles themselves could only carry conventional munitions and were not considered very accurate; actual destructiveness was disproportionate to their effectiveness. However, the accuracy of ballistic missiles and the capability to deliver

weapons of mass destruction over the past decade have made the political and military effects of these weapons formidable.[3]

The ballistic missile threat has increased over the past decade both quantitatively and qualitatively; thirty-four countries throughout the globe possess ballistic missiles.[4] Use of ballistic missiles is an indication of the altered international security environment confronting the U.S., its allies, and coalition partners.[5] Many states' missile programs appear to have more political than military implications which leads to uncertainty in many regions in which the U.S. has interests.[6] Counties acquire ballistic missiles because they believe these weapons serve as a status symbol and provide a level of increased prestige with their regional neighbors.[7]

Ballistic missile proliferation provides third world countries with increased military reach.[8] Additionally, acquisition of ballistic missiles provides third world countries with status and prestige to accomplish foreign military goals, enable a balance of power in their respective regions, and is a deterrent to would be aggressors. Ballistic missiles also give those who possess them a perceived level of technological sophistication and competence.[9]

Development of ballistic missile programs have enabled countries like Iran and DPRK to increase their local and regional ambitions while, at the same time, ignoring the mandates of great powers which is known as Intra-third world diplomacy. This type of diplomacy allows these countries to circumvent global powers', like the U.S., ability to impose trade controls or political influence.[10]

Iran and DPRK see the world powers' stance on their possession of ballistic missiles as hypocritical; the acquisition or possession of ballistic missiles is considered

“fashionable” amongst industrialized nations while deploring the acquisition of high technology by developing nations. Developing countries see this moralistic stance similar to “drug pushers shedding tears about the weakness of drug addicts.”[11]

The rise of ballistic missile proliferation is a serious challenge but this phenomenon has not been a sudden occurrence.[12] There are several possible reasons a state desires ballistic missiles. These reasons include Political Determinism: The acquisition of ballistic missile technology resulting from organizational and industrial interests. Additionally, political determinism is a reaction to potential adversaries’ technological advancements; thus, making weapons development and acquisition part of a country’s domestic policy.[13] Arms Racing: As described by Samuel Huntington, arms races happen as “…a progressive, competitive peacetime increase in armaments by two states or coalition of states resulting from conflicting purposes and fears.”[14] Arms races may be caused in response to a neighboring country’s acquisition of similar weapons. Technology Determinism: Ballistic missile technology proliferation allows a state to have impacts beyond its national boundaries; the technology allows a state to have international influence and power. Additionally, research and development leading to improved technology also have an impact on a government’s interests and ambitions; the continued export of technology, missile components, or entire missiles can also be financially beneficial.[15]

Ballistic missile proliferation and use after World War II was seen as early as the Arab-Israel War of 1973. Additionally, ballistic missile usage was seen in the Iran-Iraq War between 1985 and 1989. Many readers are familiar with the use of ballistic missiles

during Operation Desert Storm in 1991. There was also ballistic missile usage in the Yemen Civil War in 1994 and in Operation Iraqi Freedom in 2003.[16]

James Nolan categorizes countries with ballistic missiles or the desire to acquire them into tiers of ballistic missile proliferation. These tiers are Tier 1 – the ability to develop indigenous long range ballistic missiles; Tier 2 – the capability of developing long range ballistic missiles with foreign assistance; and Tier 3 – the dependence on foreign supplied ballistic missiles.[17] DPRK is considered a Tier 1 state which provides technology and hardware to Iran, a Tier − 2 state. Afghanistan, Libya, Pakistan, Syria, and Yemen are all considered Tier − 3 states.[18]

During the "Cold War," the Soviet Union strategy was to employ ballistic missiles during the initial stages of a conflict followed by air and ground campaigns. The Soviets believed that the use of ballistic missiles was part of their combined arms warfare and not a weapon that could defeat an adversary by itself.[19] Additionally, conventionally armed ballistic missiles led to the development of the U.S. Strategic Defense Initiative (SDI); also known as "Star Wars," in the mid-1980s to defend against ballistic missiles with ranges of 300 to 1,000 kilometers as well as to improved performance of the U.S. PATRIOT missile defense system after the first Gulf War.[20]

While the proliferation of ballistic missiles is a global phenomenon, the proliferation of ballistic missiles in the Middle East and Northeast Asia are of great concern to the U.S. government. Both regions have had significant growth in ballistic missile inventories over the past several decades. The next section will examine the history of ballistic missile proliferation in Southwest Asia first followed by the ballistic missile proliferation in Northeast Asia.

Proliferation in Southwest and Northeast Asia

Many countries in the Middle East believe that possession of ballistic missiles is a form of strategic deterrence.[21] Ballistic missiles with conventional or Weapons of Mass Destruction (WMD) warheads are considered strategic weapons and have strategic implications not just through their use but with their potential use as well.[22] The U.S. and the former Soviet Union were the primary suppliers of ballistic missiles between the late 1960s through the 1980s; however, the last two decades have seen China and DPRK become the main proliferators of missiles and technology.[23] At least ten countries in Southwest Asia have ballistic missiles; five of these countries have their own ballistic missile development programs. Egypt, Iran, Iraq, and Syria have used these weapons in regional conflicts.[24]

The first use of ballistic missiles in the Middle East region was in 1985 during the Iran-Iraq War; Iran fired a Scud missile (acquired from Libya after failing to obtain Lance missiles from the U.S.) at Iraq. The Kingdom of Saudi Arabia acquired its first ballistic missiles in 1988 (Chinese DF-3As). This purchase marked the first sale of ballistic missiles to a third world country. The Saudi Arabia purchase of these missiles was a direct result of the conflict between Iran and Iraq and because nine other countries had already acquired ballistic missiles by this time. [25]

Although Iran has a large ballistic missile inventory, it has acquired large quantities of missiles and components from other countries. These acquisitions include a variant of the DPRK Musudan missile which has a range of over 3,000 kilometers.[26] Iran possesses a large Shahab 3 missile inventory (1,700 to 2,500 kilometer range) which can range all Middle East countries and parts of Europe.[27] Additionally, Iran is

believed to be developing a missile capable of delivering a WMD warhead to the continental U.S. by 2014.[28] Syria also possesses a significant ballistic missile inventory which includes SS-21s (100 kilometer range), Scud Bs (300 kilometer range), Scud Cs (500 kilometer range), and Scud Ds (700 kilometer range). All of these missiles can threaten Israel, and like Iran's missiles, are considered a direct threat to U.S.' national interests in the region.[29]

Iran has received substantial assistance from the DPRK and China in the form of technology and component acquisitions as well as complete missiles.[30] Additionally, Iran has a robust missile development program with the assistance of both China and DPRK.[31] Acquisition of ballistic missiles by countries in the Middle East has proven to be very lucrative for the suppliers of these weapons. Aside from DPRK and China, nations like Argentina and Brazil have supplied missiles to several oil producing countries in this region in exchange for hard currency as well as petroleum products; DPRK has received the equivalent of hundreds of millions of dollars from Iran in exchange for Scud missiles and technology. [32]

While ballistic missiles directly interfere with regional stability in the Middle East, the same phenomena exists in Northeast Asia as well. As previously stated, thirty-four countries throughout the globe possess ballistic missiles; one-third of these countries are in Northeast Asia.[33] The pace of missile proliferation in this part of the world is accelerating. Reasons for this acceleration include various political and military bilateral agreements between them and countries throughout this region[34] as well as the U.S. ballistic missile defense programs and deployments.[35] Additionally, use of ballistic

missiles is part of “coercive diplomacy” because defending against them is very difficult.[36]

The primary threat to U.S. interests and allies in the region is the DPRK. DPRK states the reasons for their robust ballistic missile inventory and development program include regime survival, political leverage in the region and throughout the globe, support of the economy, support of eventual reunification of the Koreas, as well as military purposes.[37] The DPRK inventory includes KN-02 or Toksa missiles, the entire family of Scud missiles (Bs, Cs, Ds, and Extended Range) and Nodongs (up to 1,000 kilometer range). These missiles can reach and directly threaten the Republic of Korea; the Nodong missiles can reach Japan. Additionally, the DPRK has Musudan missiles with a range of 3,000 to 4,000 kilometers. The Taepo Dong 2s, which have a range in excess of 5,000 kilometers, can reach the Pacific Northwest portion of the U.S. In contrast, Iran does not possess missiles that can reach the continental U.S.[38] In addition to DPRK’s formidable inventory and development program; it is responsible for the proliferation of ballistic missile technology, components and entire missiles to Southwest Asia. DPRK exports these products to Iran, Libya, and Yemen.[39]

International Measures to Control Proliferation

In the 1980s, President Ronald Reagan was the first to suggest the control of missile proliferation through regional, bilateral agreements.[40] This national stance and policy would eventually lead the U.S. to join the Missile Technology Control Regime (MTCR) in 1987.[41] Several broader control measures of ballistic missile proliferation may take an extended period of time (years); global ballistic missile proliferation is a long term issue that cannot be resolved in a short time period.[42] Several suggestions

made by Janne Tolan, author of Trappings of Power, Ballistic Missiles in the Third World, include unilateral initiatives which might improve a region's or country's environment or economic conditions[43] and negotiated controls like the Strategic Arms Limitation and Strategic Arms Reduction Treaties (SALT and START).[44] The assumption is that these initiatives might compel some countries to overlook immediate disputes and issues and focus on common interests[45] requiring these countries to overcome their perceived need for ballistic missiles; greater conflict resolution which might eventually lead to trust between belligerents and make arms control easier; [46] and/or export controls like those outlined in the MTCR.[47] Tolan goes on to state that missile proliferation is a minor issue in a greater arms control environment and that by addressing the greater issues, as outlined above, the minor issue of ballistic missile proliferation will be included.[48]

The MTCR is currently the most effective tool for controlling ballistic missile proliferation. Unfortunately, membership in this regime is voluntary. The guidelines in the MTCR are the basis for controlling the transfer of all systems capable of delivering WMD as well as equipment and technology relevant to missile performance in terms of payload and range.[49] Specifically, the MTCR attempts to limit proliferation of missiles and related technology of systems capable of carrying payloads in excess of 500 kilograms as well as those capable of carrying WMD. The MTCR also seeks to limit proliferation of missiles with ranges that exceed 300 kilometers.[50]

The MTCR achieves its objectives through members' export controls; international meetings when deemed necessary; dialogue and outreach with non-member states as well as round tables and seminars with member states to keep all

parties informed of member activities; and adherence to the Hague Code of Conduct which provides a forum for promoting non-proliferation issues.[51] As previously stated, MTCR membership is informal and voluntary with a current membership of thirty-four countries including the U.S., the Republic of Korea (2001) and Japan (1987); Iran and the DPRK are not members of this regime.[52]

Missile Defense Policy

How are the U.S., its allies, and coalition partners dealing with ballistic missile proliferation? The U.S. has established several principles for ballistic missile defense and deterrence. These principles include working regionally with allies and coalition partners to strengthen deterrence through cooperation and synergistic architectures, "burden sharing,"[53] a phased adaptive approach (PAA), tailoring defenses to the regional threats, and ensuring missile defense assets are deployable and re-locatable.[54]

The U.S. strategy and policy framework for ballistic missile defense supports, and in several instances, parallels the international stance on proliferation. This strategy includes six policy priorities nested within the National Security Strategy and National Military Strategy. The U.S. has made reducing ballistic missile proliferation part of its policy and strategy framework.[55] This strategy includes defending the homeland against ballistic missile attacks, defeating regional missile threats to U.S. forces, allies, and partners, thoroughly testing new technologies before fielding them, ensuring new capabilities are fiscally sustainable,[56] ensuring that developing capabilities are flexible to adapt to changing threats, and leading the international missile defense efforts.[57]

The first priority is the defense of the homeland. The U.S. policy is to dissuade a potential adversary from developing, acquiring and employing intercontinental ballistic

missiles (ICBMs). In the event that deterrence fails, the U.S. must be ready to protect the continental U.S. through the use of the ground based, mid-course defense (GMD) system. In the case of U.S. territories, missile defense will be provided by systems like the Terminal High Altitude Air Defense (THAAD) system or missile defense systems aboard the U.S. Navy's Aegis cruisers and destroyers.[58]

The next priority in the U.S. missile defense strategy is to defend deployed American military forces and citizens and those of its allied and coalition partners. In order to effectively employ multiple countries' systems and conserve limited international assets, the U.S. will lead the effort to develop systems to ensure synchronization and coordination of missile defense assets.

The third U.S. missile defense policy priority is to ensure that any emerging missile defense capabilities are thoroughly tested prior to being deployed. Over the past decade, missile defense systems were rapidly developed to keep pace with emerging and growing threats and inventories. Many of these new capabilities were not thoroughly tested prior to deployment and shortfalls had to be corrected "on the fly" and were expensive. The Department of Defense can no longer afford to make procurements in this manner especially with an increasing national debt and a budget that will become smaller over the next decade.[59]

The fourth missile defense policy priority is ensuring that new missile defense capabilities and systems are fiscally sustainable; this priority is linked to the third priority above. Over the past decade, missile defense material developers have produced many products and capabilities to protect U.S. interests against constantly improving missile threats. In many instances, these products and capabilities were developed with little

consideration of cost or how to maintain them. This policy, developed in 2010, will ensure that new missile defense initiatives can be fiscally sustainable in the future.[60]

The next policy priority in U.S. missile defense, like priorities three and four, ensures that missile defense capabilities developed today must be able to defend against emerging threats through 2020. Developing missile defense capabilities must be able to nullify the threats of today as well as the potential threats that are being developed but have yet to be deployed.

The last missile defense policy priority is “burden sharing.” Like missile defense efforts of the past, the U.S. will continue to lead the effort in international ballistic missile defense. The major difference is that the U.S. now expects its allies and coalition partners to share the burden of the missile defense effort. This burden sharing may come in the form of financial assistance or development of systems or components of a system that contribute to regional ballistic missile defense.[61]

Current Missile Defense Systems

When international measures fail to control ballistic missile proliferation, states must deploy missile defense assets to protect their national interests. The U.S. deploys a variety of early warning and missile defense systems to protect its interests around the globe in accordance with its missile defense policy. Effective missile defense requires the integration and coordination of multiple deployable sensors and missile defense platforms. The integration of the various systems allows users to capitalize on each system’s unique and shared capabilities while at the same time overcoming each system’s limitations.

Early warning systems include the Army/Navy Transportable Radar Surveillance-Model 2 (AN/TPY-2) radar,[62] the AN/TPS-59 Tactical Defense Radar,[63] the Sea Based X-band Radar (SBX),[64] and the SPY-1 radar employed on the U.S. Navy Aegis fleet which is deployed throughout the globe.[65]

Along with the early warning systems listed above, there are several active ballistic missile defense systems. These active land and sea based missile defense systems include Ground-based Midcourse Defense (GMD) system used for homeland defense,[66] the THAAD system,[67] the U.S. PATRIOT,[68] and the U.S. Navy's Aegis missile defense system aboard its cruisers and destroyers.[69] Lastly, although only in a testing status, the Airborne Laser (ABL) Test Bed is another missile defense system that may be available for future use.[70]

Initially, this study examined the history of missile proliferation globally and in the USCENTCOM and USPACOM AORs. The second section of this study looked at international control measure and then U.S. missile defense policy followed by a brief description of the different types of missile systems in use now and possibly in the future. The next section of the study will focus on threats and provocations in Southwest Asia and Northeast Asia in order to provide the reader with an appreciation and understanding of perceived and real threats.

Missile Defense Assets Currently Employed In Southwest and Northeast Asia

In an ideal world, the MTCR and other non-proliferation measures would work and there would be no need to deploy anti-ballistic missile weapon systems throughout states and territories that are threatened by ballistic missiles. The U.S. military has deployed ballistic missile defense weapon systems in Southwest Asia, Northeast Asia,

and in Europe. This portion of the paper will examine the history of missile defense deployments in these regions.

Probably the most noted and recognized deployment of missile defense assets is in the Middle East; into the USCENTCOM AOR. On 2 August 1990, Iraq invaded Kuwait.[71] USCENTCOM planners quickly assessed that this act of aggression made Iraq's ballistic missile inventory a threat to U.S. forces deploying to the region in response to the invasion. On 6 August 1990, the 11th Air Defense Artillery Brigade was notified that it was to prepare U.S. PATRIOT firing units for deployment to protect airbases and ports in the Kingdom of Saudi Arabia from the Iraqi ballistic missile threat. The Brigade Commander, Colonel (COL) Joseph G. Garrett III, designated Battery B, 2nd Battalion (U.S. PATRIOT), 7th Air Defense Artillery to be the first U.S. PATRIOT unit to deploy.[72]

One month earlier, the firing units of 2nd Battalion (U.S. PATRIOT), 7th Air Defense Artillery had just finished training on the latest U.S. PATRIOT capability; an anti-missile capability known as U.S. PATRIOT Advanced Capability (PAC) 2.[73] Additionally, several members of the battalion staff had attended the USCENTCOM "Internal Look" exercise which examined deployment options for U.S. PATRIOT units in the Kingdom of Saudi Arabia.[74] After preparing for five days, Battery B deployed in support of USCENTCOM operations on 12 August 1990. This deployment marked the first deployment of a U.S. PATRIOT unit as part of combat operations and the first deployment of an anti-ballistic missile capability into the USCENTCOM AOR. Since this deployment, there has been an enduring anti-ballistic missile capability in the Middle

East.[75] The readiness postures of units in this region have varied based on the threat as has the number of units deployed.

The introduction of an anti-ballistic missile capability into the Republic of Korea took place less than three years after the first U.S. PATRIOT deployment into the USCENTCOM AOR. The deployment took place as a result of tensions between the DPRK and ROK over the North's nuclear program in 1994.[76] Three years earlier, North and ROK signed agreements which included Reconciliation, Non-aggression, Exchanges and Cooperation, and a Joint Declaration on Denuclearization; these agreements went into effect in February 1992. That same year, the DPRK government signed an accord with the United Nations International Atomic Energy Agency (IAEA); however, in February 1993, the DPRK refused to allow a team from the IAEA into the country to confirm compliance with the above agreements and UN- mandated safeguards. The next month, March 1993, DPRK announced it was withdrawing from the nuclear Non-Proliferation Treaty (NPT) which it had previously signed on 12 December 1985.[77]

Following several months of diplomatic maneuvering, the DPRK still refused to allow IAEA inspectors into the country. With negotiations at an impasse, the U.S. and the Republic of Korea both agreed that the deployment of U.S. PATRIOT units would be necessary as a result of DPRK's non-compliance with the previously signed treaties, failure to allow the IAEA inspectors into the country, and a growing ballistic missile inventory. The first U.S. PATRIOT firing units to deploy were once again from 2nd Battalion (U.S. PATRIOT), 7th Air Defense Artillery.[78] Like the ballistic missile presence in the USCENTCOM AOR to defend against Iraq and/or Iran, the units deployed to ROK

have varied since 1994; however, there has been a constant U.S. anti-ballistic missile defense capability in the ROK to defend against the DPRK missile threat since this initial deployment.

Aside from the anti-ballistic missile capabilities deployed into the Middle East and Northeast Asia, there has also been a significant ballistic missile defense presence in Europe because Iran's longer range ballistic missiles can reach several North Atlantic Treaty Organization (NATO) countries. Iran poses a threat to U.S.' allies and interests in the region.[79] The U.S. and several European countries have anti-ballistic missile systems deployed in this AOR in response to the potential threat. Initial air defense assets were deployed in June 1957 in response to the Soviet Union's growing aircraft threats.[80] As U.S. PATRIOT units acquired anti-ballistic missile capabilities in the early 1990s, these improvements were also provided to European based units. Although the U.S. ballistic missile defense capabilities have drawn down since the end of the Cold War, a limited U.S. ballistic missile defense presence still exists in Europe.

Provocations

Provocations include invasions, border violations, infiltrations by armed saboteurs for the purpose of threatening and intimidating political leaders; ballistic missile test launches are considered provocations.[81] Both Iran and the DPRK have conducted numerous announced and unannounced missile tests over the last decade. During these tests, ballistic missiles impacted either in the waters off these countries' coasts or on their inland missile test ranges. While none of the missiles were fired at U.S. forces or allies, these launches were provocations and demonstrate a capability of

threatening U.S. interests. Along with ballistic missile launches, both Iran and DPRK have demonstrated their willingness to conduct other types of provocations.

Southwest Asia has been a volatile region affecting U.S. interests for decades. The U.S. backed an Iranian Shah-led government in the late 1960s and 1970s. The worst, and probably most infamous provocation, occurred on 4 November 1979. After the Ayatollah Ruhollah Khomeini assumed power, U.S. embassy personnel in Tehran were taken hostage and held for 444 days; this provocation led to the 24 April 1980 Department of Defense's failed Operation Desert One rescue attempt. The hostages were eventually released on 24 January 1981 after several failed diplomatic and economic measures.[82]

Since this hostage incident, Iran has developed and acquired an extensive ballistic missile inventory capable of striking deployed U.S. forces as well as U.S. allies and coalition partners in the Middle East and in Europe.[83]

Along with the Iranian ballistic missile threat, the U.S. government also focuses on Iran's nuclear development program. The U.S. has publicly condemned Iran's efforts to become a nuclear power and continues to apply diplomatic pressure as well as economic sanctions. There are currently no public plans for military action against Iran in order to prevent it from acquiring a nuclear capability. Even with diplomatic and economic efforts, Iran still remains defiant and continues to move towards becoming a nuclear power; Iran claims that this capability is not for military purposes.[84]

On 8 November 2011, the International Atomic Energy Agency (IAEA) released a report on Iran's nuclear program to determine whether or not it was in compliance with

the nuclear NPT. While there is evidence that Iran has the facilities and technology to build a nuclear weapon, findings within the report were not conclusive.[85]

The potential development of a nuclear weapon is of great concern to the U.S., Middle East, and European governments. The ability to mount a nuclear device on a missile and deliver it on target, however, is difficult.[86] A Japanese member of the IAEA Iran inspection team, Yukiya Amano, stated that while evidence shows extensive research, development, and testing programs exist in Iran, there is no hard evidence that Iran is attempting to build a nuclear bomb or a vehicle to deliver such a weapon.[87]

Other than attempting to establish a nuclear program (and possibly nuclear weapons), improve its ballistic missile program, and conducted several ballistic missile tests,[88] what other provocations has Iran conducted? In 2007, Iran seized fifteen British nationals from their ship after it strayed into Iranian waters but eventually returned them to England.[89] Additionally, two U.S. hikers were captured after crossing the border from Iraq into Iran and accused of spying in July 2009; like the British sailors, these Americans were eventually released.[90] Most recently, a plot was uncovered in which evidence showed that Iran was at the center of a conspiracy to assassinate a Kingdom of Saudi Arabian Ambassador to the U.S.[91] Although the U.S. government should be concerned with Iran's efforts to establish nuclear and ballistic missile programs as well as its involvement in an assassination plot,[92] several of Iran's more provocative actions were the result of incursions into its sovereign territory. While Iran may seem to be a major threat to the U.S. and its interests, most provocations are in response to other countries' threats and actions.

While the majority of the Iranian provocations are primarily verbal, the same cannot be said of DPRK. The DPRK has conducted several ballistic missile launches/tests over the last several years to include six ballistic missiles fired between 4 and 5 July 2006 and seven ballistic missiles fired between 3 and 4 July 2009.[93] Since 2009, DPRK has conducted three violent provocations. These provocations include a naval gunfire exchange between the ROK and DPRK Navies in November 2009, the sinking of the ROK cruiser Cheonan in March 2010, and the shelling of the ROK island of Yeonpyeong in November 2010.

The naval confrontation on 10 November 2009 was a result of a DPRK vessel crossing the Northern Limit Line (NLL) and firing on a ROK ship. The NLL is not an internationally recognized border but it still serves as an unofficial maritime division between the two Koreas. Although no casualties were reported, the DPRK ship was damaged after having received warnings from the ROK ship to return to its side of the NLL. The DPRK government denied instigating the incident and vowed to seek revenge for the incident.[94]

On 26 March 2010, a DPRK submarine crossed the NLL undetected and fired a DPRK manufactured homing torpedo at the ROK cruiser Cheonan. The torpedo's subsequent explosion split the ROK ship in half; forty-six sailors from the 104 man crew perished as the ship sank. Additionally, a ROK rescue diver died in the efforts that followed. During the salvage operations, remnants of a DPRK torpedo were recovered. The official report, which was compiled by an international panel of neutral torpedo experts, was presented to the United Nations. Although the UN did not accuse or

condemn DPRK for the attack, the evidence gathered by the investigation team pointed to a DPRK provocation.[95]

The most recent DPRK provocation occurred on 23 November 2010. DPRK fired artillery shells at the ROK island of Yeonpyeong. When the dust settled, seventeen people were wounded and three were killed including one civilian; this marked the first civilian killed since the end of hostilities and signing of the Armistice in 1953.[96]

These three incidents are the most recent in a long history of provocations and armistice violations by DPRK. Between 1954 and 1992, the DPRK has infiltrated over 3,693 armed personnel into ROK.[97]

These infiltrations and provocations include three presidential assassination attempts; two against ROK President Park Chung Hee in 1968 and 1974 and one against ROK President Chun Doo Hwan in 1983.[98] One of the more well known provocations took place in August 1976 within the Joint Security Area inside the Demilitarized Zone (DMZ). While trimming and pruning trees for better visibility between observation posts, members of the U.S. and ROK armed forces were confronted by members of the DPRK military. During the scuffle that ensued, five ROK and four U.S soldiers were wounded and two American soldiers, Captain Arthur Boniface and First Lieutenant Mark Barrett, were killed.[99]

Since 1958, there have been over 165 DPRK provocations involving injury, property loss, or loss of life.[100] Between 1958 and 1999 there were 102 provocations averaging approximately 2.5 incidents per year. There were six provocations in 1969 and 1995 and seven in 1996. DPRK conducted ten provocations in 1997 and ten in 1998. From 2000 and 2011, the DPRK conducted 76 provocations averaging over six

incidents per year; these provocations include the three between 2009 and 2010. There were 19 provocations in 2003 and 16 in 2005. This analysis shows that the DPRK has doubled the frequency of its provocations per year over the last decade with the most deadly occurring in 2010.

Using the definitions of provocation cited earlier, the DPRK tests of their Taepo Dong 2 missile, which can reach the Pacific Northwest portion of the U.S., are defined as a provocation against the U.S., its allies, and coalition partners. Similarly, Iranian tests and launches of ballistic missiles are also provocations against U.S. allies and coalition partners in Europe. [101]

If one compares Iran's and to DPRK's provocations, most of the provocations conducted by Iran against the U.S. since the hostage situation/crisis of 1979 have been mostly rhetoric. Recently, in January 2012, Iran threatened to block the Strait of Hormuz as a result of the U.S. sanctions over Iran's developing nuclear program. Iran has used small speed boats to harass international and U.S. Navy ships navigating this stretch of water raising tensions even higher. No clashes have taken place thus far;[102] regardless, DPRK has conducted more provocations over the last several decades resulting in damage and loss of life. Based purely on numbers of provocations, DPRK is a greater threat than Iran. Comparing the violence of the provocations, the DPRK appears to be the more dangerous of the two threats.

With the death of Kim Jong Il on 17 December 2011[103] and the launching of a DPRK ballistic missile on the day Kim's death was announced to the world, 19 December 2011 (most analysts believe the two events are not related),[104] the stability of Northeast Asia is more fragile than it has been during the last twenty years.

While several sources stated that as Kim Jong Un continues the process of succession in the DPRK, the country will not deviate from policies and strategies established and practiced by Kim Jong Il. Additional sources stated that a small group of advisors will surround the "Great Successor" in order to guide and advise him as he assumes more responsibilities.[105] If Kim Jung Un upholds his father's policies and style of rule, the international community should be very concerned.

Under the Kim Jong Il regime, the "Dear Leader" horded power and received very little guidance from advisors or decision-making bodies. Many believe Politburo meetings were not held after Kim Il Sung's death in 1994 and that no organization within the DPRK government was fulfilling its decision-making functions. Under Kim Jong Il's "Military-First" policy, the Korean Workers' Party (KWP) has not functioned as an institutionalized decision-making body since he assumed power in 1994. In fact, Kim Jong-Il said, "My business style is one without…conference;" decision-making was highly centralized around Kim Jong-Il particularly in military affairs and foreign policy. As a result, advice from formal and informal institutions within the Kim Jong Il regime was extremely limited and the results were often unpredictable, irrational, and sometimes dangerous which led to the practice of brinksmanship through numerous provocations.[106]

Brinksmanship, as defined by Merriam-Webster, is "the art or practice of pushing a dangerous situation or confrontation to the limit of safety especially to force a desired outcome."[107] When Kim Jong Il was designated as the successor to his father, Kim Il Sung in 1980, he received fourteen years of mentoring and had the opportunity to observe and participate in his father's brinksmanship and provocation strategies.[108]

When he assumed the mantle of leadership of DPRK, Kim Jung Il had over a decade of "on the job training." Kim Jung Un has had only ten months.[109] Kim Jung Un, as the leader of the DPRK, does not have the experience necessary to make difficult policy decisions or practice brinksmanship. Additionally, if DPRK's government has not changed since Kim Jung Il's death, then one can postulate that Kim Jung Un is receiving little to no guidance from the decision-making organizations or the advisors surrounding him.[110] His inexperience, coupled with large tactical ballistic missiles and weapons of mass destruction inventories, combine to create extremely unstable and volatile situations.

The results of this study show that DPRK is a far greater threat than Iran to the U.S., its interests, its allies, and coalition partners. There are not enough ballistic missile defense assets or missiles to effectively defend all of the U.S. interests globally; therefore, I recommend reorienting the majority of the U.S. ballistic missile assets in support of the missile threats in Northeast Asia.[111] The next portion of this study will examine possible options for the employment of missile defense assets.

Possible Solutions/Recommendations

In the Ballistic Missile Defense Review (BMDR) 2010, the current administration acknowledges that there are not enough ballistic missile defense assets in existence to handle the current proliferation rate of WMD and delivery systems. Ideally, the U.S. government would prefer to halt ballistic missile proliferation but this concept is unrealistic.[112] When international diplomacy fails to stop ballistic missile proliferation, limited missile defense assets must be deployed to protect U.S. interests. Regardless, President Obama stated, "The defense of the homeland and of deployed forces

throughout the globe are top priorities."[113] The next portion of this paper provides five possible options to deter and/or defend U.S.' interests from both the DPRK and Iranian ballistic missile threats.

Option (1) is "Redistribution." Redistribute missile defense units and early warning assets amongst AORs with the most serious ballistic missile threats. As stated previously, there are currently more U.S. PATRIOT missile batteries and early warning radars deployed in the USCENTCOM AOR than the USPACOM AOR. Additionally, the first two THAAD batteries, when ready for deployment, are also designated for the USCENTCOM AOR. While there are U.S. PATRIOT batteries employed on the Korean Peninsula, follow on units based on the Time Phased Force Deployment Data (TPFDD) List will probably arrive too late to defend U.S. forces, assets, and allies. There are also several early warning AN/TPY-2 radars deployed in the USCENTCOM and U.S. European Command (USEUCOM) AOR to provide ballistic missile early warning within these AORs. There is an AN/TPY-2 radar deployed in Japan which provides early warning as part of the homeland defense mission.

Redistributing ballistic missile defense assets between the USCENTCOM and USPACOM AORs based on threats and provocations or providing additional assets to one or the other based on likely use of ballistic missiles will provide increased missile defense if either AOR experiences increased threats or new provocations. Additionally, redistributing one of the early warning radars and placing it on the Korean peninsula will not only provide early warning for the ROK but can be tasked to provide early warning in several parts of the USPACOM AOR as well as be part of the early warning network for homeland defense.

This option is feasible because the missile defense assets in question are all deployable and can be shipped by sea or air. While this option may not be acceptable to the Commander of USCENTCOM, it would better suit and meet the top security objectives outlined in the National Security Strategy,[114] National Defense Strategy,[115] National Military Strategy,[116] and BMDR;[117] the "safety and security of the American people." The Redistribution Option is suitable to both AORs because, if and when a threat increases, additional assets can be moved/redistributed between AORs to meet possible provocations and hostilities. Risk will continue to exist because there are not enough assets to deal with all the global ballistic missile threats. Additional risk is also taken because of the possibility of hostilities taking place in two separate theaters simultaneously.

Option (2) is "Relocation." Relocate U.S. PATRIOT missiles from munitions depots in the continental U.S. and Army Prepositioned Stocks (APS) to the Korean peninsula. While the USCENTCOM U.S. PATRIOT units deployed with their unit basic loads (UBL), follow on missiles will come from several locations to include global APSs as well as several munitions depots in the U.S. In Korea, U.S. PATRIOT units have less than half of their UBL which includes PAC 3 missiles specified by the 2008 Global Employment of Forces document approved by the Secretary of Defense. Relocation of these missiles to the ROK would benefit both AOR Commanders.

This option is feasible because there is space in the Korean Theater of Operations (KTO) ammunition storage facility to accept the missiles from APS and CONUS locations. While the Relocation option would be acceptable to the USPACOM and U.S Forces Korea Commanders, the USCENTCOM Commander may not be

amenable to this option; however, the Relocation option is suitable for both AOR Commanders because by relocating the missiles to the Korean peninsula, they would be closer to the USCENTCOM AOR than they are from their current locations. Additionally, this option is suitable because the U.S. should reduce the number of APSs; relocating missiles to a centrally located, single facility will cut costs of operating multiple facilities. The risk of this option is minimal because the option does not relocate missiles currently located in either AOR. This option brings the missiles located outside of the USPACOM and USCENTCOM theaters closer to these AORs.

Option (3) is "Redirect." Redirect funds from new missile systems to manufacture additional munitions. Although efforts and budgets must be expended to deal with emerging technologies and innovations under development by states possessing ballistic missiles, with current economic constraints in the U.S. as well as shrinking Department of Defense budgets, another possible option is to redirect funds from future missile defense systems like the ABL Test Bed to acquiring and manufacturing additional missiles for systems that already exist. The Redirect option is feasible in that the production lines for missiles already exist and would therefore not need additional funds for startup costs or for opening production lines. The U.S. military will cut its budget over the next decade by at least $485 billion and part of those funds will come from projected weapon systems and platforms that have yet to be manufactured.[118] Redirecting these funds for less expensive missiles will ensure, even if new systems are cut, additional munitions will be available for already existing weapon platforms.

This option would be acceptable to Combatant Commanders who may desire additional missile defense assets but would likely prefer additional missiles in

anticipation of future budget limitations. The Redirect Option would be suitable for the Combatant Commanders and Department of Defense as well as for the U.S. economy. The risk associated with this option may be considered high with the speed in which adversaries are proliferating ballistic missiles throughout the globe; however, failure to produce additional missile defense platforms will minimally increase the risk to U.S. interests if the remaining funds are diverted to manufacturing additional missiles.

Option (4) is Joint Theater Missile Defense (JTMD). Require services and Combatant Commanders to use joint missile defense doctrine and make missile defense a truly joint and integrated mission. Theater Missile Defense is supposed to be Joint; hence, JTMD.[119] All services in a Combatant Commander's AOR are expected to contribute to the effort of defeating enemy ballistic missile threats. In recent years, the bulk of this responsibility has fallen to the U.S. Army and its U.S. PATRIOT weapon systems. Missile defense, by doctrine (Joint Publication 3-01.5), directs the use of special operations forces to find enemies' ballistic missile launch locations and reload sites; the U.S. Air Force, through its Defensive Counter Air (DCA) mission set, to destroy these launch and reload sites, and the U.S. Navy to conduct mid-course intercepts via its Aegis cruisers and destroyers.[120] Combatant Commanders and services should allocate these assets to the missile defense fight versus leaving the majority of the fight to U.S. Army missile defense units.

This JTMD option is feasible because all the assets necessary to accomplish the mission are already allocated to an AOR and the Combatant Commanders. This option may not be acceptable to most commanders and services because it would require a paradigm shift in strategy and require them to use these assets to perform missions

other than their traditional wartime missions. Combatant Commanders must re-prioritize their assets and missions based on what they believe is the most current and dangerous threat. The JTMD option is suitable because it conforms to joint doctrine and requires no additional assets. The risk in the JTMD option is that if units are allocated for missile defense, then they are not able to perform or are available to accomplish their more traditional missions.

Option (5) is "Burden Sharing." Require allied and coalition countries to share the burden of regional ballistic missile defense. One of the tenets of the BMDR 2010 is having allies and coalition partners share in the responsibility and cost of missile defense regionally. Japan has taken a step in this direction by absorbing the cost of production of a component of the new standard missile as well as developing their own robust, multi-layered, integrated missile defense system. Other counties, like Australia, are embracing the burden sharing concept but are years away from realizing this type of commitment.[121]

While this may be a concept for the future, having other countries commit to burden sharing through diplomacy is feasible to the U.S. administration and the Combatant Commanders. This option is also acceptable and suitable provided information and data sharing agreements between participants are established. The risk is minimal because adding additional missile systems to a defensive architecture will make defenses stronger and strengthen bonds between the U.S., allies and coalition partners.

While any one of these options may alleviate and compensate for the shortage of ballistic missile defense assets and munitions, they cannot change the fact that

proliferation of ballistic missiles throughout the globe is on the rise. While many countries in Southwest Asia and Northeast Asia have ballistic missiles, Iran and DPRK are probably considered the most dangerous. Over the past several decades, both countries have instigated numerous provocations and engaged in defiant rhetoric; however, the DPRK's actions have been much more violent and antagonistic than those of Iran. While both countries have robust ballistic missile inventories, DPRK's history of violent provocative behavior should drive the U.S. to employ the majority of its ballistic missile defense assets in the USPACOM versus the USCENTCOM AOR.

Endnotes

[1] Robert M. Gates, Ballistic Missile Defense Review Report (Washington, D.C.: Office of the Secretary of Defense, 1 February 2010), i.

[2] Note: Throughout this paper, the phrases "Middle East" and "Southwest Asia" will be used. They denote the same region and are interchangeable.

[3] Janne E. Nolan, Trappings of Power, Ballistic Missiles in the Third World, The Brookings Institute, Washington, D.C., 1991, 47.

[4] Seth W. Carus, "Ballistic Missiles in the Third World, Threat and Response," Praeger New York, Westport, Connecticut, London, published with the Center for Strategic and International Studies, Washington, D.C., 1990, 9.

[5] Nolan, vii.

[6] Ibid, 10.

[7] Martin Navas, "Ballistic Missile Proliferation in the Third World," Adelphi Papers 252, (1990): 10

[8] Ibid, 4.

[9] Ibid, 10.

[10] Nolan, 11.

[11] Ibid, 11.

[12] Aaron Karp, Ballistic Missile Proliferation, The Politics and Technics, Stockholm International Peace Research Institute, Frosunda, S-171 53, Salna, Sweden, Oxford University Press, 1996, 8.

[13] Ibid, 13.

[14] Ibid, 14.

[15] Ibid, 11.

[16] Dennis M. Gormley, Missile Contagion, Cruise Missile Proliferation and the Threat to International Security, Praeger Security International, West Port, Connecticut-London, 2008, 17.

[17] Nolan, 16-20.

[18] Ibid, 17-18.

[19] Gormley, 22-23.

[20] Ibid, 20-21.

[21] Carus, 9.

[22] Ibid, 7-8.

[23] Ibid, 14.

[24] Ibid, 12.

[25] Ibid, 5.

[26] Ibid, 33.

[27] Ibid, 32.

[28] National Intelligence Council, “Foreign Missile Development and the Ballistic Missile Threat to the U.S. Through 2015,” National Intelligence Council, September 1990, 4.

[29] Gormley, 28-29.

[30] Ibid, 34.

[31] Carus, 20.

[32] Ibid, 18.

[33] Ibid, 9.

[34] Ibid, 10.

[35] Ibid, 12.

[36] Michael D. Swaine with Loren H. Runyan, “Ballistic Missiles and Missile Defense in Asia,” The National Bureau of Asian Research (NBR), Analysis, Seattle Washington, Volume 13, Number 3, June 2002, 7.

[37] Carus, 50.

[38] Ibid, 27-30.

[39] Gormley, 45.

[40] Swaine and Runyan, 59.

[41] Bureau of Arms Control, available from http://www.mtcr.info/english/partners.html; Internet accessed, 14 December 2011.

[42] Nolan, 22-23.

[43] Ibid, 23.

[44] Ibid, 24.

[45] Ibid, 24.

[46] Ibid, 25.

[47] Ibid, 26.

[48] Ibid, 29.

[49] Bureau of Arms Control, MTCR Guidelines, available from http://www.mtcr.info/english/partners.html; Internet accessed, 14 December 2011.

[50] Ibid.

[51] Bureau of Arms Control, MTCR Objectives, available from http://www.mtcr.info/english/partners.html; Internet accessed, 14 December 2011.

[52] Bureau of Arms Control, MTCR Partners, available from http://www.mtcr.info/english/partners.html; Internet accessed, 14 December 2011.

[53] Gates, v.

[54] Ibid, vii.

[55] Gates, iii.

[56] Ibid, iii.

[57] Ibid, iv.

[58] Ibid, 12.

[59] Ibid, 12.

[60] Ibid, 12.

[61] Ibid, 12.

[62] Raytheon Company, AN/TPY-2, Army Navy/Transportable Radar Surveillance-Model 2 Fact Sheet, available from http://www.raytheon.com; Internet accessed 17 December 2011.

[63] Lockheed Martin, AN/TPS-59 Tactical Missile Defense Radar Fact Sheet, available from http://www.lockheedmartin.com/products/; Internet accessed 17 December 2011.

[64] Missile Defense Agency, Sea Based X-Band Radar (SBX) Fact Sheet, available from http://www.mda.mil; Internet accessed 17 December 2011.

[65] Lockheed Martin, SPY-1 Family if Radars, Battle-Proven Naval Radar Performance, available from http://www.lockheedmartin.com/products/; Internet accessed 17 December 2011.

[66] Missile Defense Agency, Ground-based Midcourse Defense (GMD) Fact Sheet, available from http://www.mda.mil; Internet accessed 17 December 2011

[67] Headquarters, Department of the Army, Air Defense Artillery Reference Handbook, FM 3-01.11, Washington, D.C., 23 October 2007, 3-1.

[68] Missile Defense Agency, U.S. PATRIOT Advanced Capability-3 (PAC-3) Fact Sheet, available from http://www.mda.mil; Internet accessed 17 December 2011.

[69] Missile Defense Agency, Aegis Ballistic Missile Defense Fact Sheet, available from http://www.mda.mil; Internet accessed 17 December 2011.

[70] Missile Defense Agency, The Airborne Laser Test Bed. Fact Sheet, available from http://www.mda.mil; Internet accessed 17 December 2011.

[71] United States Army Air Defense Artillery School and Center (USAADASCHCEN), “Arabian Knights,” Fort Bliss, Texas, 1992, 5.

[72] Ibid, 1.

[73] Ibid, 6.

[74] Ibid, 1.

[75] Ibid, 7.

[76] Global Security.Org, “North Korea Nuclear Crisis February 1993-June 1994, available from http://www.globalsecurity.org/military/ops/dprk_nuke.htm; Internet accessed 14 December 2011.

[77] Ibid.

[78] Ibid.

[79] Gates, 24.

[80] United States Army, 32nd Army Air Defense Command History, available from http://usarmygermany.com/Units/Air%20Defense/USAREUR_32nd%20AADCOM.htm; Internet accessed 14 December 2011.

[81] Hannah Fischer, North Korean Provocative Actions, 1950-2007, CRS Report for Congress, Order Code RL 30004, 20 April 2007, Information Research Knowledge Service Group, CRS 1.

[82] pbs, The Hostage Crisis in Iran, available from http://www.pbs.org/wgbh/american experience/features/general-article/carter-hostage-crisis/; Internet accessed 26 December 2011.

[83] Gates, 6.

[84] Matthew Lee, "Iran Nuclear report Concerns US, Officials See Case for Imposing New Sanctions," Boston Globe, 8 November 2011, 4.

[85] International Atomic Energy Agency (IAEA), Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran, 8 November 2011, 8-9.

[86] Ibid, 10.

[87] William J. Broad and David E. Sanger, "UN Agency Says Iran Data Points To A-Bomb Work," New York Times, 9 November 2011, 1.

[88] Gates, 8.

[89] ABC News, Iran Keeps the Provocations Coming, abc News, available from http://abcnews.go.com/WNT/International/story?id=3019457&page=1; Internet accessed 18 December 2011.

[90] BBC News, "Iran jails US hikers for eight years for spying," BBC News Middle East, available from http://www.bbc.co.uk/news/world-middle-east-14602835; Internet accessed 18 December 2011.

[91] Michael Winter, "2 charged, Iran implicated in plot to kill Saudi envoy to U.S." USA Today, available from http://content/usatoday.com/communities/ondeadline/post/2011/; Internet accessed 18 December 2011.

[92] Examiner Editorial, "Obama needs to stand up to Iran's provocations," The Washington Examiner, available from http://washingtonexaminer.com/opinion/2011/; Internet accessed 18 December 2011.

[93] Gates, 5.

[94] Global Security.org, Northern Limit Line West Sea Naval Engagements, globalsecurity.org, available from http://www.globalsecurity.org/military/world/war/nll.htm; Internet accessed 18 December 2011.

[95] Bruce E. Betchtol Jr., The Choenan Incident and North Korea's Northern Limit Line Strategy," Center for Defense Studies, 25 May 2010, available from http://www.defensestudies.org/cds/the-cheonan-incident-and-north-koreas-northern-limit-line-strategy/; Internet accessed 18 December 2011.

[96] Reuters, North Korea Shells South in Fiercest Attack in Decades, Reuters, available from http://www.reuters.com/article/2010/11/23/us-korea-north-artillery-idSTRE6AM0YS20101123; Internet accessed 18 December 2011.

[97] Fischer, Summary.

[98] Ibid, Summary.

[99] Ibid, CRS-6.

[100] Ibid, CRS-3 thru CRS-33.

[101] Gates, 4.

[102] Gearan, Anne, Associated Press, "Tensions Mount As U.S. Warns Iran Not To Block Shipping Lane," Arizona Republic, available from http://www.azcentral.com/news/articles/; Internet accessed on 14 January 2012.

[103] Chico Harlan, "N. Korea's Kim Jong Il Dies, Ruthless reign: 'Dear Leader' kept Nation in Isolation," Washington Post, 19 December 2011, Washington, D.C., 1.

[104] Jack Kim, "North Korea test-fired missile on Monday," Reuters, available from http://in.reuters.com/article/2011/12/19/korea-north-missile-idINDEE7BI0A720111219; Internet accessed 19 December 2011.

[105] Bill Powell, "Kim Jong Il's Death: North Korea Waits for Kim Jong Un to Consolidate Power, " Time World, available from http://www.time.com/time/world/article/0,8599,2102781,00.html#ixzz1k1s8uS87; Internet accessed 21 January 2012.

[106] Jinwook Choi, The North Korean Domestic Situation and Its Impact on the Nuclear Crisis, The International Studies Association of Ritsumeikan University, 2006, 9-10.

[107] Merriam-Webster, "Brinksmanship," available from http://www.merriam-webster.com/dictionary/brinkmanship; Internet accessed 21 January 2012.

[108] Andrew Salmon, "Why succession poses tough challenge for both Koreas," available from http://www.bbc.co.uk/news/world-asia-16261879; Internet accessed 21 January 2012.

[109] Sangwan Yoon and Taejin Park, "North Korea Presses Kim Succession Plan as South Braces for Impact," available from http://www.businessweek.com/news/2011-12-29/n-korea-presses-kim-succession-plan-as-south-braces-for-impact.html; Internet accessed 21 January 2012.

[110] Holly Yan and Atika Shubert, “Kim Jong Un: The ‘Great Success’ Remains an Enigma,” available from http://www.cnn.com/2011/12/19/world/asia/kim-jong-un-profile/index.html?hpt=hp_t1; Internet accessed 21 January 2012.

[111] Gates, v.

[112] Nolan, 22-23.

[113] Gates, i.

[114] Barak Obama, National Security Strategy, (Office of the President of the United States); Washington, D.C., May 2010, 4.

[115] Robert Gates, National Defense Strategy, (Office of the Secretary of Defense); Washington, D.C., June 2008, 1.

[116] Michael Mullin, National Military Strategy, (Office of the Chairman of the Joint Chiefs of Staff); Washington, D.C., February 2011, 1

[117] Gates, Ballistic Missile Defense Review Report, 11.

[118] General Dempsey, remarks to the U.S. Army War College, Carlisle Barracks, Pennsylvania, 18 August 2011.

[119] Walter Kross, Doctrine for Joint Theater Missile, JP 3-01.5, (Office of the Chairman of the Joint Chiefs of Staff); Washington, D.C., February 1996, I-2

[120] Ibid, I-2 - I-3.

[121] Gates, Ballistic Missile Defense Review Report, 23.