

# THE KOREAN MILITARY BALANCE:

## *COMPARATIVE KOREAN FORCES AND THE FORCES OF KEY NEIGHBORING STATES*

### EXECUTIVE SUMMARY

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## Introductory Summary

There is no one Korean military balance that can be used for policy planning, negotiations, or arms control. The tensions between the Koreas -- and the potential involvement of China, Japan, in the US at political and military levels -- create a virtually open-ended level of possible conflicts. This is particularly true if one consider the number of times that war has grown out of unpredictable incidents and patterns of escalation, the historical reality that the probability of less probable forms of war actually occurring has been consistently higher than what seem to be the most probable contingencies in peacetime, and the patterns of escalation that seem most likely from the viewpoint of a “rational bargainer.”

Moreover, far more data are available from a South Korean, Japanese, US and Western perspective than from a Chinese or North Korean perspective. While individual Chinese or North Korean experts may issue more detailed estimates, it was not possible to find such data in Chinese or North Korean official statements and white papers or such material from Chinese or North Korean NGOs by conducting a search of the Internet or material easily available in the West.

As a result, the data presented in this analysis have an inherent bias. They reflect the views of Western, South Korean, and Japanese experts and have been selected to try to reflect official views or declassified inputs from Western intelligence experts where possible. In some critical cases, such as the data on North Korean missiles and weapons of mass destruction, the data have had to be drawn from the work of NGOs. It is obvious in many cases that such data are not fully reliable, although they are a useful indication of Western, South Korean, and Japanese perceptions.

### **The Resource, Arms Import, and Military Spending Balance**

Some data are available on the relative weight of military effort in North and South Korea, and in China, Japan, and the US. These data are summarized in this report, but it is unclear that it has great value since no meaningful estimates are available for North Korea. Moreover, meaningful unclassified data are not available on key areas like arms transfers. There is no consensus on levels of military spending or how to assess them.

More broadly, efforts to compare data between state-controlled and market economies raise major questions as to the comparability of cost. This not only affects investment, but every aspect of manpower and readiness. North Korea, example, can command any amount of manpower it wants at the price it wants. South Korea cannot.

### **The “Conventional” Warfare Balance**

The balance of North and South Korean “conventional” forces cannot be separated from the role US forces would play in a conflict, from Japan’s willingness to support US basing and staging into Korea, and from the role China would play in trying to limit any threat to North Korea as a buffer state. Much would also depend on the conditions that led to a confrontation or actual fighting. North Korea might conduct a major conventional build-up to pressure South Korea, Japan, and/or the United. It might do so to deal with internal unrest by trying to focus the nation on a foreign enemy. It might launch a limited war for the same reasons.

It is doubtful that South Korea would initiate such a conflict, but it cannot be sure what level of escalation will follow any response to a limited incident or North Korean of attack of the kind

North Korea initiated by attacking the South Korean ship Cheonan on March 26, 2010, and by artillery fire on densely populated South Korean island of Yeonpyeong that killed four people, on November 23, 2010. South Korea might also be confronted with a North Korea succession crisis or massive suppression of the population – creating a strong incentive for some form of decisive South Korean military action.

North and South Korea both operate in a security environment where the risk of dragging the US and China into a conventional conflict, and the dilemma this would create for Japan, tends to limit the scope of any given conventional war. At the same time, if North and South Korea do go to war with conventional forces the perceptions of risk and capability may be so different on each side –and involve such complex mixes of the use and threaten use of asymmetric, conventional, nuclear, and long-range missile forces that each side might make a major miscalculation and a conflict might escalate in predictable ways that neither state could control.

Moreover, North Korea's ideological hostility to South Korea and the US could lead North Korea to escalate in ways that are unpredictable and make a "rational bargainer" approach to scenario planning and predicting escalation highly uncertain.

Similarly, a US and Japanese role in support of South Korea – coupled to any South Korea success that threatened the existence of North Korea – would confront China with the risk of losing a key buffer state. China might, or might not, choose to intervene at any stage in such a conflict – either to limit or deter any action against North Korea or to ensure that South Korean and US forces did not "occupy" part of North Korea.

Either side might try to use strategic air and/or missile power in support of its tactical forces, particularly if it appeared to be losing or came under serious pressure. It is possible, that a conflict could escalate to conventional fighting affecting Chinese bases, as well as US bases and carrier task forces, including those as far away as Guam and the "outer island chain" the US might use to base long-range bombers and stealth aircraft. Moreover, China might put pressure on Taiwan as a means of indirectly pressuring the US.

The naval dimension of a new Korean War is also unpredictable. North Korea could use its submarines, smart mines, and longer-range antic-ship missiles in a wide variety of ways, including covert or asymmetric attacks on shipping, and outside Korean waters. It might perceive a naval war – including some kind of attack or seizure of a US ship – as safer way of exerting pressure. China might or might not become involved. Japan would have to decide on its naval posture.

### ***The Asymmetric or Irregular Warfare Balance***

North Korea has repeatedly challenged South Korea using low level covert operations and asymmetric attacks and used them to put pressure on both Korea and the United States. North Korea has also deployed large amounts of its force structure for the same purpose, keeping South Korea under constant pressure. It has created a special balance in the border area by creating tunnel systems and deploying large amounts of artillery in caves and sheltered positions within range of South Korea's capital, Seoul.

The historical record shows that there was nothing new about North Korea's use of such attacks in 2010. North Korea's willingness – and inventiveness – in using the threat and reality of such attacks was so consistent between 1950 and 2007, that it led the Congressional Research Service to prepare a 36 page chronology which covered 164 examples of armed invasion; border

violations; infiltration of armed saboteurs and spies; hijacking; kidnapping; terrorism (including assassination and bombing); threats/intimidation against political leaders, media personnel, and institutions; incitement aimed at the overthrow of the South Korean government; actions undertaken to impede progress in major negotiations; and tests of ballistic missiles and nuclear weapons.<sup>1</sup>

As the CRS report noted,

The most intense phase of the provocations was in the latter half of the 1960s, when North Korea (Democratic People's Republic of Korea, or DPRK) staged a series of limited armed actions against South Korean and U.S. security interests. Infiltration of armed agents into South Korea was the most frequently mentioned type of provocation, followed by kidnaping and terrorism (actual and threatened). From 1954 to 1992, North Korea is reported to have infiltrated a total of 3,693 armed agents into South Korea, with 1967 and 1968 accounting for 20% of the total. Instances of terrorism were far fewer in number, but they seemed to have had a continuing negative impact on relations between the two Koreas. Not counting North Korea's invasion of South Korea that triggered the Korean War (1950-1953), North Korea's major terrorist involvement includes attempted assassinations of President Park Chung Hee in 1968 and 1974; a 1983 attempt on President Chun Doo Hwan's life in a bombing incident in Rangoon, Burma (Myanmar); and a mid-air sabotage bombing of a South Korean Boeing 707 passenger plane in 1987. Reported provocations have continued intermittently in recent years, in the form of armed incursions, kidnappings, and occasional threats to turn the South Korean capital of Seoul into "a sea of fire" and to silence or tame South Korean critics of North Korea. Then, in July 2006, North Korea launched seven missiles into the Sea of Japan, and in October 2006, it tested a nuclear bomb.

North Korea may well have its own list of charges and complaints, but its public statements are largely political in character. An open source analysis of such material does not seem to be available.

### ***The Nuclear and CBRN Warfare Balance***

North Korea has conducted two low yield nuclear tests, and has effectively ended its past agreements to limit the production of nuclear materials and its missile tests. While unclassified estimates are to some extent sophisticated guesswork, North Korea may have obtained enough Plutonium from its power reactors to have 4-13 nuclear weapons – even allowing for the material used in its two tests.

Moreover, Siegfried Heckler – a former director of the Los Alamos National Laboratory – reported on a visit to Yongbyon that he saw a small, sophisticated facility with some 2,000 centrifuges that were "P-2" advanced designs.<sup>2</sup> This means that North Korea may have significant stocks of enriched uranium, as well as plutonium. At a minimum, this means North Korea's future production of weapons grade material is impossible to predict, and that both targeting and arms control are far more difficult because of the inability to predict how many dispersed centrifuge facilities North Korea may have.

Similar uncertainties arise because of the inability to predict how sophisticated North Korea's weapons and warhead design capabilities are. US experts feel North Korea has obtained some

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<sup>1</sup> Hannah Fischer, *North Korean Provocative Actions, 1950 – 2007*, Congressional Research Service, RL30004, April 20, 2007.

<sup>2</sup> See Siegfried Heckler, "A Return Trip to North Korea's Yongbyon Nuclear Complex, November 20, 2010, <http://iis-db.stanford.edu/pubs/23035/Yongbyonreport.pdf>; David Albright and Paul Brannan, "Satellite Image Shows Building Centrifuges in North Korea," ISIS, November 21, 2010, and "Taking Stock: North Korea's Uranium Enrichment Program, October 8, 2010;" Jonathan Medalia, "North Korea's 2009 Nuclear Test: Containment, Monitoring, Implications," Congressional Research Service, R41160, November 24, 2010; Kwang Ho Chun, "North Korea's Nuclear Question: Sense of Vulnerability, Defensive Motivation, and Peaceful Solution," Strategic Studies Institute, US Army War College, December 2010.

advanced missile warhead design data, and this was confirmed by the sale of some of these data by the A. Q. Khan network.

Moreover, North Korea's ambitious missile programs are still largely in development and their capabilities are impossible to predict until the nature of a nuclear warhead is known, and there have been enough tests of North Korea's longer range missiles to provide a clear picture of their performance.

Some estimates indicate that North Korea's SRBMs include some 600-800 regular and extended-range Scud missiles, and one source indicates it could have deployed up to 100 much longer range. According to that source, North Korea may deploy its missiles in two belts, in 22-28 bases with 12-15 in the rear area. The first is 50-90 kilometers north of the DMZ, and the second 90-120 kilometers north. A third belt may exist more than 175 kilometers from the border.<sup>3</sup>

However, North Korea's longer-range No Dong MRBM missile (700-1,500 kg warhead and 1,000-1,500 km range) is still developmental and would require large numbers of additional, full range, tests to become a mature program. The Japanese Defense White Paper for 2010 reports that Japan believes tests were limited to a possible launch into the Japan Sea in late May 1993, a mix of Scud and No Dong launches on July 5, 2006, and a mix of launches that might have involved some No Dongs from the Kittareryong district of North Korea on July 4, 2009.<sup>4</sup>

Some experts feel North Korea's larger Taepodong 1 MRBM missile (1,000-1,500 kg warhead and 1,500-2,500 km range) has never been launched, except as an SLV. The Japanese Defense White Paper for 2010 reports one successful launch occurred on August 31, 1998. Similarly some experts believe the Taepodong 2 ICBM missile (500-1,500 kg warhead and 4,500-8,000 km range) has never been launched, and it is not clear whether its missile engines have been used as an SLV. The Japanese Defense White Paper for 2010 reports one failed launch occurred in July 1996, and a second launch on April 5, 2009 when North Korea fired a missile that may have been a Taepodong 2 into the sea at a range over 3,000 kilometers.<sup>5</sup>

Another system, North Korea's Musudan IRBM (650-1,000 kg warhead and 2,500-3,200 km range) may be a copy or modification of the Russian R-27/BM-25 series. It may have been launched at very short ranges for test purposes, but is not operational. These uncertainties make it impossible to estimate any of these missiles' reliability and accuracy, and whether North Korea has anything approaching some form of terminal guidance technology.<sup>6</sup>

The focus on North Korean nuclear weapons and long-range missile programs raises important issues for the Korean balance per se, and for the US in deterring or responding to North Korean threat or reality of using nuclear weapons against South Korea. This threat, however, cannot be limited to the Korean peninsula. It already extends to Japan and US bases in Japan. US reaction again raises the issue of what China's response would be and whether a crisis could escalate to

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<sup>3</sup> Joseph S. Bermudez, "Going Ballistic – North Korea's advanced missile capabilities," *Jane's Intelligence Review*, 2009.

<sup>4</sup> See Joseph S. Bermudez, "Going Ballistic – North Korea's advanced missile capabilities," *Jane's Intelligence Review*, 2009;" Daniel A. Pinkston, *The North Korean Ballistic Missile Program*, Strategic Studies Institute, US Army War College, February, 2008; and Japanese Ministry of Defense, *2010 Defense White Paper*, English translation, pp. 43-35.

<sup>5</sup> See Joseph S. Bermudez, "Going Ballistic – North Korea's advanced missile capabilities," *Jane's Intelligence Review*, 2009;" Daniel A. Pinkston, *The North Korean Ballistic Missile Program*, Strategic Studies Institute, US Army War College, February, 2008; and Japanese Ministry of Defense, *2010 Defense White Paper*, English translation, pp. 43-35.

<sup>6</sup> See Joseph S. Bermudez, "Going Ballistic – North Korea's advanced missile capabilities," *Jane's Intelligence Review*, 2009;" Daniel A. Pinkston, *The North Korean Ballistic Missile Program*, Strategic Studies Institute, US Army War College, February, 2008,

the point where the US-Chinese strategic and nuclear balance became relevant – a threat that could force Japan to make hard choices of its own.

As is noted in the introduction, however, North Korean nuclear weapons programs are only part of a far wider range of important issues in assessing the Korean balance:

- The US and China are major nuclear powers, with boosted and thermonuclear weapons. While neither is likely to use nuclear weapons, they have that capability, and – at a minimum – it plays a major role in the balance of deterrence and in shaping the risks of asymmetric escalation.
- North Korea has implosion fission weapons. Its numbers, weapons yields, and ability to create reliable bombs and missile warheads are uncertain, but it seems likely it either has them or is rapidly moving towards acquiring them. It almost certainly has programs to develop boosted and thermonuclear weapons, but their status is unknown.
- South Korea had a covert nuclear weapons program that it halted after quiet negotiations with the US. This gives it a significant nuclear breakout capability if it should reverse its decisions.
- Japan is unlikely to have nuclear weapons programs, but has all of the technology and material necessary to rapidly acquire them and develop boosted and thermonuclear weapons.
- The US and China have nuclear-armed aircraft and ICBMs, IRBMs, MRBMs, and SRBMs with boosted and thermonuclear weapons. North Korea may have long-range tactical and theater missiles with implosion nuclear weapons.
- North Korea is a major chemical weapons state, and probably has advanced chemical warheads and bombs. China may have stocks of chemical weapons. There is no way to estimate the size, type, and lethality/effectiveness of their relative stockpiles, or doctrine and plans for using them. It should be noted, however, that relatively crude mustard gas weapons played a decisive role in area denial and disruption of Iranian forces in the final phase of the Iran-Iraq War in 1988, and that stocks of persistent nerve gas and so-called 4<sup>th</sup> generation chemical weapons are possible. South Korea is suspected to have a chemical weapons program, and may have covert stocks of chemical weapons.
- North Korea is strongly suspected to have a biological weapons program and may have stocks of such weapons. These could range from basic weapons types to genetically modified types. China's program is not discussed in unclassified official statements. South Korea may have a program. It should be noted that China, Japan, North Korea, South Korea, and the US all have advanced civil biological, food processing, chemical processing, and pharmaceutical facilities that can be adapted to both chemical and biological weapons development and production. All have significant capability for genetic engineering of biological weapons. All would have to develop advanced biological weapons for test purposes to conduct an effective biological defense program.
- No public details are available on the efforts of any power to develop small or specialized chemical, biological, radiological, or nuclear weapons for covert delivery or potential transfer to non-state actors and third countries.
- China and North Korea have large numbers of conventionally armed long-range missiles capable of hitting targets in South Korea. The nature of their conventional warheads is not clear, and this is critical since unity conventional warheads have limited lethality, and terminal guidance is needed to provide the accuracy necessary to strike at high value, rather than broad area targets. China and North Korea may already have, and are certainly developing, ballistic and cruise missiles with some form of terminal guidance.
- The US has large numbers of precision-guided long range cruise missiles for air and sea launch, and precision-guided long-range multiple rocket launchers. US stealth aircraft can deliver precision-guided weapons at standoff ranges from most Chinese and North Korean surface-to-air missiles with the exception of the S300/S400 series. China is developing long-range anti-ship ballistic missiles that can strike large surface ships like US carriers at long distances. These potentially are “weapons of mass effectiveness” that can launch devastating strikes against critical facilities and infrastructure without the use of WMD warheads.

- The US, Japan, and South Korea have some ballistic missile defense capability and are working together to develop wide area theater ballistic missile defense systems. China has the Russian S300/S400 series of advanced surface-to-air missile defenses, and is almost certainly seeking more advanced missile defense capabilities. North Korea lacks such capabilities, but is almost certainly seeking them. The balance of air and missile defense capabilities plays a critical role in limiting the offensive capabilities of the opposite side and reducing the risk in using one's own missiles. This makes air and missile defenses the equivalent of a major offensive weapon.
- China, the US, South Korea, and possibly North Korea, all have advanced cyberwarfare capabilities. China has some anti-satellite capability, and possibly some form of EMP weapon. These too are potential "weapons of mass effectiveness" that can launch devastating strikes against critical facilities and infrastructure without the use of WMD warheads.

Current arms control efforts and assessments of the Korean balance may focus on North Korea's nuclear programs, but they are only part of a far more complex and rapidly evolving mix of current and potential capabilities to deliver weapons of mass destruction or mass effectiveness. The threat that such weapons may be used also cannot be limited to the Korean peninsula. It already extends to Japan and US bases in Japan. US reaction again raises the issue of what China's response would be and whether a crisis could escalate to the point where the US-Chinese strategic and nuclear balance became relevant – a threat that could force Japan to make hard choices of its own.

The range of uncertainties on this list also raises two key issues for arms control. One is the so-called "Nth weapon paradox." It may be possible to reduce a nation's nuclear weapons, but it is probably impossible to be certain it does not retain at least a few. The problem for arms control is that the smaller the stockpile, the more it has to be used in ways that threaten absolutely critical targets like major population centers rather than a given military target. Arms reductions can easily escalate targeting.

The second is the "diversion effect." The risk that nuclear controls can drive states even more towards advanced biological and chemical weapons. Advances in biotechnology have made control regimes virtually impossible, as well as vastly increased the potential lethality of biological weapons to levels beyond that of even boosted and thermonuclear weapons.

It is also clear that the nuclear threat already is only part of the equation. North Korea has long been a chemical weapons power. It is believed to have active biological weapons programs, and it clearly has long-range missile programs that can target Japan and any target in South Korea. These can potentially be armed with a range of CBRN warheads – but no meaningful unclassified evidence exists of the range of such warheads or their lethality. The same is true of North Korean bombs, and rocket warheads. This means that CBRN escalation could occur at a wide range of unpredictable levels – including asymmetric, covert, and terrorist attacks. Moreover, North Korea is already acquiring missile engines and boosters that will give it ICBM capabilities to attack targets in the US.

### ***The Balance of Weapons of Mass Effectiveness and "Offensive" vs. "Defensive" Weapons***

It is equally important to stress, however, that conventionally armed missiles can also be used to threaten or attack targets. It is unclear how accurate North Korea's missiles are, and whether North Korea has a real-world terminal guidance capability to use ballistic missiles – or can develop such systems for cruise missiles. As long as North Korea does not have such "smart"

warheads, conventionally armed missiles are largely terror weapons that can produce limited casualties and damage in targets as large as cities or military facilities as large as airfields. Once North Korea does have a real-world terminal guidance capability, however, such missiles may become “weapons of mass effectiveness” that can destroy high value and critical infrastructure targets with conventional warheads.

This could lead to new patterns of escalation where the US and South Korea used precision guided air-to-surface, surface-to-surface, and cruise missiles to destroy critical North Korean targets, or the threat of such use to deter North Korea. Alternatively, the US and South Korea might threaten or initiate the use of precision guided air-to-surface, surface-to-surface, and cruise missiles to destroy critical North Korean targets in add effort to halt a North Korean conventional attack.

Cyberwarfare is becoming steadily more critical, and affects civil operations as well as warfighting. It is important to note that South Korea is probably more dependent on the Internet than any other nation in the world. Any use of anti-satellite (ASAT) weapons could also have a massive impact on US battle management and IS&R systems.

Moreover, the fact so many missile and precision air strike systems are being deployed has turned “defensive” weapons such as ballistic missile defense and surface-to-air missile forces into “offensive” forces as well. The comparative ability to defend also equates to the ability reduce the risk in escalating to offensive missile, air, and stealth attacks.

### ***The Balance of Different Perceptions***

This report examines each of these “balances” using a range of different sources. The primary statistical data on the military balance are drawn from reporting by the Institute for Strategic Studies, but these are supplemented in each section by a range of data taken from US, Japanese, and South Korean official sources, other NGOs, and defense reporting be sources like Jane’s. Similar data are not available in meaningful detail from unclassified North Korean and Chinese sources.

It should be noted that major differences exist in the estimates of given sources both in terms of data on given military forces, and as to how the balance should be assessed. It is clear that any model for negotiations and arms control would present at least the same need for research and negotiations over basic data that affected the START, MBFR, and CFE talks. At this point, there is no common base of perceptions to build upon.

## **Section 1: Korean and Northeast Asia Military Expenditures and Comparative Resources**

It is not possible to make meaningful comparisons of North and South Korean military expenditures using unclassified data. No government provides such comparisons, and the International Institute for Strategic Studies does not make estimates for North Korea. Estimates of Chinese military expenditures are highly controversial, and raise major question regarding the extent to which definitions of such estimates are comparable in terms of both what is included and prices. Moreover, there is no clear way to relate US military spending to the Korean balance, although US military capabilities play a major role in that balance.

## ***East Asian Military Spending***

In the past, the US State Department issued comparable estimates of military effort and arms transfers based on models that estimated the size of each military effort based on comparable prices. These reports have long been discontinued, however, and think tank or NGO has the resources or access to intelligence to make credible estimates on its own.

### ***North Korean Military Spending***

It is possible, however, to make some comparisons for Asian countries other than North Korea. In broad terms they show that South Korean and Japanese national security expenditures have been relatively static, while China is emerging as major regional military power. Moreover, *Jane's* has developed some useful material on the size of the North Korean effort, drawn from South Korean sources, and this report concludes that,

North Korea's defense budget reached nearly USD9 billion in 2009, around 15 times more than the official amount declared by Pyongyang, the state-run Korea Institute of Defense Analyses (KIDA) has said in a report.

The KIDA report - cited by the state-funded Yonhap news agency on 18 January - said North Korea had previously announced a USD570 million defense budget, although the real expenditure, calculated on an exchange rate based on purchasing power parity (PPP) terms, was USD8.77 billion.

Yonhap quoted the report as saying: "In spite of its economy shrinking since the mid-2000s, North Korea has gradually increased its military spending." According to KIDA, official North Korea figures state that the defense budget increased to USD570 million in 2009 from USD540 million in 2008, USD510 million in 2007 and USD470 million in 2006, although these figures do not reflect PPP.

Previous estimates have indicated that North Korean defense spending is equal to at least 15 per cent of GDP. In 2008 Pyongyang said it was allocating 15.8 per cent of GDP on defense although it has not released any GDP figures for a number of years. In 2009 the US State Department stated that North Korea's defense spending was more than 22 percent based on its estimate that North Korea's GDP in 2009 was USD40 billion based on PPP.

How much North Korea is allocating towards defense procurement is similarly contested but it is thought to be at least 40 per cent of its expenditure, with most of these finances directed at centrally controlled indigenous programs: a consequence of North Korea's impoverished economy and its international isolation.

Some of these figures have an obvious bias, while others are little more than educated guesses. They are almost certainly correct however, in indicating that North Korea is willing to devote far more of its total economy to national security expenditures than South Korea.

### ***North and South Korean Military Modernization***

There are serious limits to the unclassified data available for such comparisons. They do not include many smart munitions, they only cover a limited amount of other weapons, and they do not reflect investments in logistics and transport. They also do not include battle management, IS&R (intelligence, surveillance, and reconnaissance), or C4 command, control, communications, and computer) assets. These are becoming steadily more critical aspects of military modernization.

Nevertheless, **Figure 1.7** shows that South Korea has modernized more rapidly and with more advanced equipment than North Korea, while North Korea has focused on force expansion. South Korea has almost achieved a massive lead in modern aircraft and surface-to-air missiles.

**Figure 1.8** shows that South Korea has an effective plan for force modernization through 2020 – a plan it has upgraded since 2005. There is no unclassified North Korean equivalent.

### *North and South Korean Capacity for Military Efforts*

Finally, there are useful data on each country's capacity to develop and support its forces. The CIA estimates that North Korea had a GDP in 2010 worth roughly \$40 billion (ranking 98<sup>th</sup> in the world), while South Korea's GDP was worth some \$1,467 billion (ranking 13<sup>th</sup> in the world), or nearly 37 times that of that of North Korea. It also estimated that North Korea had a GDP per capita worth some \$1,900 (ranking 196<sup>th</sup> in the world), while South Korea's GDP was worth some \$30,200 (ranking 45<sup>th</sup> in the world), or more than 16 times of that of North Korea.<sup>7</sup>

The CIA draws a sharp contrast between the economies of North And South Korea:<sup>8</sup>

North Korea, one of the world's most centrally directed and least open economies, faces chronic economic problems. Industrial capital stock is nearly beyond repair as a result of years of underinvestment and shortages of spare parts. Large-scale military spending draws off resources needed for investment and civilian consumption. Industrial and power output have declined in parallel from pre-1990 levels. Severe flooding in the summer of 2007 aggravated chronic food shortages caused by on-going systemic problems, including a lack of arable land, collective farming practices, and persistent shortages of tractors and fuel. Large-scale international food aid deliveries have allowed the people of North Korea to escape widespread starvation since famine threatened in 1995, but the population continues to suffer from prolonged malnutrition and poor living conditions. Since 2002, the government has allowed private "farmers' markets" to begin selling a wider range of goods. It also permitted some private farming - on an experimental basis - in an effort to boost agricultural output. In October 2005, the government tried to reverse some of these policies by forbidding private sales of grains and reinstating a centralized food rationing system. By December 2005, the government terminated most international humanitarian assistance operations in North Korea (calling instead for developmental assistance only) and restricted the activities of remaining international and non-governmental aid organizations. In mid-2008, North Korea began receiving food aid under a US program to deliver 500,000 metric tons of food via the World Food Program and US nongovernmental organizations; but Pyongyang stopped accepting the aid in March 2009. In December 2009, North Korea carried out a redenomination of its currency, capping the amount of North Korean won that could be exchanged for the new notes, and limiting the exchange to a one-week window. A concurrent crackdown on markets and foreign currency use yielded severe shortages and inflation, forcing Pyongyang to ease the restrictions by February 2010. Nevertheless, firm political control remains the Communist government's overriding concern, which likely will inhibit changes to North Korea's current economic system.

... Since the 1960s, South Korea has achieved an incredible record of growth and global integration to become a high-tech industrialized economy. Four decades ago, GDP per capita was comparable with levels in the poorer countries of Africa and Asia. In 2004, South Korea joined the trillion-dollar club of world economies, and currently is among the world's 20 largest economies. Initially, a system of close government and business ties, including directed credit and import restrictions, made this success possible. The government promoted the import of raw materials and technology at the expense of consumer goods, and encouraged savings and investment over consumption. The Asian financial crisis of 1997-98 exposed longstanding weaknesses in South Korea's development model including high debt/equity ratios and massive short-term foreign borrowing. GDP plunged by 6.9% in 1998, and then recovered by 9% in 1999-2000. Korea adopted numerous economic reforms following the crisis, including greater openness to foreign investment and imports. Growth moderated to about 4-5% annually between 2003 and 2007. With the global economic downturn in late 2008, South Korean GDP growth slowed to 0.2% in 2009. In the third quarter of 2009, the economy began to recover, in large part due to export growth, low interest rates, and an

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<sup>7</sup> CIA, World Factbook, "North Korea" and South Korea," <https://www.cia.gov/library/publications/the-world-factbook/geos/ks.html>, accessed January 27, 2011. GDP measured in purchasing power parity terms.

<sup>8</sup> CIA, World Factbook, "North Korea" and South Korea," <https://www.cia.gov/library/publications/the-world-factbook/geos/ks.html>, accessed January 27, 2011.

expansionary fiscal policy, and growth exceeded 6% in 2010. The South Korean economy's long-term challenges include a rapidly aging population, inflexible labor market, and overdependence on manufacturing exports to drive economic growth.

The CIA estimates that North Korea had a total population of 22.7 million), while South Korea's population is 48.6 million, or more than 2.1 times that of North Korea. It estimates the median age of North Korea's population at 33.9 years, and that of South Korea at 37.9 years. Finally it estimates that North Korea had 6.1 million males eligible for military service and 885,000 young men entering military age each year), while South Korea had 13.3 million eligible males and 371,000 males entering military age.<sup>9</sup>

All of these data show that South Korea has far more resources to use in supporting its national security structure than North Korea, and that the overall trends are likely to remain significantly in South Korea's favor.

The World Bank and UN make somewhat different estimates, but all agree that South Korea as a vastly larger economy, with far better income distribution and personal wealth, and far more personnel that can be devoted to military service. South Korea's disadvantages are that its population has much higher expectations; it must pay far more for manpower, must price military investment in market rather than command terms, and finds it harder to command popular sacrifices in the name of enhanced security.

## **Section 2: The Conventional Military Balance in the Koreas and Northeast Asia**

As has been stressed in the introduction, there is no one conventional balance that is most likely to shape any conflict between the Koreas, and asymmetric and nuclear forces are likely to play at least some role in the way any conflict develops. As is noted in the introduction, the balance of North and South Korean "conventional" forces cannot be separated from the role US forces would play in a conflict, from Japan's willingness to support US basing and staging into Korea, and the role China would play in trying to limit any threat to North Korea as a buffer state.

In broad terms, South Korea has the advanced in conventional force quality and North Korea has the advantage in force quantity. James R. Clapper, the US Director of National Intelligence, summarized the conventional balance as follows in his testimony to the U.S. Intelligence Community for the House Permanent Select Committee on Intelligence on February 10, 2011:

North Korea's conventional military capabilities have eroded significantly over the past 10-15 years due to persistent food shortages, poor economic conditions, inability to replace aging weapons inventories, reduced training, and increased diversion of the military to infrastructure support. Therefore, Pyongyang increasingly relies on its nuclear program to deter external attacks on the state and to its regime. Although there are other reasons for the North to pursue its nuclear program, redressing conventional weaknesses is a major factor and one that Kim and his likely successors will not easily dismiss.

Nevertheless, the Korean People's Army remains a large and formidable force capable of defending the North. Also, as demonstrated by North Korean attacks on the South Korean ship

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<sup>9</sup> CIA, World Factbook, "North Korea" and South Korea," <https://www.cia.gov/library/publications/the-world-factbook/geos/ks.html>, accessed January 27, 2011.

*Cheonan* in March 2010 and Yeongpyong Island in November. North Korea is capable of conducting military operations that could potentially threaten regional stability. These operations provide Pyongyang with what the regime may see as a means to attain political goals through coercion.

### ***Uncertain Patterns of Conflict and Escalation***

There is no reason to assume that any new Korean War would involve the total commitment of the conventional forces on each side, would separate the use of conventional warfare from asymmetric warfare, could be decoupled from the deterrent and war limiting impact of the fact that North Korea has nuclear and chemical weapons, and both the US and China are major regional nuclear powers.

A war might escalate into a struggle for control of the Korean peninsula, but it is far from clear that this would be the case. North Korea might conduct a major conventional build-up to pressure South Korea, Japan, and/or the United States. It might do so to deal with internal unrest by trying to focus the nation on a foreign enemy. It might launch a limited war for the same reasons. Both North and South Korea would be under at least initial pressure to keep any conflict limited and to find ways to end it, and return to the status before the conflict began.

It is possible that North Korea might take the risk of an all out attack, and some experts have postulated that it might do so if its regime either came under severe internal threat in an effort to unify North Korea's citizens around a foreign threat, or it felt it was isolated politically and the US and/or South Korea might attack.

It seems more likely, however, that North Korea would use conventional forces to conduct a limited war for limited objectives. It might try to seize islands or part of the DMZ, or to demonstrate its capability to threaten and intimidate South Korea through a limited attack or by launching a major artillery attack across the border on Seoul or some other critical South Korean strategic objective. It might increase the readiness of conventional forces and/or deploy more forward in a battle of intimidation and never go beyond a minor border incident, raid, or use of asymmetric forces in a limited attack somewhere in South Korea or local waters.

It is doubtful that South Korea would initiate a new Korean conventional conflict, but it cannot be sure what level of escalation will follow any response to a limited incident or attack of the kind North Korea made on the South Korean ship *Cheonan* on March 26, 2010, and by North Korea's artillery fire on densely populated South Korean island of Yeonpyeong near the countries' western border – which killed 20 people on November 22, 2010. South Korea might also be confronted with a North Korea succession crisis or massive suppression of the population of North Korea – creating a strong incentive for some form of decisive South Korean military action.

Outside powers would initially play a major role in deterring both sides from a major escalation of conventional conflict. The risk of dragging the US and China into a conventional conflict, and the dilemma this would create for Japan, would tend to limit the scope of any given conventional war. At the same time, North Korea's ideological hostility to South Korea and the US could lead North Korea to escalate in ways that are unpredictable and make a “rational bargainer” approach to scenario planning and predicting escalation highly uncertain.

Any major North Korean success on the ground, or escalation of a war, would almost certainly lead the US to escalate its forces and to expand its range of targets in North Korea. It is possible

that North Korea might ignore this risk or miscalculate, but it seems unlikely. Similarly, any South Korea success that threatened the existence of North Korea – would confront China with the risk of losing a key buffer state.

China might, or might not, choose to intervene at any stage in such a conflict – either to limit or deter any action against North Korea or to ensure that South Korean and US forces did not “occupy” part of North Korea. It is at least possible, that this escalation could extend to conventional fighting affecting Chinese bases, as well as US bases and carrier task forces, including those as far away as Guam and the “outer island chain” the US might use to base long-range bombers and stealth aircraft. Moreover, China might put pressure on Taiwan as a means of indirectly pressuring the US.

Either side might use strategic air and missile power, and attacks on population centers and critical infrastructure, to support tactical operations. In fact, it seems likely that such escalation would occur the moment either side perceived it was threatened with major losses or some form of defeat. The US also demonstrated during the first and second Gulf Wars in 1991 and 2003, as well as in its attacks on Serbia, that strategic air and missile power can play a critical role in limiting an opponent’s tactical capability. They can temporarily cripple civilian targets in ways that produce little collateral damage and allow the civil economy to function. Air-land and air-sea operations are now becoming far more complex than in the past, and the directions between tactical attacks and interdiction, and tactical and strategic operations are much less distinct and easy to predict.

The naval dimension of a new Korean War is also unpredictable at virtually every level. North Korea could use its submarines, smart mines, and longer-range antic-ship missiles in a wide variety of ways, including covert or asymmetric attacks on shipping, and outside Korean waters. It might perceive a naval war – including some kind of attack or seizure of a US ship – as a safer way of exerting pressure. China might or might not become involved. Japan would have to decide on its naval posture.

Seen from this perspective, the most important measures in terms of stability may not be arms reductions, or controls on modernization and force change per se, but finding ways to limit the risk of confrontation and escalation. Confidence building measures and transparency might do more to limit risk. Expanding limits on deployment in the border area, risk to critical population centers, allowing neutral or mixed observers at exercises, real time transparency on force movements, and mediation of border, air, coastal, and sea control disputes are examples.

### ***Looking at Key Trends***

That said, the data on the total strength of each side’s potential forces, and their comparative rate of modernization, still provides a broad picture of their relative war fighting capability. It should be noted that the sources shown do not agree on many details, and that an examination of other NGO and commercial data from source like Jane’s reveals additional differences. This could be a key problem in determining security measures. It took more than five years for NATO to agree on the core elements of the conventional balance in studying its options for MBFR and CFE, and another half-decade for NATO and the Warsaw Pact to reach an agreement that was far more a political compromise than a rigid search for analytic validity.

As a result, this the Figures in this section of the analysis present three main sets of data and comparisons based current capabilities and trends as seen from a Western, South Korean, and

Japanese perspective. The primary source for the Western data is the International Institute of Strategic Studies, which is able to draw on a mix of declassified data, official data, and expert assessment. In addition, data are drawn from South Korean white papers prepared by the South Korean ministry of defense, and similar White Papers from Japan.

### ***Western Data from International Institute of Strategic Studies***

The data from the International Institute of Strategic Studies present the problem – as do all unclassified sources –they cannot reflect the contingency plans of the countries listed. Accordingly they list the total forces of each China, Japan, North Korea, South Korea, and Taiwan.

They deliberately omit US forces, which are described in the next section. US naval and air forces would surge from outside the area, and the current total of US forces in Japan and South Korea is largely a symbol of such a surge. US land forces would be much harder to surge, but would also build-up from outside Japan and South Korea. Much would also depend on Japan's willingness to serve as a staging point, and how much pressure China did or did not put in other areas like the Pacific and Taiwan Straits.

This is a key problem for arms control. In many ways, the current balance is not the issue. It is the potential balance and role of outside forces in a given contingency. Moreover, limits on forward deployed land forces in South Korea or the Chinese border area in North Korea would favor escalation to the use of air and missile power, or key elements of specialized land force reinforcement which quality and specialization would be more important than numbers.

- **Total manpower on each side.** It is clear that North Korea and China have much larger manpower totals. The problem, however, is that manpower quality and training -- and associated weapons, sustainability, battle management, IS&R, and C4 capability – are likely to be far more important than total active reserve manpower. Mass is still important, but total manpower no longer is a key measure of force strength.
- **Relative balance of army manpower and land force equipment strength.** Here too, North Korea and China have a massive lead in force strength. Given the economic disparity between the Koreas, this figure shows that North Korea is one of the most militarized countries in the world. It has extraordinarily large anti-aircraft holdings, nearly twice the artillery strength of South Korea, as well as a major advantage in self-propelled artillery and a massive lead in multiple rocket launchers (MRLs). North Korea has a lead in main battle tanks, which is partially offset by a South Korean lead in tank quality. (2.2b). It is, however less mechanized than South Korea, and more limited in total armored maneuver strength. (2.2.c), and South Korea at least has parity in rotary wing attack and transport capability because of superior aircraft capability. It should be noted that operations by the forces of each side would be sharply affected by the air-land, surface-to- surface missile battles – areas where the quality of IS&R capability and smart air munitions would have a major impact on the balance.
- **Relative balance of naval manpower and equipment strength.** North Korea again as a lead over South Korea in manning, but is inferior in virtually every aspect of major naval surface vessel fleet strength and capability. North Korea, however, has a major lead in amphibious vessels, potential mine layers, and smaller surface vessels of the kind that can be used in asymmetric warfare, and allow it to operate close to shore and outside the normal operating area of major US naval surface vessels. North Korea also has a major lead in conventional submarines, as does China over Japan. It should be noted that operations by the forces of each side would be sharply affected by the air-sea, smart mine, and anti-ship missile battles -- areas where the quality of IS&R capability and smart air munitions would again have a major impact on the balance.
- **Relative balance of air manpower and equipment strength.** North Korea again as a lead over South Korea in manning, and has one in total aircraft. North Korea, however, is far inferior in terms of aircraft quality at every level (2.4b and 2.4d), and has a larger and more capable mix of total air, army, and naval

attack and combat helicopters (2.4d). North Korea only has 35 MiG-29A/S fighters, and these are the only aircraft approaching a modern type in a force of 620 combat aircraft. South Korea is completing a buildup of 59 F-15K advanced modern fighters and has 164 modern F-16C/Ds. South Korea's 60 AH1F/J attack helicopters are probably superior in individual capability to North Korea's 20 Mi-24s.

- **Relative balance of surface-to-air air and missile defense strength.** The trends in missile defense are discussed later in Section Seven. North Korea has large, but largely obsolete surface to air missile defenses. North Korea also has massive numbers of short-range manportable air defense systems (MANPADs) and anti-aircraft guns. The IISS estimates it has some 10,000 MANPADs and 11,000 guns. South Korea has smaller holdings of surface-to-air missiles, but has far more modern and more capable Hawk and Patriot systems compared to North Korea's aging SA-2, SA-3, and SA-5 systems. South Korea's qualitative advantage in SAMs would more than offset North Korea's advantage in numbers. It is unclear how much North Korea's advantage in AA guns and MANPADs really matters. Most are aging and have limited range and capability. US and South Korean strike aircraft have effective countermeasures against most MANPADs and can use air-to-surface missiles from standoff ranges.

It is important to note that these data, and the data on US forces shown in Section 3, can only hint at the qualitative advantages that the South Korean side could have when the total associated weapons, sustainability, battle management, IS&R, and C4 capabilities of US and South Korean forces are considered, and that this would be particularly true in China stood aside from the conflict. The role of external players is critical in any scenario where they become engaged, and relative force quality could easily be far more decisive than force numbers.

### ***Data from Korean Defense White Papers***

The data in recent South Korea white papers data differ strikingly from the IISS data, as well as from the Japanese assessments shown later, and data from sources like Jane's that are not shown in detail in this report.

The manpower data, for example, do not agree for any service in either North or South Korea. The same is true of the data on army equipment, where South Korea shows a much larger North Korean superiority in tanks and other armored vehicles, and uses a very different – but unstated – way of counting artillery. South Korea also presents a very different count of helicopters, and flags a North Korean advantage in river crossing assets ignored in other estimates of the balance.

The South Korean data on the naval balance not only show very different numbers for force strength, they make no distinction between the size and capability of naval surface vessels – a count that sharply understates the quality of the South Korean fleet.

The South Korean data on the air balance are radically less favorable than the IISS for South Korea. The IISS shows a ratio of total South Korean vs. North Korean air force combat aircraft of 620 to 467. The South Korean white paper for 2010 shows a ratio of total South Korean vs. North Korean air force combat aircraft of 820 to 460.

These same differences occur when the comparison is expanded to cover China and Japan, and are further complicated by the fact South Korea changes definition from one type of comparison of the same forces to another. There are no consistent patterns in the differences in the estimates for China and Japan, but it should be noted that official US estimates often count the same forces very differently in given commands, services, and branch of the US intelligence community. Much depends on the reason a given comparison is developed, and the definitions used – definitions that often are not explicitly explained in a given source.

**There is** another difficulty in making force comparisons. They show the estimates of North Korean forces in different South Korean white papers from 2004 to 2010. They do not reveal any major trends in terms of a North Korean build-up, but they do show that South Korea has changed the way it counts North Korean forces over time. Again, a similar comparison of IISS and US official estimates would show the same kinds of differences, and there is no one or right way of counting forces. This does, however, make net assessments much harder to make (and evaluate), and presents obvious problems for any arms control effort that is not either zero-based on hard intelligence data or a negotiated political compromise.

### ***Data from the Japanese White Paper for 2010***

The data in the Japanese white paper for 2010 seem to be similar to the IISS data, although they differ in detail. They also have the same broad differences from the South Korean white papers as the IISS estimates.

The trend data on the size of Japanese Self Defense Forces are useful in showing that Japan is not increasing the size of its forces, or potential threat to China or North Korea – although Japan has made steady improvements in the quality of its forces, its ability to project them, and the quality of its air and missile defense forces.

The Japanese data in provide an estimate of the size of Chinese forces and US forces in South Korea, and a useful estimate of how small the US forces in South Korea now are, and shows that they been reduced to a size that is largely demonstrative, if not virtually a trigger force.

## **Section 3: US Forces in Korea and the Pacific the Pacific**

The US sees South Korea as a critical ally, and has legal obligations under U.N. Security Council Resolutions passed in 1950. They make the US head of the United Nations Command, and the ROK/US Mutual Security Agreement of 1954, which commits both nations to assist each other in case of attack from outside forces. The US is also part of the ROK/US Combined Forces Command (CFC) established in 1978. The Commander of US forces in Korea serves as Commander in Chief of both the United Nations Command (CINCUNC) and the CFC, and is responsible for maintaining the armistice agreement that suspended the Korean War on July 27, 1953.

**Figure 3.1** show a Japanese estimate of how the forces the US still maintain South Korea compare with those of North and South Korea. As has been noted in the previous section, The Japanese data provides a useful estimate of how small the US forces in South Korea now are, and shows that they have been reduced to a size that is largely demonstrative, if not a virtual trigger force.

The US national military strategy for 2011 describes the US strategy for Korea and Northeast Asia, and for shaping the Korean military balance, as follows:<sup>10</sup>

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<sup>10</sup> Source: Admiral M. G. Mullen, *The National Military Strategy of the United States of America, 2011*, Chairman of the Joint Chiefs of Staff, February 8, 2011, pp. 13-14, <http://www.defense.gov/pubs/>.

Though still underpinned by the U.S. bilateral alliance system, Asia's security architecture is becoming a more complex mix of formal and informal multilateral relationships and expanded bilateral security ties among states.

We expect to maintain a strong military presence in Northeast Asia for decades. We will work with the Japan Self-Defense Forces to improve their out-of-area operational capabilities as the nation adjusts its defense posture. The Republic of Korea has proven a steadfast ally supporting U.S. security efforts around the world; our commitment to the Republic of Korea is unwavering as North Korea remains a provocative threat to regional stability. We will retain operational control over combined forces on the Korean peninsula through 2015 and provide assistance to South Korea as it expands its security responsibilities. We will continue to work with Japan and South Korea to help improve security ties between them, enhance military cooperation, and preserve regional stability.

## ***US Forces in Korea***

The major force elements in Korea include the Eighth US Army, US Air Forces Korea (Seventh Air Force) and US Naval Forces Korea. At one point the US occupied some 85 active installations in the Republic of Korea, but it has cut its total military manning from about 44,200 personnel in 1990, and 36,300 personnel in 2000 to an agreed force level of 28,500: (Army: 19,755, Navy: 274, Air Force: 8,815, Marines: 24. Global Security and the IISS estimate that their equipment now includes some 140 M1A1 tanks, 170 Bradley armored vehicles, 30 155mm self-propelled howitzers, 30 MRLs as well as a wide range of surface-to-surface and surface-to-air missiles, e.g., Patriot, and 70 AH-64 helicopters.<sup>11</sup>

Global Security also estimates that US Air Forces Korea possessed approximately 100 aircraft: advanced fighters, e.g., 70 F-16s, 20 A-10 anti-tank attack planes, various types of intelligence-collecting and reconnaissance aircraft including U-2s, and the newest transport aircraft. This number does not seem to reflect recent force cuts, and the Japanese estimate of 60 US combat aircraft (40 modern F-16s) seems more correct, but US air strength could be rapidly reinforced by the Seventh [Fleet](#) and the Seventh Air Force Command.<sup>12</sup> Only limited manpower and equipment are allocated to US Naval Forces Korea, [US Marine](#) Forces Korea, and Special Operations Command Korea in peacetime. However, the US Pacific Command can rapidly provide rapid reinforcements.<sup>13</sup>

General Walter L. Sharp, Commander, UNC/CFC/USFK provided the following overview of the capabilities of North Korean, and US and South Korean forces, in a speech to the East Asia Institute on July 9, 2010 – as well as ongoing US force changes:

...2010 has proven to be a very fast paced year. I'd like to begin our discussion today by sharing with you three things which I think greatly influence and impact our efforts: First, the north Korean threat, second, the north Korean attack on the *Cheonan*, and third, our combined transformation efforts. 3

First, North Korea poses a serious asymmetric threat to peace and stability in Northeast Asia. While the responsible nations of the world are looking to reduce their weapons of mass destruction, North

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<sup>11</sup> "U.S. Forces Order of Battle," *Global Security*, Available at [www.globalsecurity.org/military/ops/korea-orbat.htm](http://www.globalsecurity.org/military/ops/korea-orbat.htm). "U.S. Forces Korea/Combined Forces Command Combined Ground Component Command (GCC)," *Global Security*, Available at <http://www.globalsecurity.org/military/agency/dod/usfk.htm>; "Briefing by Defense Secretary Gates and ROK Minister Lee," *America.gov*, October 17, 2008. Available at <http://www.america.gov/st/texttrans-english/2008/October/20081020121847eafas0.7119104.html>

<sup>12</sup> "U.S. Forces Order of Battle," *Global Security*, Available at [www.globalsecurity.org/military/ops/korea-orbat.htm](http://www.globalsecurity.org/military/ops/korea-orbat.htm)

<sup>13</sup> [www.globalsecurity.org/military/ops/korea-orbat.htm](http://www.globalsecurity.org/military/ops/korea-orbat.htm)

Korea is continuing its development of these weapons systems and their delivery vehicles. Clearly this is a dangerous situation, not just for the United States, not just for the Republic of Korea, but also for the entire region.

Another unconventional threat posed by North Korea is in the size and disposition of their special operations forces. Even in armistice, North Korea has displayed the willingness to use these forces. The threats of the North Korean forces have shown themselves in their attack on the *Cheonan*, and the assassination team targeting the senior most individual to have defected from North Korea. 4

North Korea also continues to build their conventional capabilities and threaten their use as a means to manipulate the world community. One of North Korea's largest capabilities, in terms of quantity and disposition, exists in the form of artillery and missile forces. This poses an asymmetric threat, one that holds at risk the capital of one of the world's most important economies right here in Seoul.

While North Korea remains a potent military threat, they do not have the ability to reunify the peninsula by force. However, as demonstrated by the attack on the *Cheonan* and the asymmetric aspects of the North Korean threat that I discussed earlier, this merely changes the nature of the threat and how we are prepared to deter and defeat it. Let me be clear, by no means does North Korea's inability to reunify the peninsula by force equate to an absence of a serious military threat. Rather, North Korea maintains a range of capabilities to engage in provocations. However these provocations and north Korea's irresponsible behavior in the international arena to include events such as the continued oppression of its own people, the seizure of ROK assets at the Mt. Kumgang Resort, the sinking of the *Cheonan*, and the development of nuclear capabilities have significantly eroded their ability to effectively use other means to exercise national power in the region.

With very few diplomatic, informational, and economic options available, North Korea is forced to rely almost exclusively on military instruments when it decides to engage in provocations and we must therefore be ever vigilant.

Sun Tzu once said, "Thus the highest form of generalship is to attack the enemy's strategy; the next best is to attack his alliances; the next, in order, is to attack the enemy's army in the field..." More so than ever before, North Korea knows that they cannot defeat our strong and well prepared armies, air forces, navies, and marines, so they are now attacking us in other ways.

...However, the ROK-US Alliance needs more from the entire international community and all countries in the region, in particular China, to work with us in responding to North Korean provocations. We strongly desire Chinese cooperation in addressing north Korea's aggressive behavior, and in particular would welcome Chinese action, even if behind the scenes, to assist in convincing north Korea that its path to security and prosperity lies in stopping its provocative behavior, better relations with its neighbors, and complete, irreversible denuclearization.

It is important that we be willing to have detailed discussions with the Chinese about interests related to the Korean peninsula. I believe it is safe to say that the U.S. and ROK are willing and eager to engage in discussions about each of our interests. We hope that China will do the same. The more we can talk and reach a common understanding about regional security challenges, the better we are able to maintain stability and prosperity in this region. America's five bilateral treaty alliances in Asia have long underpinned regional stability and prosperity. In Northeast Asia, our relationships with Korea and Japan serve as a foundation for American efforts to provide regional stability and prosperity. We look forward to the continued strengthening of these Alliances and the contributions that they make to the region.

I would now like to spend a little bit of time discussing where the ROK-U.S. Alliance is heading in the next few years. From what I mentioned earlier, it is clear that North Korea has increased their efforts to attack our Alliance and our strategic objectives. In addition, the security environment requires that we continue to prepare for any possible threats. To do this, we are continuing to strengthen the Alliance through our ongoing transformation initiatives. We will first demonstrate to the North Koreans that our Alliance and our collective Armed Forces remain strong and cannot be broken. Secondly, we will continue to modify our strategy to create adaptive, agile plans and combat forces

that can anticipate and defeat our enemy's provocations, deter aggression, and if deterrence fails, to fight and win.

The decision to delay the transition of wartime operational control until late 2015, as announced by President Lee and President Obama at last weekend's G-20 meeting in Toronto, Canada, demonstrates the strength and agility of this Alliance. Although the ROK and U.S. militaries were on track for OPCON transition in 2012, this adjustment will provide us with additional time to look at OPCON in a broader construct and to further synchronize the various Alliance initiatives and focus on meeting the established timelines for these initiatives. It also allows us to ensure each of the initiatives are mutually supportive and that they collectively support the Joint Vision Statement signed by President Lee and President Obama in 2009.

We will proceed very rapidly to develop a new OPCON Transition plan. This new plan, a plan for the Alliance of 2015, will help align all of our transformation initiatives we have worked on. It will truly be an overarching plan for the Alliance of 2015. Detailed discussion will start at this month's 2+2 talks here in Seoul and be approved at the autumn Security Consultative Meeting between the Secretary of Defense and the Minister of Defense.

The goal of all of our ROK and U.S. transformation efforts is to build adaptive capabilities to deter and defeat any future provocations and to fight and win on the peninsula if this deterrence fails. Transformation efforts consist of the preparation for the transfer of Wartime Operational Control; refining and improving our combined plans; the definition and development of new organizational structures and command and control relationships; the procurement, and integration of Republic of Korea capabilities to lead the warfight; more realistic training based on the north Korean threat of today and the future, as well as continued support for exercises and humanitarian assistance/disaster relief operations in the region; the consolidation of U.S. military units into two enduring hubs; and lastly, tour normalization for U.S. forces here in Korea.

Let me talk briefly about each of these elements, because these are the elements we will synchronize between now and 2015. To move to the Alliance of 2015, we will seek to better align in our planning efforts. We are taking the opportunity to review our plans and ensure they are realistic based upon the full scale of possible scenarios. This includes North Korean provocations, instability, or full-scale war on the peninsula. We will also ensure that our plans properly address the KORCOM to ROK JCS supporting to supported command and control structures. By doing so, we will ensure that we have the correct and most up-to-date plans in place to guarantee security and stability in the region.

Next, we will be continuing our transformation efforts in the areas of organizational structure and command and control. U.S. Forces Korea will become the United States Korea Command or U.S. KORCOM, providing the necessary manpower for our supporting relationship with the ROK Joint Chiefs of Staff. As a result of the OPCON transition, the KORCOM staff will be dual-hatted as Combined Forces Command, much the same way the U.S. Forces Korea staff is dual hatted in CFC

At the same time the United States is transforming our organizational structures, the ROK will also continue to strengthen and build on the "JCS centric operational execution system" which will ensure and reinforce its intelligence, operations planning and execution and joint battlefield management capabilities. The Republic of Korea JCS is developing the command and control systems capable of real time battlefield management and enhanced warning and target acquisition. In turn, the ROK Army is transforming its forces and creating a Ground Forces Operations Command. This command will be stood up a certified by 2015 before OPCON transition takes place.

In support of their planned defense reform, the ROK is already undergoing a process of procuring equipment, and training and organizing forces to lead the warfight. Until these capabilities exist, the United States will provide the agreed upon bridging and enduring capabilities. If OPCON transition had occurred in 2012, ROK forces would have had to rely on some U.S. bridging capabilities, but by adjusting OPCON transition to 2015, the Republic of Korea will have time to field many of the critical organic systems in their Defense Reform plan that will enable them to lead the warfight.

The new Alliance 2015 plan improves our overall readiness by allowing time for these key war-fighting headquarters to be established and the Republic of Korea to acquire critical Command and

Control systems and capabilities. The final hand off of wartime Operational Control will be smoother and the end result will be better command and control of Alliance forces. The Strategic Alliance plan for 2015 also gives us the ability to better synchronize and improve our exercises... more robust and realistic exercises that will be based on the North Korean threat of today and the future.

...The decision to adjust OPCON transition also allows us to synchronize the movement of U.S. forces on the peninsula. Currently, U.S. forces are undergoing two major infrastructure moves as part of this transformation. The major southward moves to U.S. Army Garrison-Humphreys will begin in 2012 and will accomplish several goals. First, the relocation allows the United States to give back land, including the Yongsan Garrison here in Seoul, back to the Republic of Korea. Second, it allows for a consolidation of U.S. forces into two hubs and will reduce the KORCOM footprint from 110 installations down to 48. The KORCOM headquarters will remain at in Seoul until after the OPCON transition is complete. These two milestones are synchronized with the rest of the strategic Alliance plan for 2015, and will greatly increase KORCOM's ability to command and control US forces and support Korean forces.

The U.S. is committed to ensuring all elements of the new Alliance plan are in place to facilitate its completion by late 2015. We are also reaffirming our commitment through the Tour Normalization program, which directly affects our ability to be able to fight across the full spectrum of conflict that I spoke about earlier. Since the beginning of the summer of 2008, the number of families in Korea has increased from 1,700 to over 4,200 with a goal of almost 5,000 families here by the summer of 2011. Moving forward, we will begin to assign families to Korea for three years, while unaccompanied and

...I am absolutely confident that our new bilateral plan to get us to 2015 – the strategic alliance of 2015 – will better synchronize our ongoing transformation efforts, it will reaffirm the U.S. commitment to the ROK and the region; ensure both nations are even better prepared to swiftly counter, deter, and defeat any north Korean provocations and aggression; and will ultimately result in a much stronger Alliance.

It is important to note that the US provided South Korea with immediate support after the sinking of the Cheonan on March 26, 2010, which South Korea and the US state was caused by a torpedo fired from a North Korean submarine. It did the same when North Korea fired dozens of rounds of artillery onto the densely populated South Korean island of Yeonpyeong near the countries' western border, and killed four people, on November 22, 2010. The US also held joint exercises with South Korea in May, July, and late November 2010 to show its support for South Korea in spite of pressure from China.

### ***US Forces in Japan and USPACOM***

A similar Japanese estimate of the US forces in in Japan shows these forces are much larger now than in South Korea. More importantly, Japan provides the US with critical basing and staging facilities for any serious Korean conflict.

However, US forces in Japan are only part of the resources the US could bring to bear assuming it relied on the total forces in its Pacific Command (USPACOM). A USPACOM estimate as of January 2011, summarized USPACOM force strength as follows:<sup>14</sup>

U.S. military and civilian personnel assigned to USPACOM number approximately 325,000, or about one-fifth of total U.S. military strength. U.S. Pacific Fleet includes five aircraft carrier strike groups, approximately 180 ships, 1,500 aircraft and 100,000 personnel. Marine Corps Forces, Pacific possesses

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<sup>14</sup> "USPACOM Facts: Headquarters U.S. Pacific Command," *USPACOM*, Available at <http://www.pacom.mil/web/Site/Pages/USPACOM/Facts.shtml>.

about two-thirds of U.S. Marine Corps combat strength, includes two Marine Expeditionary Forces and about 85,000 personnel assigned. U.S. Pacific Air Forces is comprised of approximately 40,000 airmen and more than 300 aircraft, with about 100 additional aircraft deployed to Guam. U.S. Army Pacific has more than 60,000 personnel assigned, including five Stryker brigades. Of note, component command personnel numbers include more than 1,200 Special Operations personnel. Department of Defense Civilians and Contractors in the Pacific Command AOR number about 40,000. Additionally, the U.S. Coast Guard, which frequently supports U.S. military forces in the region, has approximately 27,000 personnel in its Pacific Area.

It is important to note that while these force levels are impressive, they again represent a major cut in US forces and presence during a period in which both China and North Korea have made major increases in their conventional and WMD capabilities. There has been a steady downward trend in the total personnel, combat aircraft, and major combat ships from the end of the Cold War in 1990 onwards.

Admiral Willard, the US Commander of USPACOM summarized the US role in the Pacific as follows in the following portions of his annual testimony to the Senate Armed Service Committee on March 24, 2010:

Five of our nation's seven mutual defense treaties are with nations in the Asia-Pacific region. We continue to work closely with these regional treaty allies – Australia, Japan, Republic of Korea, Republic of the Philippines and Thailand – to strengthen and leverage our relationships to enhance security within the region.

... The U.S.–ROK alliance remains strong and critical to our regional strategy in Northeast Asia. General Sharp and I are aligned in our efforts to do what is right for the United States and the ROK as this alliance undergoes a major transformation. I will defer to General Sharp's testimony to provide the details of our relationship on the Peninsula, but note that General Sharp's progress in handling the transition of wartime Operational Control (OPCON) to the ROK military has been exceptional as has his leadership of U.S. Forces Korea.

The transformation of the U.S.–ROK alliance will ultimately assist the ROK to better meet security challenges both on and off the peninsula. The ROK currently maintains a warship in the Gulf of Aden in support of counter-piracy and maritime security operations, and has provided direct assistance to Operation Enduring Freedom, including demonstrating strong leadership in its decision to deploy a Provincial Reconstruction Team to Afghanistan this year. Of particular note is the evolving trilateral security cooperation between the U.S., ROK, and Japan. Although there are still policy issues to be addressed in realizing its full potential, the shared values, financial resources, logistical capability, and the planning ability to address complex contingencies throughout the region make this trilateral partnership a goal worth pursuing.

.... Our alliance with Japan is the cornerstone of our security strategy in Northeast Asia. Despite some recent challenges related to U.S. basing in Japan, the military relationship, as well as the overall alliance, remain strong...That being said, we must make every effort – particularly as we celebrate the 50th anniversary of the alliance – to remind the citizens of both the U.S. and Japan of the importance of our alliance to enduring regional security and prosperity.

U.S. Pacific Command remains committed to the implementation of the Defense Policy Review Initiative (DPRI). Initiated by the U.S. Secretaries of State and Defense with their Japanese counterparts in 2002, progress on Alliance Transformation and Realignment through the execution of the 2006 Roadmap for Realignment are critical next steps. Major elements of the Realignment Roadmap with Japan include: relocating a Marine Corps Air Station and a portion of a carrier air wing from urbanized to rural areas; co-locating U.S. and Japanese command and control capabilities; deploying U.S. missile defense capabilities

to Japan in conjunction with their own deployments; improving operational coordination between U.S. and Japanese forces; and adjusting the burdensharing arrangement through the relocation of ground forces.

The rebasing of 8,000 Marines and their dependents from Okinawa to Guam remains a key element of the Realignment Roadmap. Guam-based Marines, in addition to those Marine Forces that remain in Okinawa, will sustain the advantages of having forward-based ground forces in the Pacific Command AOR. Currently the Government of Japan (GOJ) is reviewing one of the realignment elements that addresses the Futenma Replacement Facility (FRF) and related movement of Marines Corps aviation assets in Okinawa; an action which is directly linked to the relocation of Marines to Guam and a plan to return significant land area to Japan. The GOJ has indicated it expects to complete its review by May of this year. The U.S. remains committed to the 2006 DPRI Roadmap as agreed to by both countries.

The Japan Self Defense Force is advancing its regional and global influence. In the spring and early summer of 2009, Japan deployed two JMSDF ships and two patrol aircraft to the Gulf of Aden region for counter-piracy operations. Although their Indian Ocean-based refueling mission recently ended, Japan remains engaged in the region by providing civil and financial support for reconstruction and humanitarian efforts in Afghanistan and Pakistan for the foreseeable future.

Although the Japanese defense budget has decreased each year since 2002, the Japan Self Defense Forces continue their regular bilateral interactions with the U.S., and in some multi-lateral engagements with the U.S. and our other allies, such as the Republic of Korea and Australia. Last year witnessed the completion of several successful milestones in our bilateral relationship, including the completion of a yearlong study of contingency command and control relationships and Ballistic Missile Defense (BMD) testing of a third Japan Maritime Self Defense Force Aegis destroyer. Japan continues to maintain over \$4 billion in annual Host Nation Support (HNS) to our Japan-based force. Japan HNS contribution remains a vital strategic pillar of respective U.S. and Japanese alliance commitments.

## Section 4: Special, Asymmetric, and Paramilitary Forces

North Korean and South Korea have long competed in creating effective special and paramilitary forces, and North Korea has developed a major capability for unconventional warfare in the border/DMZ area and to attack deep into South Korea. North Korea also has mixed attacks by covert and special forces with limited naval and artillery strikes, while using missile and nuclear tests to obtain asymmetric leverage.

There are many chronologies of this kind of low-level political-military conflict. The British newspaper, the *Guardian*, published the following summary on major incidents on November 23, 2010:<sup>15</sup>

- 27 July 1953: The Korean war ends in a truce is signed by a representative of the US-backed UN forces, and a representative of North Korea and allied Chinese forces. South Korea was not a signatory. There is no formal peace treaty, meaning the two countries remain technically at war. The Korean war cost 2 million lives.
- January 1968: North Korean commandos launch a failed assassination attempt on then president of South Korea, Park Chung-hee.
- 15 August 1974: Another assassination attempt on Park Chung-hee, by a North Korean agent in Seoul. Park survives, but his wife is killed.

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<sup>15</sup> “Timeline: North Korea – Key Events since the end of the Korean War,” *The Guardian*, November 23, 2010. Available at <http://www.guardian.co.uk/world/2010/nov/23/timeline-north-korea-south-korea?intcmp=239>

- 9 October 1983: North Korean agents strike at the area of a visit by South Korean president Chun Doo-hwan to Burma, killing more than 20 people including four South Korean cabinet ministers. The president escapes.
- 29 November 1987: North Korea blows up a South Korean civilian airliner, killing 115 people. The US decides to include the North on its list of countries that support terrorism.
- 1991: North and South Korea become members of the UN.
- September 1996: A North Korean submarine lands commandos on the South Korean coast.
- June 2000: North Korean leader Kim Jong-il and South Korean president Kim Dae-jung meet in Pyongyang.
- January 2002: The then US president, George Bush, makes his "axis of evil" speech, which includes North Korea and links it to Iran and Iraq.
- February 2005: North Korea claims to have built nuclear weapons.
- July 2006: North Korea test-fires medium- and long-range missiles.
- 9 October 2006: An international outcry North Korea's first nuclear test. The UN sets up a series of sanctions.
- November 2007: The prime ministers of the two Koreas meet for the first time in 15 years.
- March-May 2008: North Korea test-fires short-range missiles.
- July 2008: A North Korean soldier shoots and kills a South Korean tourist in the Mount Kumgang resort.
- April 2009: North Korea launches a long-range rocket capable of carrying a nuclear warhead. Criticism from the UN security council prompts Kim Jong-il to walk out of talks aimed at ending North Korea's nuclear program.
- May 2009: North Korea announces it has successfully conducted a second nuclear test, sparking an emergency meeting of the UN Security Council. It also withdraws from the 1953 armistice that ended the war between the two Koreas.
- November 2009: Shots are exchanged near the Yellow Sea border for the first time in seven years.
- January 2010: North Korea fires artillery near its disputed maritime border with South Korea. South Korea returns fire, but no one is injured.
- March 2010: The South Korean warship Cheonan sinks after an unexplained explosion; 46 sailors die. A later investigation suggests the boat was sunk by a torpedo launched from a North Korean submarine.
- September 2010 : Kim Jong-un, Kim Jong-il's youngest son, gains high-powered political and military posts, fuelling speculation that he will be his father's successor.
- October 2010: North and South Korea exchange shots across the border.
- November 2010: North Korea gives a US scientist a tour of a uranium plant, sparking alarm at the sophistication of its nuclear technology.
- 23 November 2010: The North fires rounds of artillery on to an inhabited South Korean border island. South Korea scrambles its fighter jets and returns fire, saying two of its marines have been killed.

James R. Clapper, the US Director of National Intelligence, provided an official American perspective on this aspect of the balance in his testimony to the U.S. Intelligence Community for the House Permanent Select Committee on Intelligence on February 10, 2011:

We assess that North Korea's artillery strike on Yeonpyeong Island on 23 November was meant in part to continue burnishing successor-designate Kim Jong Un's leadership and military credibility among regime elites, although other strategic goals were also factors in the attack. Kim Jong Il may feel the need to conduct further

provocations to achieve strategic goals and portray Jong Un as a strong, bold leader, especially if he judges elite loyalty and support are in question.

Kim Jong Il has advanced preparations for his third son to succeed him, by anointing him with senior party and military positions, promoting probable key supporting characters, and having the younger Kim make his first public appearances. These steps strengthened the prospects for the 27- year old Jong Un to develop as a credible successor, but the succession process is still subject to potential vulnerabilities, especially if Kim Jong Il dies before Jong Un consolidates his authority.

...the Korean People" s Army remains a large and formidable force capable of defending the North. Also, as demonstrated by North Korean attacks on the South Korean ship Cheonan in March 2010 and Yeongpyong Island in November. North Korea is capable of conducting military operations that could potentially threaten regional stability. These operations provide Pyongyang with what the regime may see as a means to attain political goals through coercion.

### ***Special and Asymmetric Forces***

There are large Special and Unconventional Forces on each side that would be supplemented by similar US forces, but no detailed estimate is available. They create a major "wild card" in assessing the region. Not only do they make it difficult to assess probable scenarios, but any limits on more conventional forces expands their relative capability, and it would be difficult – at best – to assess any meaningful arms control options affecting special forces..

The North and South Korean balances is also sharply affected by two unique aspects of North Korean forces .:

- A tunnel system that North Korea has built up to allow it to make rapid, surprise attacks and the bulk of its forces are concentrated near the DMZ.
- A massive artillery attack system that could deliver massive fire to both aid in an invasion and attack South Korea's capital at Seoul.

These capabilities are highly destabilizing and could lead to rapid escalation in war. They are also present major problems for arms control, unless they can be largely eliminated, since they give North Korea a major advantage in threatening and attacking South Korea that would be enhanced by general reduction in conventional forces.

### ***Paramilitary, Police, and Internal Security Forces***

Paramilitary, police, and internal security forces also play a role in the balance. Each country has large paramilitary forces. It is harder to estimate the size and role of internal security forces, although these can play a major role in securing year areas, and forcing soldiers to fight. The US State Department annual country reports on human rights do, however, provide a Western assessment of some aspects of such capabilities:

These assessments reflect a Western viewpoint, but it was not possible to find comparable assessments that reflect a North Korean view. Once again, it is also important to note that North Korea may see its choices as forced upon it by outside threats and pressures. At the same time, these differences between North and South Korea act as a warning that the internal security structures of each state reflect differences that reflects their ability and willingness to use force and to escalate.

## Section 5: Counterterrorism, Terrorism and Low-Level Asymmetric Warfare

From a military point of view, there is no clear line between terrorism and asymmetric warfare. It is also a historical fact that the side with the stronger regular military forces is either less likely to use such tactics, or conceal them in the form of state terrorism.

As is noted in the introduction, North Korea has repeatedly challenged South Korea using low level covert operations and asymmetric attacks and used them to put pressure on both Korea and the United States. North Korea has also deployed large amounts of its force structure for the same purpose, keeping South Korea under constant pressure. It has created a special balance in the border area by creating tunnel systems and deploying large amounts of artillery in caves and sheltered positions within range of South Korea's capital, Seoul.

US and South Korea feel that the historical record shows that there was nothing new about North Korea's use of limited or asymmetric attacks – some of which the US and South Korea label as terrorism -- in 2010. North Korea's willingness – and inventiveness – in using the threat and reality of such attacks was so consistent between 1950 and 2007, that it led the Congressional Research Service to prepare a 36 page chronology which covered 164 examples of armed invasion; border violations; infiltration of armed saboteurs and spies; hijacking; kidnaping; terrorism (including assassination and bombing); threats/intimidation against political leaders, media personnel, and institutions; incitement aimed at the overthrow of the South Korean government; actions undertaken to impede progress in major negotiations; and tests of ballistic missiles and nuclear weapons.<sup>16</sup>

The CRS report summarizes these trends as follows,

The most intense phase of the provocations was in the latter half of the 1960s, when North Korea (Democratic People's Republic of Korea, or DPRK) staged a series of limited armed actions against South Korean and U.S. security interests. Infiltration of armed agents into South Korea was the most frequently mentioned type of provocation, followed by kidnaping and terrorism (actual and threatened). From 1954 to 1992, North Korea is reported to have infiltrated a total of 3,693 armed agents into South Korea, with 1967 and 1968 accounting for 20% of the total. Instances of terrorism were far fewer in number, but they seemed to have had a continuing negative impact on relations between the two Koreas. Not counting North Korea's invasion of South Korea that triggered the Korean War (1950-1953), North Korea's major terrorist involvement includes attempted assassinations of President Park Chung Hee in 1968 and 1974; a 1983 attempt on President Chun Doo Hwan's life in a bombing incident in Rangoon, Burma (Myanmar); and a mid-air sabotage bombing of a South Korean Boeing 707 passenger plane in 1987. Reported provocations have continued intermittently in recent years, in the form of armed incursions, kidnappings, and occasional threats to turn the South Korean capital of Seoul into "a sea of fire" and to silence or tame South Korean critics of North Korea. Then, in July 2006, North Korea launched seven missiles into the Sea of Japan, and in October 2006, it tested a nuclear bomb.

The US State Department annual assessment of North Korea and South Korea's role in terrorism and counter terrorism provides a current assessment of each country's role in such activities, and of how they might affect the military balance, although these assessments again reflect a Western perspective:

Once again, it was not possible to find comparable assessments from a North Korean viewpoint. It is important to note, however, that North Korea may see the use of unconventional or

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<sup>16</sup> Hannah Fischer, *North Korean Provocative Actions, 1950 – 2007*, Congressional Research Service, RL30004, April 20, 2007.

asymmetric warfare as the only way it can safely exert military pressure on South Korea and the US, and force the pace of negotiation. In realpolitik, the difference between terrorism and asymmetric warfare is often a matter of perspective and semantics.

### ***Counterterrorism and Terrorism in North Korea (DPRK)***

The Democratic People's Republic of Korea (DPRK) was not known to have sponsored any terrorist acts since the bombing of a Korean Airlines flight in 1987. On October 11, 2008, the United States removed the designation of the DPRK as a state sponsor of terrorism in accordance with criteria set forth in U.S. law, including a certification that the government of the DPRK had not provided any support for international terrorism during the preceding six-month period and the provision by the DPRK of assurances that it will not support acts of international terrorism in the future.

In May, the United States re-certified North Korea as "not cooperating fully" with U.S. counterterrorism efforts under Section 40A of the Arms Export and Control Act, as amended. Pursuant to this certification, defense articles and services may not be sold or licensed for export to North Korea from October 1, 2009 to September 30, 2010. This certification will lapse unless it is renewed by the Secretary of State by May 15, 2010.

Four Japanese Red Army (JRA) members who participated in a jet hijacking in 1970 continued to live in the DPRK. On June 13, 2008, the government of Japan announced that the DPRK had agreed to cooperate in handing over the remaining members of the JRA involved in the hijacking. However, the DPRK has not yet fulfilled this commitment.

The Japanese government continued to seek a full accounting of the fate of 12 Japanese nationals believed to have been abducted by DPRK state entities in the 1970s and 1980s. The DPRK admitted to abducting eight of these individuals, but claimed that they have since died; the DPRK has denied having abducted the other four individuals. On August 12, 2008, Japan and the DPRK agreed on steps towards the eventual resolution to this issue. However, the DPRK has not yet fulfilled its commitment to reopen its investigations into the abductions. Since 2002, five other abductees have been repatriated to Japan.

### ***Counterterrorism and Terrorism in the Republic of Korea (ROK)***

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The Republic of Korea (South Korea) demonstrated excellent law enforcement and intelligence capabilities to combat terrorism. South Korean immigration and law enforcement agencies had a strong record of tracking suspicious individuals entering their territory and reacting quickly to thwart potential terrorist acts. Seoul also reviewed and strengthened its emergency response plan and, in accordance with UNSCR 1267 and 1373, further tightened its legislative framework and administrative procedures to combat terrorist financing. For example, the Prohibition of Financing for Offenses of Public Intimidation Act took effect in December 2008 and was intended to implement the UN Convention for the Suppression of the Financing of Terrorism, to which the South Korea has been a party since 2004. Under the Act, funds for public intimidation offenses are identified as "any funds or assets collected, provided, delivered, or kept for use in any of the following acts committed with the intention to intimidate the public or to interfere with the exercise of rights of a national, local, or foreign government." An amendment expanding the government's ability to confiscate funds related to terrorism was enacted in March, enabling the government to confiscate not only the direct proceeds of terrorism, but also funds and assets derived from those proceeds. In October, South Korea became a full member of FATF. The accession to FATF will allow Korea, an observer since 2006, to actively participate in the process of setting and revising global Anti-Money Laundering and

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<sup>17</sup> See Office of the Coordinator, US State Department, *Country Reports on Terrorism*, Chapter 2. Country Reports: East Asia and Pacific Overview, August 5, 2010, <http://www.state.gov/s/ct/rls/crt/2009/140884.htm>.

Counterterrorism Financing Terrorism (AML/CTF) standards and increase international cooperation.

South Korea supported U.S. counterterrorism goals in Afghanistan by announcing the establishment of a Provincial Reconstruction Team. In addition, South Korea worked closely with other foreign partners and played a constructive role in improving regional counterterrorism capabilities. South Korea continued to participate in the counterterrorism activities of the Asia-Pacific Economic Cooperation forum, the ASEAN Regional Forum, and the Asia-Europe Meeting. The Korea Overseas International Cooperation Agency hosted counterterrorism training and capacity-building programs for regional partners in forensic science, prevention of money laundering, and cyber security.

In March, the Counterterrorism Committee Executive Directorate of the United Nations visited South Korea to monitor its efforts to combat terrorism in accordance with UNSCR 1373. The team found that Korea had made good progress with respect to AML/CFT laws and mechanisms to criminalize terrorist financing and freeze funds and assets. In October, the Korea Institute for Defense Analyses hosted the ninth Biannual Symposium of the Council for Asian Terrorism Research, with the theme “Korean Peninsula WMD Threats: Regional and Global Implications.” In November, South Korea hosted the second APEC Cybersecurity Seminar on “Protection of Cyberspace from Terrorist Attacks and Use,” which brought 13 countries together to discuss recent cyber attacks and ways to deal with the challenges of cyber terrorism. In December, the Ambassador for International Counterterrorism Cooperation hosted the second round of South Korea-U.S. bilateral counterterrorism consultations, attended on the U.S. side by the Deputy Coordinator for Regional Affairs of the Office of the Coordinator for Counterterrorism. Korea also held bilateral counterterrorism meetings with Indonesia, Japan, France, and Germany during the year.

The South Korean government has recently been concerned over the growing number of South Korean citizens abroad who have been victims of terrorist attacks. In March, four South Korean tourists were killed and five were wounded in a suicide bombing in Yemen, for which al-Qa’ida later claimed responsibility. In June, another South Korean civilian working for a medical NGO in Yemen was kidnapped and killed. Although the Yemeni government did not find a conclusive connection to an established terrorist group in that incident, the South Korean government was put on alert and is now exploring various possibilities to prevent future attacks on its citizens.

## **Section 6: Korean Missile and WMD Forces**

North Korea’s nuclear programs, and efforts to acquire nuclear weapons and long-range missiles have been the source of concern and arms control efforts for more than a decade. These are very real concerns, but it is important to note that they are only part of this aspect of the balance of power. Weapons of mass destruction include chemical, biological, radiological, and nuclear (CBRN) weapons. The balance includes the CBRN weapons of outside actors like the United State and China. It is tied to delivery systems, and includes a growing capability to deploy new “weapons of mass effectiveness.”

### ***North Korean Nuclear Developments***

North Korea’s nuclear programs are having a major impact on the balance. Dennis C. Blair, then U.S. Director of National Intelligence summarized Western and South Korean perceptions of such North Korean activities as follows in the Annual Threat Assessment of the U.S. Intelligence Community that he provide to the US Senate Select Committee on Intelligence on February 2, 2010:

Pyongyang’s nuclear weapons and missile programs pose a serious threat to the security environment in East Asia. North Korea’s export of ballistic missiles and associated materials to several countries including Iran and Pakistan, and its assistance to Syria in the construction of a nuclear reactor, exposed in 2007, illustrate the reach of the North’s proliferation activities.

Despite the Six-Party October 3, 2007 Second Phase Actions agreement in which North Korea reaffirmed its commitment not to transfer nuclear materials, technology, or know-how we remain alert to the possibility North Korea could again export nuclear technology. The North's October 2006 nuclear test was consistent with our longstanding assessment that it had produced a nuclear device, although we judge the test itself to have been a partial failure based on its less-than-one-kiloton TNT equivalent yield. The North's probable nuclear test in May 2009 supports its claim that it has been seeking to develop weapons, and with a yield of roughly a few kilotons TNT equivalent, was apparently more successful than the 2006 test. We judge North Korea has tested two nuclear devices, and while we do not know whether the North has produced nuclear weapons, we assess it has the capability to do so. It remains our policy that we will not accept North Korea as a nuclear weapons state, and we assess that other countries in the region remain committed to the denuclearization of North Korea as has been reflected in the Six Party Talks.

After denying a highly enriched uranium program since 2003, North Korea announced in April 2009 that it was developing uranium enrichment capability to produce fuel for a planned light water reactor (such reactors use low enriched uranium); in September it claimed its enrichment research had "entered into the completion phase". The exact intent of these announcements is unclear, and they do not speak definitively to the technical status of the uranium enrichment program. The Intelligence Community continues to assess with high confidence North Korea has pursued a uranium enrichment capability in the past, which we assess was for weapons

...In addition to the TD-2 missile launch of April 2009 and the probable nuclear test of May 2009, Pyongyang's reprocessing of fuel rods removed from its reactor as part of the disablement process appears designed to enhance its nuclear deterrent and reset the terms of any return to the negotiating table. Moreover, Pyongyang knows that its pursuit of a uranium enrichment capability has returned that issue to the agenda for any nuclear negotiations. The North has long been aware of US suspicions of a highly enriched uranium program.

...We judge Kim Jong-Il seeks recognition of North Korea as a nuclear weapons power by the US and the international community. Pyongyang's intent in pursuing dialogue at this time is to take advantage of what it perceives as an enhanced negotiating position, having demonstrated its nuclear and missile capabilities.

James R. Clapper, Blair's replacement as DNI, updated this analysis in his testimony to the U.S. Intelligence Community for the House Permanent Select Committee on Intelligence on February 10, 2011:

Pyongyang's nuclear weapons and missile programs pose a serious threat to the security environment in East Asia, a region characterized by several great power rivalries and some of the world's largest economies. North Korea's export of ballistic missiles and associated materials to several countries, including Iran and Syria, and its assistance to Syria in the construction of a nuclear reactor, destroyed in 2007, illustrate the reach of the North's proliferation activities. Despite the October 2007 Six-Party agreement in which North Korea reaffirmed its commitment not to transfer nuclear materials, technology, or know-how, we remain alert to the possibility North Korea could again export nuclear technology.

We judge North Korea has tested two nuclear devices. The North's October 2006 nuclear test is consistent with our longstanding assessment that it had produced a nuclear device, although we judge the test itself to have been a partial failure. The North's probable nuclear test in May 2009 is consistent with our assessment that the North continued to develop nuclear weapons, and with a yield of roughly two kilotons TNT equivalent, was apparently more successful than the 2006 test. Although we judge North Korea has tested two nuclear devices, we do not know whether the North has produced nuclear weapons, but we assess it has the capability to do so.

In November 2010, North Korean officials told US visitors that North Korea is building its own light water reactor (LWR) for electricity production. The claimed prototype LWR has a planned power of 100 megawatt-thermal and a target completion date of 2012. North Korean officials also told the US visitors in November that it had constructed and started operating a uranium enrichment facility at Yongbyon that they claimed was designed to produce low-enriched uranium (LEU) and support fabrication of reactor fuel for the LWR. The US visitors were shown a facility at the existing fuel fabrication complex in Yongbyon, which North Korea

described as a uranium enrichment plant. North Korea further claimed the facility contained 2,000 centrifuges and was operating and producing LEU that would be used to fuel the small LWR. The North's disclosure supports the United States' longstanding assessment that the DPRK has pursued a uranium-enrichment capability.

We judge it is not possible the DPRK could have constructed the Yongbyon enrichment facility and begun its operation, as North Korean officials claim, in such a short period of time—less than 20 months—without having previously conducted extensive research, development, testing, fabrication, and assembly or without receiving outside assistance.

Based on the scale of the facility and the progress the DPRK has made in construction, it is likely that North Korea has been pursuing enrichment for an extended period of time. If so, there is clear prospect that DPRK has built other uranium enrichment related facilities in its territory, including likely R&D and centrifuge fabrication facilities, and other enrichment facilities. Analysts differ on the likelihood that other production-scale facilities may exist elsewhere in North Korea.

Following the Taepo Dong 1 launch in 1998, North Korea conducted launches of the Taepo Dong 2 (TD-2) in 2006 and more recently in April 2009. Despite the most recent launch's failure in its stated mission of orbiting a small communications satellite, it successfully tested many technologies associated with an ICBM. Although both TD-2 launches ended in failure, the 2009 flight demonstrated a more complete performance than the July 2006 launch. North Korea's progress in developing the TD-2 shows its determination to achieve long-range ballistic missile and space launch capabilities. If configured as an ICBM, the TD-2 could reach at least portions of the United States; the TD-2 or associated technologies also could be exported.

Because of deficiencies in their conventional military forces, the North's leaders are focused on deterrence and defense. The Intelligence Community assesses Pyongyang views its nuclear capabilities as intended for deterrence, international prestige, and coercive diplomacy. We judge that North Korea would consider using nuclear weapons only under certain narrow circumstances. We also assess, albeit with low confidence, Pyongyang probably would not attempt to use nuclear weapons against US forces or territory unless it perceived its regime to be on the verge of military defeat and risked an irretrievable loss of control.

... The North has signaled it wants to return to a nuclear dialogue. The North probably wants to resume nuclear discussions to mitigate international sanctions, regain international economic aid, bolster its ties with China, restart bilateral negotiations with South Korea and the United States, and try to gain tacit international acceptance for its status as a nuclear weapons power.

Since 2009, Pyongyang has made a series of announcements about producing enriched uranium fuel for an indigenous light water reactor that it is building at its Yongbyon nuclear complex. In mid- November, 2010, the North showed an unofficial US delegation what it claims is an operating uranium enrichment facility located in the Yongbyon rod core production building.

### ***Key Nuclear Weapons Developments***

North Korea has conducted two low yield nuclear tests – one on October 9, 2006 with a yield of less than one kiloton, and one on May 25, 2009, with a yield of a few kilotons. North Korea has effectively ended its past agreements to limit the production of nuclear materials and its missile tests. While unclassified estimates are to some extent sophisticated guesswork, North Korea may have obtained enough plutonium from its power reactors to have 4-13 nuclear weapons – even allowing for the material used in its two tests.

Moreover, Siegfried Heckler – a former director of the Los Alamos National Laboratory – reported on a visit to Yongbyon that he saw a small, sophisticated facility with some 2,000

centrifuges that were “P-2” advanced designs.<sup>18</sup> These reports were followed by press reports that the IAEA suspected Korea had at least one additional covert centrifuge site, and might have significant nuclear of additional sites.<sup>19</sup> These reports mean that North Korea may have significant stocks of enriched uranium, as well as plutonium. At a minimum, this means North Korea’s future production of weapons grade material is impossible to predict, and that both targeting and arms control are far more difficult because of the inability to predict how many centrifuge facilities North Korea may have.

In addition, respected sources like Institute for Science and International Security (ISIS) have indicated that North Korea may be sharing at least some aspects of its nuclear weapons technology with Iran and Syria.<sup>20</sup> Mike Green of the CSIS also notes, “the danger of horizontal escalation by the DPRK –namely, transferring weapons to third parties in the event of tensions or conflict. The DPRK directly threatened us with this in March 2003.”<sup>21</sup>

These developments do not make efforts to roll back North Korea’s nuclear weapons programs impossible, but the track record of such efforts has not been reassuring.

### ***North Korean Missile Programs***

North Korea’s long-range missile programs are also having a major impact on the military balance. An extract from the Japanese defense white paper for 2010 provides both an overview of North Korean long-range missile efforts and an indication of how Japanese views compare to the US views quoted earlier:

Details about the current status of North Korea’s nuclear weapons program still remain largely unclear, partly because North Korea remains an extremely closed regime. In light of the series of North Korean announcements and actions as well as the fact that the status of North Korea’s nuclear development so far is not yet elucidated, the possibility that North Korea has already made considerable progress in its nuclear weapons program cannot be dismissed. In addition, the fact that North Korea announced in May 2009 that it had conducted a nuclear test following the one in 2006 suggests that there is a high possibility that North Korea has further advanced its nuclear weapons program. When taken together with North Korea’s enhancement of its ballistic missile capability, which could serve as a means of delivering WMD, nuclear tests by North Korea are totally unacceptable as they are a significant threat to Japan’s security and seriously undermine the peace and security of Northeast Asia and the international community.

In general, miniaturizing a nuclear weapon enough to be loaded on a ballistic missile requires an extremely high degree of technological capacity. However, considering the fact that the United States, the Soviet Union, the United Kingdom, France, and China succeeded in acquiring such technology by as early as the 1960s, it is difficult to eliminate the possibility that North Korea, in a relatively short time, will achieve miniaturization of nuclear weapons and acquire nuclear warheads. It is necessary to remain watchful of all related developments.

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<sup>18</sup> See Seigfried Heckler, “A Return Trip to North Korea’s Yongbyon Nuclear Complex, November 20, 2010, <http://iis-db.stanford.edu/pubs/23035/Yongbyonreport.pdf>; David Albright and Paul Brannan, “Satellite Image Shows Building Centrifuges in North Korea,” ISIS, November 21, 2010, and “Taking Stock: North Korea’s Uranium Enrichment Program, October 8, 2010,” Jonathan Medalia, “North Korea’s 2009 Nuclear Test: Containment, Monitoring, Implications,” Congressional Research Service, R41160, November 24, 210; Kwang Ho Chun, North Korea’s Nuclear Question: Sense of Vulnerability, Defensive Motivation, and Peaceful Solution,” Strategic Studies Institute, US Army War College, December 2010.

<sup>19</sup> Chico Harlan, “UN report suggests N. Korea has secret nuclear sites,” *Washington Post*, February 1, 2011, p. A7.

<sup>20</sup> See <http://isis-online.org/isis-reports/imagery/category/korean-peninsula/> and other material in the Korea section (<http://isis-online.org/countries/category/korean-peninsula/>) of the ISIS web page. Additional material can be found in the Global Security, Federation of American Scientists, and Nuclear Threat Initiative web pages.

<sup>21</sup> Email from Mike Green, February 07, 2011 3:57 PM

## **(2) Biological and Chemical Weapons**

Because North Korea is an extremely closed regime and most materials, equipment, and technology used for manufacturing biological and chemical weapons are for both military and civilian use, facilitating camouflage, details of North Korea's biological and chemical weapons development and arsenals are not clear. However, it is believed that North Korea has a certain level of production base for biological weapons although it ratified the Biological Weapons Convention in 1987. As for chemical weapons, North Korea has not acceded to the Chemical Weapons Convention (CWC) and it is estimated that North Korea has several facilities capable of producing chemical agents and has a substantial amount of stock of such agents.

## **(3) Ballistic Missiles**

North Korea is an extremely closed regime, and details of its ballistic missiles are unknown. It appears however, that North Korea gives high priority to the development of ballistic missiles out of political and diplomatic considerations and from the viewpoint of earning foreign currency, in addition to enhancing its military capabilities.

### **b. Nodong**

North Korea is also thought to have started its development of longer-range ballistic missiles by the 1990s, including Nodong. It appears that Nodong, the deployment of which is believed to be ongoing, is a liquid fuel propellant single-stage ballistic missile. It is assessed to have a range of about 1,300km, and may reach almost all parts of Japan.

It is highly probable that Nodong was used in the launch into the Sea of Japan in 1993. A total of six ballistic missiles fired from the Kittaeryong district in the southeastern part of North Korea in July 2006 are believed to be Scud and Nodong. In July 2009, North Korea is believed to have launched a total of seven ballistic missiles from the same district, and it is possible that they were either Scud or Nodong.

Though details about Nodong's capability have not been confirmed, as the ballistic missile is believed to be based on the Scud technology, it seems that it does not have the accuracy to carry out strikes on specific target installations.

Due to the fact that it is extremely difficult to verify the intentions of North Korea's military activities because of its closed regime, that it is believed that underground military facilities have been constructed across the country, and that Nodong, as is the case with Scud, is thought to be loaded onto a transporter-erector-launcher (TEL) and operated with mobility, it is thought to be difficult to detect individual and concrete signs of a Nodong launch in advance, such as its specific launch site and timing.

### **c. Taepodong-1**

North Korea has also been developing Taepodong-1, which has an estimated range of at least approximately 1,500km. Taepodong-1 is assumed to be a two-stage, liquid fuel propellant ballistic missile with a Nodong used as its first stage and a Scud used as its second stage. The ballistic missile launched in 1998 is assessed to be based on Taepodong-1. North Korea is believed to have shifted its focus to the development of Taepodong-2, which has longer range, and the Taepodong-1 may have been a transitory product for the development of Taepodong-2.

### **d. Taepodong-2**

Taepodong-2 is believed to be a two-stage missile with a new booster as its first stage and a Nodong as its second stage, with a range of approximately 6,000km. A Taepodong-2 is believed to have been launched from the Taepodong district located in the northeastern coastal area in July 2006, and was damaged during the flight at an altitude of several kilometers, several tens of seconds after the launch without separating the first stage, and have fallen near the launch site. In the launch of April 2009, it is thought that North Korea used a Taepodong-2 or a variant of it from the same district again. Since it is estimated that the missile crossed over Japan, and flew more than 3,000km before falling into the Pacific Ocean, it is believed that North Korea had been able to extend the range of its ballistic missiles since its failed launch of Taepodong-2 in 2006. Through the April 2009 launch, it is believed that North Korea may have tested the required technologies, such as increasing the size of propulsion, separation of the multi-staged propulsion devices, and attitude control. Thus, it is highly possible that North Korea will advance the development of ballistic

missiles, including longer-range missiles. Moreover, a test launch of a long-range ballistic missile would contribute to extending the range of the other shorter-range missiles, increasing the warhead weight and improving the circular error probability (CEP). The April 2009 launch may lead to the improvement of the performance of Nodong and other ballistic missiles possessed by North Korea. (See Fig. I-2-2-2/3)

At present, North Korea appears to be developing not only ballistic missiles, but also an intermediate-range ballistic missile and a solid fuel propellant short-range missile. It is also necessary to pay attention to the possibility of North Korea's efforts to improve existing ballistic missiles such as Scud and Nodong, including an attempt to extend their ranges.

As the background of North Korea's rapid strides in the development of its ballistic missiles with only a few test launches, it is assumed that the country imported various materials and technologies from outside. It is pointed out that North Korea transfers and proliferates ballistic missiles or related technologies including the transfer of Nodong airframes and related technologies to Iran and Pakistan, and that North Korea promotes further development of missiles using funds procured by such transfer and proliferation.

In light of this, it is necessary to remain alert to North Korea's ballistic missiles, particularly in terms of transfer and proliferation, in addition to their development and deployment.

It is interesting to note that there are as many uncertainties in predicting the nature of North Korea's missile programs as there are in predicting its nuclear program. North Korea's ambitious missile programs are still largely in development and their capabilities are impossible to predict until the nature of a nuclear warhead is known, and there have been enough tests of North Korea's longer range missiles to provide a clear picture of their performance.

Some estimates indicate that North Korea's SRBMs include some 600-800 regular and extended-range Scud missiles, and one source indicates it could have deployed up to 100 much longer range missiles. According to that source, North Korea may deploy its missiles in two belts, in 22-28 bases with 12-15 in the rear area. The first is 50-90 kilometers north of the DMZ, and the second 90-120 kilometer north. A third belt may exist more than 175 kilometers from the border.<sup>22</sup>

North Korea's longer-range No Dong MRBM missile (700-1,500 kg warhead and 1,000-1,500 km range) is still developmental and requires large numbers of additional, full range, tests to become a mature program. The Japanese Defense White Paper just cited shows that that Japan believes tests are limited to a possible launch into the Japan Sea in late May 1993, a mix of Scud and No Dong launches on July 5, 2006, and a mix of launches that might have involved some No Dongs from the Kittareryong district of North Korea on July 4, 2009.<sup>23</sup> No unclassified source, however, provides a clear picture of exactly what happened during these tests or how far North Korea has progressed in bringing the system to the final development stage.

Some experts feel North Korea's larger Taepodong 1 MRBM missile (1,000-1,500 kg warhead and 1,500-2,500 km range) has never been launched, except as an SLV. The Japanese Defense White Paper for 2010 reports one successful launch occurred on August 31, 1998. Similarly some experts believe the Taepodong 2 ICBM missile (500-1,500 kg warhead and 4,500-8,000 km range) has also never been launched, and it is not clear whether its missile engines have been used as an SLV. However, the Japanese Defense White Paper for 2010 reports one failed launch

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<sup>22</sup> Joseph S. Bermudez, "Going Ballistic – North Korea's advanced missile capabilities," *Jane's Intelligence Review*, 2009.

<sup>23</sup> See Joseph S. Bermudez, "Going Ballistic – North Korea's advanced missile capabilities," *Jane's Intelligence Review*, 2009;" Daniel A. Pinkston, *The North Korean Ballistic Missile Program*, Strategic Studies Institute, US Army War College, February, 2008; and Japanese Ministry of Defense, *2010 Defense White Paper*, English translation, pp. 43-35.

occurred in July 1996, and a second launch on April 5, 2009 where North Korea fired a missile that may have been a Tapeodong 2 into the sea at a range over 3,000 kilometers.<sup>24</sup>

The Japanese paper does not mention the Musudan IRBM (650-1,000 kg warhead and 2,500-3,200 km range) that other experts feel is a North Korean copy or modification of the Russian R-27/BM-25 series. The Musudan may have been launched at very short ranges for test purposes, but is not operational. These uncertainties also make it impossible to estimate any of these missiles' reliability and accuracy, and whether North Korea has anything approaching some form of terminal guidance technology.<sup>25</sup>

### ***Understanding North and South Korean Capabilities in More Detail***

There is no quantifiable balance of North and South Korean capabilities in these areas to draw upon, aside from some basic data on the missile strength of each country – and these figures are uncertain and in a constant process of change.

It is, however, critical that anyone attempting to understand the Korean balance have a clear idea of the broad trends in the CBRN and missile force of each side. There are a number of NGOs that provide useful insights into these developments, but the most comprehensive and comparable analysis seems to come from the work of the Nuclear Threat Initiative (NTI) laid out in detail in the main report.<sup>26</sup> Some aspects of the following material are dated, but this is inevitable, given the uncertainties and debates over these forces and the constant changes and evolution in the capabilities of North and South Korea.

## **Section 7: The Broader Balance of WMD, Missile, and Strategic Forces**

There is no way to assess the exact probability that the US or China would use nuclear weapons in a Korean conflict, but they obviously have a major deterrent impact. The US and China are major nuclear powers, with boosted and thermonuclear weapons. While neither is likely to use nuclear weapons, they have that capability, and – at a minimum – their possession of nuclear weapons plays a major role in the balance of deterrence and in shaping the risks of asymmetric escalation.

China is also in the process of a major modernization of its nuclear-armed missile forces and is developing a “stealth” strike aircraft – the J-20. It is also now MIRV'ing its nuclear systems. China rarely describes its nuclear forces in detail, but its 2008 defense white paper notes that,<sup>27</sup>

“The Second Artillery Force is a strategic force under the direct command and control of the CMC, and the core force of China for strategic deterrence. It is mainly responsible for deterring other countries from using

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<sup>24</sup> See Joseph S. Bermudez, “Going Ballistic – North Korea’s advanced missile capabilities,” *Jane’s Intelligence Review*, 2009;” Daniel A. Pinkston, *The North Korean Ballistic Missile Program*, Strategic Studies Institute, US Army War College, February, 2008; and Japanese Ministry of Defense, *2010 Defense White Paper*, English translation, pp. 43-35.

<sup>25</sup> See Joseph S. Bermudez, “Going Ballistic – North Korea’s advanced missile capabilities,” *Jane’s Intelligence Review*, 2009;” Daniel A. Pinkston, *The North Korean Ballistic Missile Program*, Strategic Studies Institute, US Army War College, February, 2008,

<sup>26</sup> For full details on the NTI, see its home web page at <http://www.nti.org/index.php>.

<sup>27</sup> [http://www.china.org.cn/government/central\\_government/2009-01/20/content\\_17155577\\_9.htm](http://www.china.org.cn/government/central_government/2009-01/20/content_17155577_9.htm)

nuclear weapons against China, and for conducting nuclear counterattacks and precision strikes with conventional missiles.

The Second Artillery Force sticks to China's policy of no first use of nuclear weapons, implements a self-defensive nuclear strategy, strictly follows the orders of the CMC, and takes it as its fundamental mission the protection of China from any nuclear attack. In peacetime the nuclear missile weapons of the Second Artillery Force are not aimed at any country. But if China comes under a nuclear threat, the nuclear missile force of the Second Artillery Force will go into a state of alert, and get ready for a nuclear counterattack to deter the enemy from using nuclear weapons against China. If China comes under a nuclear attack, the nuclear missile force of the Second Artillery Force will use nuclear missiles to launch a resolute counterattack against the enemy either independently or together with the nuclear forces of other services. The conventional missile force of the Second Artillery Force is charged mainly with the task of conducting medium- and long-range precision strikes against key strategic and operational targets of the enemy.

China holds that all nuclear-weapon states should make an unequivocal commitment to the thorough destruction of nuclear weapons, undertake to stop research into and development of new types of nuclear weapons, and reduce the role of nuclear weapons in their national security policy. The two countries possessing the largest nuclear arsenals bear special and primary responsibility for nuclear disarmament. They should earnestly comply with the relevant agreements already concluded, and further drastically reduce their nuclear arsenals in a verifiable and irreversible manner, so as to create the necessary conditions for the participation of other nuclear-weapon states in the process of nuclear disarmament.

“China supports the early entry into force of the Comprehensive Nuclear Test-Ban Treaty, and will continue to honor its moratorium commitment on nuclear testing. China supports the preparatory work for the entry into force of the Treaty by the Preparatory Commission of the Comprehensive Nuclear Test-Ban Treaty Organization, and has contributed to the establishment of the International Monitoring System (IMS).

:China has always stayed true to its commitments that it will not be the first to use nuclear weapons at any time and in any circumstances, and will unconditionally not use or threaten to use nuclear weapons against non-nuclear-weapon states or in nuclear-weapon-free zones. China calls upon other nuclear-weapon states to make the same commitments and conclude an international legal instrument in this regard. China has already signed all relevant protocols which have been opened for signature of various nuclear-weapon-free zone treaties, and has reached agreement with the ASEAN on relevant issues of the Protocol of the Treaty on the Southeast Asia Nuclear-Weapon-Free Zone. China welcomes the Treaty on a Nuclear-Weapon-Free Zone in Central Asia signed by the five Central Asian countries.

As might be expected, the US has a different perspective. The US national military strategy calls for engagement. The US national military strategy for 2011 does not even mention China's role in the Korean balance and Northeast Asia and describes the US strategy for China as follows:<sup>28</sup>

...Our Nation seeks a positive, cooperative, and comprehensive relationship with China that welcomes it to take on a responsible leadership role. To support this, the Joint Force seeks a deeper military-to-military relationship with China to expand areas of mutual interest and benefit, improve understanding, reduce misperception, and prevent miscalculation. We will promote common interests through China's cooperation in countering piracy and proliferation of WMD, and using its influence with North Korea to preserve stability on the Korean peninsula.

We will continue to monitor carefully China's military developments and the implications those

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<sup>28</sup> Source: Admiral M. G. Mullen, *The National Military Strategy of the United States of America, 2011*, Chairman of the Joint Chiefs of Staff, February 8, 2011, pp. 13-14, <http://www.defense.gov/pubs/>.

developments have on the military balance in the Taiwan Strait. We remain concerned about the extent and strategic intent of China's military modernization, and its assertiveness in space, cyberspace, in the Yellow Sea, East China Sea, and South China Sea. To safeguard U.S. and partner nation interests, we will be prepared to demonstrate the will and commit the resources needed to oppose any nation's actions that jeopardize access to and use of the global commons and cyberspace, or that threaten the security of our allies.

At the same time, the US assessment of China's military capabilities focuses on China's growing nuclear and missile forces, and increasing capability to target the US and Japan, in ways that directly affect the Korean balance and the potential risk of US and Japanese involvement in a Korean crisis or conflict. The Department of Defense report on *Military and Security Developments Affecting the People's Republic of China* for 2010 states that,<sup>29</sup>

China has the most active land-based ballistic and cruise missile program in the world. It is developing and testing several new classes and variants of offensive missiles, forming additional missile units, qualitatively upgrading certain missile systems, and developing methods to counter ballistic missile defenses.

The PLA is acquiring large numbers of highly accurate cruise missiles, such as the domestically-produced ground-launched DH-10 land-attack cruise missile (LACM); the domestically produced ground- and ship-launched YJ-62 anti-ship cruise missile (ASCM), which is outfitted on the domestically produced LUYANG II-class guided-missile destroyer (DDGs); the Russian SS-N-22/SUNBURN supersonic ASCM, which is outfitted on China's SOVREMENNY class DDGs acquired from Russia; and, the Russian SS-N-27B/SIZZLER supersonic ASCM, which is outfitted on China's Russian-built, KILO-class diesel electric submarines.

By December 2009, the PLA had deployed between 1,050 and 1,150 CSS-6 and CSS-7 short-range ballistic missiles (SRBM) to units opposite Taiwan. It is upgrading the lethality of this force, including by introducing variants of these missiles with improved ranges, accuracies, and payloads.

China is developing an anti-ship ballistic missile (ASBM) based on a variant of the CSS-5 medium-range ballistic missile (MRBM). The missile has a range in excess of 1,500 km, is armed with a maneuverable warhead, and when integrated with appropriate command and control systems, is intended to provide the PLA the capability to attack ships, including aircraft carriers, in the western Pacific Ocean.

China is modernizing its nuclear forces by adding more survivable delivery systems. For example, in recent years the road mobile, solid propellant DF-31 and DF-31A intercontinental range ballistic missiles (ICBM) have entered service. The DF-31A, with a range in excess of 11,200 km, can reach most locations within the continental United States (CONUS). China may also be developing a new road-mobile ICBM, possibly capable of carrying a multiple independently targeted re-entry vehicles (MIRV).

... China is both qualitatively and quantitatively improving its strategic missile forces. China's nuclear arsenal currently consists of approximately 20 silo-based, liquid-fueled CSS-4 ICBMs; approximately 30 solid-fueled, road-mobile DF-31 and DF-31A ICBMs; approximately 20 liquid-fueled, limited-range CSS-3 ICBMs; between 15 to 20 liquid-fueled CSS-2 intermediate-range ballistic missiles; CSS-5 road-mobile, solid-fueled MRBMs (for regional deterrence missions); and JL-1 submarine-launched ballistic missiles (SLBM) for the XIA-class SSBN, although the operational status of the XIA-class SSBN/JL-1 combination remains questionable.

... "By 2015, China's nuclear forces will include additional DF-31 and DF-31As, and enhanced CSS-4s, CSS-3s, and CSS-5s. The first of the new JIN-class (Type 094) SSBN appears ready, but the associated JL-2 SLBM appears to have encountered difficulty, failing several of what should have been the final round of flight tests. The date when the JIN-class SSBN/JL-2 SLBM combination will be operational is uncertain.

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<sup>29</sup> Office of the Secretary of Defense, Annual Report to Congress, *Military and Security Developments Involving the People's Republic of China 2010*, August 2010, <http://www.defense.gov/pubs/>

China is also currently working on a range of technologies to attempt to counter U.S. and other militaries' ballistic missile defense systems, including maneuvering re-entry vehicles, MIRVs, decoys, chaff, jamming, thermal shielding, and anti-satellite (ASAT) weapons. PRC official media also cites numerous Second Artillery Corps training exercises featuring maneuver, camouflage, and launch operations under simulated combat conditions, which are intended to increase survivability. Together with the increased mobility and survivability of the new generation of missiles, these technologies and training enhancements strengthen China's nuclear deterrent and enhance its strategic strike capabilities.

"The introduction of more mobile systems will create new command and control challenges for China's leadership, which now confronts a different set of variables related to deployment and release authorities. For example, the PLA has only a limited capacity to communicate with submarines at sea, and the PLA Navy has no experience in managing a SSBN fleet that performs strategic patrols with live nuclear warheads mated to missiles. Land-based mobile missiles may face similar command and control challenges in wartime, although probably not as extreme as with submarines.

"Beijing's official policy towards nuclear deterrence continues to focus on maintaining a nuclear force structure able to survive enemy attack and respond with sufficient strength to inflict unacceptable damage on the enemy. The new generation of mobile missiles, maneuvering and MIRV warheads, and penetration aids are intended to ensure the viability of China's strategic deterrent in the face of continued advances in U.S. and, to a lesser extent, Russian strategic intelligence, surveillance, and reconnaissance; precision strike; and missile defense capabilities."

Beijing has consistently asserted that it adheres to a "no first use" (NFU) policy, stating it would use nuclear forces only in response to a nuclear strike against China. China's NFU pledge consists of two parts—China will never use nuclear weapons first against any nuclear-weapon state and China will never use or threaten to use nuclear weapons against any non-nuclear-weapon state or nuclear-weapon-free zone. However, there is some ambiguity over the conditions under which China's NFU policy would or would not apply, including for example, whether strikes on what China considers its own territory, demonstration strikes, or high altitude bursts would constitute a first use. Moreover, some PLA officers have written publicly of the need to spell out conditions under which China might need to use nuclear weapons—for example, if an enemy's conventional attack threatened the survival of China's nuclear force, or of the regime itself. However, there has been no indication that national leaders are willing to attach such nuances and caveats to China's "no first use" doctrine.

As has been discussed earlier, however, strategic nuclear weapons and missile programs are only part of a far wider range of important issues in assessing the Korean balance:

- The US and China are major nuclear powers, with boosted and thermonuclear weapons. While neither is likely to use nuclear weapons, they have that capability, and – at a minimum – it plays a major role in the balance of deterrence and in shaping the risks of asymmetric escalation.
- North Korea has implosion fission weapons. Its numbers, weapons yields, and ability to create reliable bombs and missile warheads is uncertain, but it seems likely it either has them or is rapidly moving towards acquiring them. It almost certainly has programs to develop boosted and thermonuclear weapons, but there status is unknown.
- South Korea had a covert nuclear weapons program that it halted after quiet negotiations with the US. This gives South Korea it a significant nuclear breakout capability if it should reverse its decisions.
- Japan is unlikely to have nuclear weapons programs, but has all of the technology and material necessary to rapidly acquire them and develop boosted and thermonuclear weapons.
- The US and China have nuclear-armed aircraft and ICBMs, IRBMs, MRBMs, and SRBMs with boosted and thermonuclear weapons. North Korea may have long-range tactical and theater missiles with implosion nuclear weapons.

- North Korea is a major chemical weapons state, and probably has advanced chemical warheads and bombs. China may have stocks of chemical weapons. There is no way to estimate the size, type, and lethality/effectiveness of their relative stockpiles, or doctrine and plans for using them. It should be noted, however, that relatively crude mustard gas weapons played a decisive role in area denial and disruption of Iranian forces in the final phase of the Iran-Iraq War in 1988, and that stocks of persistent nerve gas and so-called 4<sup>th</sup> generation chemical weapons are possible. South Korea is suspected to have a chemical weapons program, and may have covert stocks of chemical weapons.
- North Korea is strongly suspected to have a biological weapons program and may have stocks of such weapons. These could range from basic weapons types to genetically modified types. China's program is not discussed in unclassified official statements. South Korea may have a program. It should be noted that China, Japan, North Korea, South Korea, and the US all have advanced civil biological, food processing, chemical processing, and pharmaceutical facilities that can be adapted to both chemical and biological weapons development and production. All have significant capability for genetic engineering of biological weapons. All would have to develop advanced biological weapons for test purposes to conduct an effective biological defense program.
- No public details are available on the efforts of any power to develop small or specialized chemical, biological, radiological, or nuclear weapons for covert delivery or potential transfer to non-state actors and third countries.
- China and North Korea have large numbers of conventionally armed long-range missiles capable of hitting targets in South Korea. The nature of their conventional warheads is not clear, and this is critical since unity conventional warheads have limited lethality, and terminal guidance is needed to provide the accuracy necessary to strike at high value, rather than broad area targets. China and North Korea may have, and are certainly developing, ballistic and cruise missiles with some form of terminal guidance.
- The US has large numbers of precision-guided long range cruise missiles for air and sea launch, and precision-guided long-range multiple rocket launchers. US stealth aircraft can deliver precision guided weapons at stand-off ranges from most Chinese and North Korean surface-to-air missiles with the exception of the S300/S400 series. China is developing long-range anti-ship ballistic missiles that can strike large surface ships like US carriers at long distances. These potentially are "weapons of mass effectiveness" that can launch devastating strikes against critical facilities and infrastructure without the use of WMD warheads.
- The US, Japan, and South Korea have some ballistic missile defense capability and are working together to develop wide area theater ballistic missile defense systems. China has the Russian S300/S400 series of advanced surface-to-air missile defenses, and is almost certainly seeking more advanced missile defense capabilities. North Korea lacks such capabilities, but is almost certainly seeking them. The balance of air and missile defense capabilities plays a critical role in limiting the offensive capabilities of the opposite side and reducing the risk in using one's own missiles. This makes air and missile defenses the equivalent of a major offensive weapon.
- China, the US, South Korea, and possibly North Korea, all have advanced cyberwarfare capabilities. China has some anti-satellite capability, and possibly some form of EMP weapon. These too are potential "weapons of mass effectiveness" that can launch devastating strikes against critical facilities and infrastructure without the use of WMD warheads.

Current arms control efforts and assessments of the Korean balance tend to focus on North Korea's nuclear programs, but this list shows such programs are only part of a far more complex and rapidly evolving mix of current and potential capabilities to deliver weapons of mass destruction or mass effectiveness. The threat such weapons may be used also cannot be limited to the Korean peninsula. It already extends to Japan and US bases in Japan. US reaction again raises the issue of what China's response would be and whether a crisis could escalate to the point where the US-Chinese strategic and nuclear balance became relevant – a threat that could force Japan to make hard choices of its own.

The range of uncertainties on this list also raises two key issues for arms control:

- **One is the so-called “Nth weapon paradox.”** It may be possible to reduce a nation’s nuclear weapons, but it is probably impossible to be certain it does not retain at least a few. The problem for arms control is that the smaller the stockpile, the more it has to be used in ways that threaten absolutely critical targets like major population centers rather than a given military target. Arms reductions can easily escalate targeting.
- **The second is the “diversion effect:”** The risk that nuclear controls can drive states even more towards advanced biological and chemical weapons. Advances in biotechnology have made control regimes virtually impossible, as well as vastly increase the potential lethality of biological weapons to levels beyond that of even boosted and thermonuclear weapons.

It is also clear from this list that the nuclear threat already is only part of the equation. North Korea has long been a chemical weapons power. It is believed to have active biological weapons programs, and it clear has long-range missile programs that can target Japan and any target in South Korea. These can potentially be armed with a range of CBRN warheads – but no meaningful unclassified evidence exists of the range of such warheads or their lethality. The same is true of North Korean bombs, and rocket warheads. This means that CBRN escalation could occur at a wide range of unpredictable levels – including asymmetric, covert, and terrorist attacks. Moreover, North Korea is already acquiring missile engines and boosters that will give it ICBM capabilities to attack targets in the US.

### ***The Balance of Weapons of Mass Effectiveness***

It is equally important to stress that advanced forms of conventionally-armed ballistic and cruise missiles can be used to threaten or attack targets, and do so with strategic effect. It is unclear how accurate North Korea’s missiles are, and it seems doubtful that North Korea now has a real-world terminal guidance capability to use conventionally armed ballistic and cruise missiles effectively against critical point targets. As long as North Korea does not have such “smart” warheads, conventionally armed missiles are largely terror weapons. Once North Korea does have them, however, they potentially add “weapons of mass effectiveness” that can destroy high value and critical infrastructure targets with conventional warheads.

The US does have conventionally-armed, precision guided-deep strike SRBMs, however, and both the US and South Korea have strike aircraft and precision-guided air-to-surface weapons that targeting patterns in the Balkans conflict, and both Gulf Wars, show can hit critical infrastructure targets with strategic effect. This could lead to new patterns of escalation where the US and South Korea used precision guided air-to-surface, surface-to-surface, and cruise missiles to destroy equally critical North Korean targets, or threaten to use such weapons to deter North Korea. The US also can deliver such weapons with “stealth” strike aircraft and bombers, and Japan and South Korea are likely to acquire strike aircraft with some “stealth” capability. Alternatively, the US and South Korea might threaten or initiate the use of precision guided air-to-surface, surface-to-surface, and cruise missiles to destroy critical North Korean targets or to halt a North Korean conventional attack.

### ***China and Strategic Asymmetric Warfare***

China has steadily attempted to develop new and innovative capabilities for asymmetric warfare that it is expanding to the strategic and grand strategic level. China states that this is not an

offensive effort. Its 2008 defense white paper does not address the Koreans per se, but notes that,<sup>30</sup>

China is still confronted with long-term, complicated, and diverse security threats and challenges. Issues of existence security and development security, traditional security threats and non-traditional security threats, and domestic security and international security are interwoven and interactive. China is faced with the superiority of the developed countries in economy, science and technology, as well as military affairs. It also faces strategic maneuvers and containment from the outside while having to face disruption and sabotage by separatist and hostile forces from the inside. Being in a stage of economic and social transition, China is encountering many new circumstances and new issues in maintaining social stability. Separatist forces working for "Taiwan independence," "East Turkistan independence" and "Tibet independence" pose threats to China's unity and security. Damages caused by non-traditional security threats like terrorism, natural disasters, economic insecurity, and information insecurity are on the rise. Impact of uncertainties and destabilizing factors in China's outside security environment on national security and development is growing. In particular, the United States continues to sell arms to Taiwan in violation of the principles established in the three Sino-US joint communiqués, causing serious harm to Sino-US relations as well as peace and stability across the Taiwan Straits.

In the face of unprecedented opportunities and challenges, China will hold high the banner of peace, development and cooperation, persist in taking the road of peaceful development, pursue the opening-up strategy of mutual benefit, and promote the building of a harmonious world with enduring peace and common prosperity; and it will persist in implementing the Scientific Outlook on Development in a bid to achieve integration of development with security, persist in giving due consideration to both traditional and non-traditional security issues, enhancing national strategic capabilities, and perfecting the national emergency management system. At the same time, it will persist in pursuing the new security concept featuring mutual trust, mutual benefit, equality and coordination, and advocating the settlement of international disputes and hotspot issues by peaceful means. It will encourage the advancement of security dialogues and cooperation with other countries, oppose the enlargement of military alliances, and acts of aggression and expansion. China will never seek hegemony or engage in military expansion now or in the future, no matter how developed it becomes.

... The influence of military security factors on international relations is mounting. Driven by competition in overall national strength and the development of science and technology, international military competition is becoming increasingly intense, and the worldwide revolution in military affairs (RMA) is reaching a new stage of development. Some major powers are realigning their security and military strategies, increasing their defense investment, speeding up the transformation of armed forces, and developing advanced military technology, weapons and equipment. Strategic nuclear forces, military astronautics, missile defense systems, and global and battlefield reconnaissance and surveillance have become top priorities in their efforts to strengthen armed forces. Some developing countries are also actively seeking to acquire advanced weapons and equipment to increase their military power. All countries are attaching more importance to supporting diplomatic struggles with military means. As a result, arms races in some regions are heating up, posing grave challenges to the international arms control and non-proliferation regime.

.. In the face of unprecedented opportunities and challenges, China will hold high the banner of peace, development and cooperation, persist in taking the road of peaceful development, pursue the opening-up strategy of mutual benefit, and promote the building of a harmonious world with enduring peace and common prosperity; and it will persist in implementing the Scientific Outlook on Development in a bid to achieve integration of development with security, persist in giving due consideration to both traditional and non-traditional security issues, enhancing national strategic capabilities, and perfecting the national emergency management system. At the same time, it will persist in pursuing the new security concept

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<sup>30</sup> This translation is taken from Chinba.org.com, [http://www.china.org.cn/government/central\\_government/2009-01/20/content\\_17155577\\_6.htm](http://www.china.org.cn/government/central_government/2009-01/20/content_17155577_6.htm).

featuring mutual trust, mutual benefit, equality and coordination, and advocating the settlement of international disputes and hotspot issues by peaceful means. It will encourage the advancement of security dialogues and cooperation with other countries, oppose the enlargement of military alliances, and acts of aggression and expansion. China will never seek hegemony or engage in military expansion now or in the future, no matter how developed it becomes.

...Taking the road of leapfrog development. Persisting in taking mechanization as the foundation and informationization as focus, China is stepping up the composite development of mechanization and informationization. Persisting in strengthening the military by means of science and technology, China is working to develop new and high-tech weaponry and equipment, carry out the strategic project of training talented people, conduct military training in conditions of informationization, and build a modern logistics system in an all-round way, so as to change the mode of formation of war-fighting capabilities. Persisting in laying stress on priorities, China distinguishes between the primary and the secondary, and refrains from doing certain things, striving to achieve leapfrog development in key areas. China persists in building the armed forces through diligence and thrift, attaching importance to scientific management, in order to make the fullest use of its limited defense resources.

China implements a military strategy of active defense. Strategically, it adheres to the principle of featuring defensive operations, self-defense and striking and getting the better of the enemy only after the enemy has started an attack. In response to the new trends in world military developments and the requirements of the national security and development strategy, China has formulated a military strategic guideline of active defense for the new period.

This guideline aims at winning local wars in conditions of informationization. It takes into overall consideration the evolution of modern warfare and the major security threats facing China, and prepares for defensive operations under the most difficult and complex circumstances. Meeting the requirements of confrontation between war systems in modern warfare and taking integrated joint operations as the basic approach, it is designed to bring the operational strengths of different services and arms into full play, combine offensive operations with defensive operations, give priority to the flexible application of strategies and tactics, seek advantages and avoid disadvantages, and make the best use of our strong points to attack the enemy's weak points. It endeavors to refine the command system for joint operations, the joint training system and the joint support system, optimize the structure and composition of forces, and speed up the building of a combat force structure suitable for winning local wars in conditions of informationization.

This guideline lays stress on deterring crises and wars. It works for close coordination between military struggle and political, diplomatic, economic, cultural and legal endeavors, strives to foster a favorable security environment, and takes the initiative to prevent and defuse crises, and deter conflicts and wars. It strictly adheres to a position of self-defense, exercises prudence in the use of force, seeks to effectively control war situations, and strives to reduce the risks and costs of war. It calls for the building of a lean and effective deterrent force and the flexible use of different means of deterrence. China remains committed to the policy of no first use of nuclear weapons, pursues a self-defensive nuclear strategy, and will never enter into a nuclear arms race with any other country.

This guideline focuses on enhancing the capabilities of the armed forces in countering various security threats and accomplishing diversified military tasks. With the focus of attention on performing the historical missions of the armed forces for the new stage in the new century and with raising the capability to win local wars in conditions of informationization at the core, it works to increase the country's capabilities to maintain maritime, space and electromagnetic space security and to carry out the tasks of counter-terrorism, stability maintenance, emergency rescue and international peacekeeping. It takes military operations other than war (MOOTW) as an important form of applying national military forces, and scientifically makes and executes plans for the development of MOOTW capabilities. China participates in international security cooperation, conducts various forms of military exchanges and promotes the establishment of military confidence-building mechanisms in accordance with this guideline.

Chinese military analysts publically explore a wide range of innovative strategies designed to deter or limit US military capabilities in the region – although most focus on Taiwan. China may already have conventionally armed missiles with terminal guidance systems, and certainly has such systems under development – including ballistic anti-ship missiles that pose a long-range strategic threat to US carrier task forces. As Bonnie S. Glaser, a leading US expert on Chinese military forces, notes: “these strategies are laid out in publications by military academies and scholars on questions of military strategy and doctrine, including multiple editions of Zhanlue Xue (The Science of Strategy) and Zhanyi Xue (The Science of Campaigns) as well as Zhanyi Lilun Xuexi Zhinan (Campaign Theory Study Guide). One volume of the Science of Military Strategy was translated into English.”<sup>31</sup>

The US Department of Defense puts heavy emphasis on these capabilities in its report on *Military and Security Developments Affecting the People’s Republic of China* for 2010. It also stresses another aspect of China’s evolving strategy that directly affects the Korean balance. It notes that China is making,<sup>32</sup>

a sustained effort to develop the capability to attack, at long ranges, military forces that might deploy or operate within the western Pacific, which the Department of Defense characterizes as “anti-access” and “area denial” capabilities, respectively. China is pursuing a variety of air, sea, undersea, space and counterspace, and information warfare systems and operational concepts to achieve this capability, moving toward an array of overlapping, multilayered offensive capabilities extending from China’s coast into the western Pacific. China’s 2008 Defense White Paper asserts, for example, that one of the priorities for the development of China’s armed forces is to “increase the country’s capabilities to maintain maritime, space and electromagnetic space security.”

An essential element, if not a fundamental prerequisite, of China’s emerging anti- access/area-denial regime is the ability to control and dominate the information spectrum in all dimensions of the modern battlespace. PLA authors often cite the need in modern warfare to control information, sometimes termed “information blockade” or “information dominance,” and to seize the initiative and gain an information advantage in the early phases of a campaign to achieve air and sea superiority. China is improving information and operational security to protect its own information structures, and is also developing electronic and information warfare capabilities, including denial and deception, to defeat those of its adversaries. China’s “information blockade” likely envisions employment of military and non-military instruments of state power across the battlespace, including in cyberspace and outer space. China’s investments in advanced electronic warfare systems, counter-space weapons, and computer network operations— combined with more traditional forms of control historically associated with the PLA and CCP systems, such as propaganda and denial through opacity, reflect the emphasis and priority China’s leaders place on building capability for information advantage.

In more traditional domains, China’s anti- access/area-denial focus appears oriented toward restricting or controlling access to China’s periphery, including the western Pacific. China’s current and projected force structure improvements, for example, will provide the PLA with systems that can engage adversary surface ships up to 1,000 nautical miles from the PRC coast. These include:

- Anti-Ship Ballistic Missiles: MRBMs designed to target forces at sea, combined with overhead and over-the-horizon targeting systems to locate and track moving ships.
- Conventional and nuclear-powered attack submarines: KILO, SONG, YUAN, and SHANG attack submarines capable of firing advanced ASCMs.

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<sup>31</sup> Bonnie S. Glaser, email of February 8, 2010.

<sup>32</sup> Office of the Secretary of Defense, Annual Report to Congress, *Military and Security Developments Involving the People’s Republic of China 2010*, August 2010, <http://www.defense.gov/pubs/>

- Surface Combatants: SOVREMENNYI-II, destroyers with advanced long-range anti-air and anti-ship missiles.
- Maritime Strike Aircraft: FB-7 and FB-7A and the SU-30 MK2, armed with ASCMs to engage surface combatants.

Similarly, current and projected systems will allow the PLA to strike regional air bases, logistical facilities, and other ground-based infrastructure. PRC military analysts have concluded that logistics and power projection are potential vulnerabilities in modern warfare, given the requirements for precision in coordinating transportation, communications, and logistics networks. China is fielding an array of conventionally armed ballistic missiles, ground- and air-launched land-attack cruise missiles, special operations forces, and cyber-warfare capabilities to hold targets at risk throughout the region.

It also became clear in early 2011 that China is developing its own “stealth” strike fighter – the J-20, although its capabilities and deployment schedule remain unknown.<sup>33</sup> James R. Clapper, the US Director of National Intelligence, described the US assessment of this development as follows in his testimony to the U.S. Intelligence Community for the House Permanent Select Committee on Intelligence on February 10, 2011:

China’s ongoing military modernization program began in earnest in the late 1990s, after Beijing observed the threat posed by long-range precision guided warfare in DESERT STORM and the Balkans. China’s defense policies—initially aimed at creating credible options to forcibly bring Taiwan under Beijing’s authority and developing the corresponding capabilities to prevent US intervention in a cross-Strait conflict—led Beijing to invest heavily in short- and medium-range ballistic missiles, modern naval platforms, improved air and air defense systems, counterspace capabilities, and an Intelligence, Surveillance, and Reconnaissance (ISR) system. For example, the Chinese have recently conducted the first flight test of what we refer to as a fifth-generation fighter, the J-20. We have known about this program for a long time and the flight test was not a surprise. We judge that this event is another indication of China’s aspiration to develop a world-class military, and it is a capability we take seriously. But this program, like others in China, will have to overcome a number of hurdles before reaching its full potential.

Moreover, cyberwarfare is becoming steadily more critical, and affects civil operations as well as warfighting. China is a leading state in developing such capabilities. It is important to note that South Korea is probably even more dependent on the Internet than any other nation in the world. Moreover, China has tested anti-satellite (ASAT) weapons that could also have a massive impact on US battle management and IS&R systems, and may have some capability to use EMP weapons.

### ***The US and Extended Regional Deterrence***

These same shifts in the wider military balance affecting the Koreas also explain the fact that the US simultaneously is seeking arms control and examining developments for a new approach to regional extended deterrence as an alternative approach to enhancing regional stability. As the US Nuclear Posture document issued in 2010 makes clear, this could involve further major changes in the military balance.<sup>34</sup>

The United States is committed to the long-term goal of a world free of nuclear weapons. The President has directed a review of potential future reductions in U.S. nuclear weapons below New START levels. Several factors will influence the magnitude and pace of such reductions.

.... any future nuclear reductions must continue to strengthen deterrence of potential regional adversaries, strategic stability vis-à-vis Russia and China, and assurance of our allies and partners.

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<sup>33</sup> See *Aviation Week*, January 3, 2011, [www.aviationweek.com/aw/generic/story.jsp?id=news](http://www.aviationweek.com/aw/generic/story.jsp?id=news)

<sup>34</sup> Department of Defense, *Nuclear Policy Review*, April 2010, pp. 29, 31-32

This will require an updated assessment of deterrence requirements; further improvements in U.S., allied, and partner non-nuclear capabilities; focused reductions in strategic and non-strategic weapons; and close consultations with allies and partners. The United States will continue to ensure that, in the calculations of any potential opponent, the perceived gains of attacking the United States or its allies and partners would be far outweighed by the unacceptable costs of the response.

...Accordingly, the United States is fully committed to strengthening bilateral and regional security ties and working closely with its allies and partners to adapt these relationships to emerging 21st century requirements. We will continue to assure our allies and partners of our commitment to their security and to demonstrate this commitment not only through words, but also through deeds. This includes the continued forward deployment of U.S. forces in key regions, strengthening of U.S. and allied non-nuclear capabilities, and the continued provision of extended deterrence. Such security relationships are critical not only in deterring potential threats, but can also serve our non-proliferation goals – by demonstrating to neighboring states that their pursuit of nuclear weapons will only undermine their goal of achieving military or political advantages, and by reassuring non-nuclear U.S. allies and partners that their security interests can be protected without their own nuclear deterrent capabilities. Further, the United States will work with allies and partners to strengthen the global non-proliferation regime, especially the implementation of existing commitments within their regions.

Security architectures in key regions will retain a nuclear dimension as long as nuclear threats to U.S. allies and partners remain. U.S. nuclear weapons have played an essential role in extending deterrence to U.S. allies and partners against nuclear attacks or nuclear-backed coercion by states in their region that possess or are seeking nuclear weapons. A credible U.S. “nuclear umbrella” has been provided by a combination of means – the strategic forces of the U.S. Triad, non-strategic nuclear weapons deployed forward in key regions, and U.S.-based nuclear weapons that could be deployed forward quickly to meet regional contingencies.

The mix of deterrence means has varied over time and from region to region...During the Cold War, the United States forward-deployed nuclear weapons in both Europe and Asia, and retained the capability to increase those deployments if needed. At the end of the Cold War, a series of steps were taken to dramatically reduce the forward presence of U.S. nuclear weapons. Today, there are separate choices to be made in partnership with allies in Europe and Asia about what posture best serves our shared interests in deterrence and assurance and in moving toward a world of reduced nuclear dangers.

...In Asia and the Middle East – where there are no multilateral alliance structures analogous to NATO – the United States has mainly extended deterrence through bilateral alliances and security relationships and through its forward military presence and security guarantees. When the Cold War ended, the United States withdrew its forward-deployed nuclear weapons from the Pacific region, including removing nuclear weapons from naval surface vessels and general purpose submarines. Since then, it has relied on its central strategic forces and the capacity to re-deploy non-strategic nuclear systems in East Asia, if needed, in times of crisis.

The Administration is pursuing strategic dialogues with its allies and partners in East Asia and the Middle East to determine how best to cooperatively strengthen regional security architectures to enhance peace and security, and reassure them that U.S. extended deterrence is credible and effective.

At present, these are words. However, unless dramatic shifts take place to limit the North Korean nuclear and missile efforts, they are almost certain to lead to some new mix of US, Japanese, and South Korea efforts to build up radically more effective air and missile defenses, offer at least enhanced conventional deterrence in the form of weapons of mass effectiveness, and possibly include a more structured form of US theater nuclear umbrella.

## ***The Strategic “Offensive” Character of “Defensive” Weapons***

Finally, the fact so many missile and precision air strike systems are being deployed has turned “defensive” weapons such as ballistic missile defense and surface-to-air missile forces into “offensive” forces as well. The comparative ability to defend also equates to the ability to reduce the risk in escalating to offensive missile, air, and stealth attacks.

US, Japan, and South Korea have a limited advantage in tactical and theater capabilities. The US also has a monopoly in strategic missile defenses capabilities but China’s deployment of Russian S-300 surface-to-air/tactical missile defense systems is giving it substantial capability for point defense, and China has begun to test a system with theater and strategic defense capabilities. A rough estimate of the systems with some anti-missile capability now in Northeast Asian forces include:

- **Japan:** 100 Mim-23 Patriot, 6 PAC-3 Patriot, Standard sea-based systems
- **South Korea:** 48 Patriot
- **China:** 32 S300PMU-1, 64 S300PMU-1 1, 64 S300PMU-1 2

The US and Japan are cooperating in ballistic missile defense. As the *Bulletin of Atomic Scientists* notes,<sup>35</sup>

...(Japan) has deployed a multilayered missile defense system that consists of sea-based midcourse missile defense (the Aegis ballistic missile defense system); and ground-based terminal phase missile defense (Patriot Advanced Capabilities-3, or PAC-3). With the accelerated process, a PAC-3 installment in the Tokyo Metropolitan area has been completed. By March 2011, PAC-3 missiles will be deployed at 16 fire units around Japan’s major cities.

The Aegis system features a three-stage missile (SM-3) with a range of 1,000 kilometers designed to intercept a short- to intermediate-range ballistic missile in outer space. At its first flight test in December 2007, the SM-3 launched from *Kongo*, a Japanese Aegis ship, and detected, tracked, and destroyed a mock missile that resembled North Korea’s Nodong outside the atmosphere at an altitude of approximately 100 miles. With its mission accomplished, *Kongo* was deployed at Japan’s Air Self Defense Force (MSDF) Sasebo base in Nagasaki on January 4, 2008.

Recent exercises also show that the US and Japan are developing steadily more integrated approaches to such warfare. For example, the US Missile Defense Agency reported on October 29, 2010 that the Japan Maritime Self-Defense Force (JMSDF) and the United States Missile Defense Agency (MDA) had successfully completed an Aegis Ballistic Missile Defense (BMD) intercept flight test, in cooperation with the U.S. Navy, off the coast of Kauai in Hawaii. The event marked the fourth time that a JMSDF ship has engaged a ballistic missile target, including three successful intercepts, with the sea-based midcourse engagement capability provided by Aegis BMD.

“The JFTM-4 test event verified the newest engagement capability of the Japan Aegis BMD configuration of the recently upgraded Japanese destroyer, JS KIRISHIMA. At approximately 5:06 p.m. (HST), 12:06 p.m. Tokyo time on Oct. 29, 2010, a separating 1,000 km class ballistic missile target was launched from the Pacific Missile Range Facility at Barking Sands, Kauai, Hawaii. JS KIRISHIMA crewmembers detected and tracked the target. The Aegis Weapon System then developed a fire control solution and launched a Standard Missile -3 (SM-3) Block IA missile. Approximately three minutes later, the SM-3

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<sup>35</sup> Masako Toki, “Missile defense in Japan,” *Bulletin of the Atomic Scientists*, January 16, 2009, <http://www.thebulletin.org/web-edition/features/missile-defense-japan>

successfully intercepted the target approximately 100 miles above the Pacific Ocean. JFTM-4 is a significant milestone in the growing cooperation between Japan and the U.S. in the area of missile defense. Also participating in the test was USS LAKE ERIE and USS RUSSELL, Aegis ships which cooperated to detect, track and conduct a simulated intercept engagement against the same target.”

US and Japanese capabilities are also likely to increase sharply in the near-term, however, as more advanced tactical and long-range, wide-area theater missile defense systems like the Standard SM-2 and S-M3 and THAAD enter service.

South Korea is also rushing to improve its missile defenses, and create a new force to detect and intercept North Korean ballistic missiles, by 2012. According to *Defense News*, this capability is planned to cost a total of 300 billion won (\$214 million).<sup>36</sup>

“Seoul plans to buy new radars which can detect objects up to 1,000 kilometers (600 miles) away for the new system, which will put the North's missiles under close watch around the clock, they said...North Korea has short-range Scuds and Rodongs with a range of 1,300 kilometers, while actively developing longer-range Taepodong missiles that could reach the United States.

...Scuds and Rodongs put all of South Korea within range...In recent weeks, Pyongyang has apparently started assembling its longest-range Taepodong-2 missile and it could be ready for launch late this month, according to media reports in Seoul and Washington. The Taepodong-2 could theoretically reach Alaska but blew up after 40 seconds when it was first test-fired in July 2006.

South Korea has warned that any launch would bring the North increased isolation and added sanctions. The United States said it would be provocative...The North has responded furiously to South Korean President Lee Myung-Bak, who took office in February last year and who has linked major economic aid to progress in the communist country's nuclear disarmament.

Late last month, the North said it had scrapped all peace accords with the South, including a 1991 agreement that recognized the Yellow Sea border as an interim frontier off the western coast.

...South Korea in 2007 launched its first Aegis destroyer, which was finally deployed for operational use in December 2008...The King Sejong, the \$1 billion, 7,600-ton KDX-III destroyer, adopts the U.S.-built Aegis system that allows a ship to combat multiple surface, underwater and aerial threats.... South Korea plans to deploy a second Aegis destroyer and a third for operational use in 2010 and 2012, according to its navy.

Last year, South Korea began taking delivery of U.S.-made Patriot missiles to replace its aging Nike ground-to-air missiles and better cope with North Korean missile threats...Seoul had announced a plan to purchase 48 Patriots by this year, setting 2010 as a target for them to be operational...The United States, which bases 28,500 troops in South Korea, has upgraded its Patriot batteries here with advanced missiles.

China is beginning to produce its own variant of the S300, and may be able to deploy significantly more advanced theater missile defense systems in the mid-term. It also tested a much more advanced missile defense system on January 11, 2010. The test targeted a missile during the mid-course phase when the target was exoatmospheric. The name of the test is called the *Test of the Land-based Mid-course Phase Anti-ballistic Missile Interception Technology*.

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<sup>36</sup> *Defense News*, “South Korea to Complete Missile Defense by 2012,” *Agence France-Presse*, Published: 15 Feb, 2011, 09:07 EST (14:07 GMT), <http://www.defensenews.com/story.php?i=3949088>.

According to press reports, the US Department of Defense stated that, "We detected two geographically separated missile launch events with an exoatmospheric collision also being observed by space-based sensors."<sup>37</sup>

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<sup>37</sup> "China did not notify US before anti-missile test: Pentagon," *AFP*, January 12, 2010. Available at <http://www.google.com/hostednews/afp/article/ALeqM5g1yJwTWQjzWtHke9NhVHNS7qiHQ>.

