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**Center for Strategic and International Studies**

**1800 K Street N.W.**

**Suite 400**

**Washington, DC 20006**

**(202) 775-3270**

**For updates: CSIS.ORG "Strategic Assessment**

**To comment: Acordesman@aol.com**

# **Weapons of Mass Destruction and North Korea**

**A Quantitative and Arms Control Analysis**

**Anthony H. Cordesman  
Arleigh Burke Chair in Strategy**

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# Department of Defense Assessment of Weapons of Mass Destruction in East Asia

The strategic significance of East Asia remains substantial. Approximately 500,000 U.S. citizens live, work, and study in the region. U.S. businesses conduct more than \$500 billion in trade annually and have invested more than \$150 billion throughout the region. U.S. ties to Asian allies and friends include a range of security, economic, cultural, and political interests. The recent economic and financial difficulties faced by the region reinforce the importance of long-standing U.S. alliances and security relationships to maintain stability as Asia regains its economic footing and resumes its remarkable development. The historic June 2000 summit between the leaders of North and South Korea has the potential to decrease tensions on the Korean peninsula and throughout Northeast Asia. The two leaders discussed a variety of security, economic, social, and cultural issues and agreed to reunite some families separated during the Korean War. However, despite the dramatic meeting and other recent positive trends, legacies of the Cold War remain. In addition, numerous territorial disputes continue to burden the region, including the division of the Korean Peninsula, the Taiwan Strait dispute, and contested island claims among China, Japan, Russia, and North Korea in the North Pacific. Multiple national claims to territory in the South China Sea remain a potential source of conflict that could engage many of the region's nations. Additionally, leadership transitions facing many regimes in the region may have significant implications for regional stability. The United States continues to seek a stable and economically prosperous region. Strong bilateral relations with friends and allies, particularly Japan and South Korea, are the foundation of U.S. efforts to encourage regional stability. Central to this goal are the approximately 100,000 soldiers, sailors, marines, and airmen present in the region who reassure U.S. allies, deter aggression, and enhance stability. A long-term U.S. objective in the region remains the peaceful reunification of the Korean peninsula in accordance with the wishes of the Korean people. The United States, in close coordination with the Republic of Korea, will continue to maintain forces on the peninsula to safeguard mutual security interests into the foreseeable future.

Although the October 1994 Agreed Framework with North Korea over its nuclear facilities mitigated the immediate nuclear threat, Pyongyang still possesses large conventional and special operations forces, as well as militarily significant chemical weapons and the means to deliver them. Proliferation, fueled by North Korea's broad-based NBC weapons and missile programs, poses a significant challenge to U.S. security interests, as well as to those of U.S. allies and friends. North Korea's launch of a Taepo Dong 1 missile in August 1998, in a failed satellite launch, heightened public concerns throughout the region over the North Korean missile threat, and led to a variety of counterproliferation responses. North Korean NBC weapons and missile programs have potential to set off destabilizing arms races and heighten tension throughout the region and elsewhere.

In the event of another war on the Korean peninsula, NBC weapons would present a significant threat to U.S. forces and the security of U.S. allies. North Korea would likely try to consolidate and control strategic areas of South Korea by striking quickly and attempting to destroy allied defenses before the United States could provide adequate reinforcements. Pyongyang would most likely attempt to accomplish this with its large conventional and special operations forces and its chemical weapons and ballistic missiles.

It is critically important that the United States and China continue their mutual efforts to promote regional stability, and that the U.S. policy serve to encourage China's integration as a responsible member of the international community. The United States needs to build on its past successes in encouraging China towards joining international nonproliferation regimes. The United States will remain committed to a sustained strategic dialogue to address issues of mutual interest and proceed with a variety of confidence building measures to foster cooperation and pre-vent misunderstanding and miscalculation. Beijing has adopted a more responsible supply policy by adhering to international nonproliferation norms like the Nuclear Nonproliferation Treaty (NPT), by ratifying the Chemical Weapons Convention (CWC), by reaffirming its 1994 pledge to forego exports of complete Missile Technology Control Regime (MTCR)-class surface-to-surface missiles, and by pledging not to provide assistance to unsafeguarded nuclear facilities, including installations in both Pakistan and Iran. On 21 November 2000, China announced it would not assist, in any way, other countries to develop ballistic missiles that can be used to deliver nuclear weapons and to improve further and reinforce its export control system.

On the other hand, China's absence from other non-proliferation regimes, such as the Nuclear Suppliers Group (NSG) indicates that there is room for improvement.

It will be necessary for the United States and the international community to press Beijing to ensure that proliferation activity by Chinese entities is proscribed—especially where U.S. security interests are involved.

Counterproliferation will continue to be a strong component of the U.S. regional strategy in East Asia as long as U.S. defense commitments and U.S. forces are threatened by the spread of NBC weapons and missiles. The nuclear tests conducted by India and Pakistan in May 1998 added new complications not only for South Asia but also for security calculations of East Asian and Central Asian nations. The United States has found increasingly that the major nations of the region, including Japan, China, and South Korea, have sought to address the issue of proliferation not only bilaterally but through trilateral and multilateral forums to determine common approaches to this security challenge. Such mutual efforts are vital to reducing the threat of proliferation, to the benefit of international security as a whole.

In Northeast Asia, North Korea and China remain the countries of greatest concern because of their substantial and continuing efforts to improve their NBC weapons and missile forces and because of their proliferation activities. While North Korea has been struggling with severe economic problems for several years, it has maintained a high priority for its missile forces, which presents a serious challenge to the United States and its allies in the region, despite the dramatic June 2000 summit between the leaders of the two Koreas. China has strengthened its short-range missile forces in the last few years, a move designed to increase political pressure on Taiwan. Moreover, it is modernizing and expanding its longer-range missile force. Additionally,

China threatens even further expansion of its missile programs in response any further U.S. missile defense initiatives. North Korean proliferation activity involving missiles and related technology has resulted in a growing threat to U.S. forces, our allies, and interests in key regions of the Middle East and Asia. North Korea depends on these sales as a source of hard currency, which Kim Chong Il has acknowledged publicly. Since the Chinese government has taken steps to control some forms of proliferation, and in November 2000 publicly committed not to assist other countries to develop ballistic missiles that can be used to deliver nuclear weapons, and agreed to promulgate a missile technology export control list, we expect Chinese companies' support to key programs of concern in these same regions to cease.

In Northeast Asia, North Korea and China will present serious proliferation challenges for the United States and its Allies in the region. While North Korea is suffering from serious economic shortcomings, its leaders have chosen to continue to attach a high priority to maintaining NBC weapons and missile programs. Should a conflict occur on the Korean peninsula, Pyongyang could employ these forces, threatening U.S. and allied military forces and hundreds of thousands of civilians in South Korea and elsewhere in the region. As North Korea continues to develop missiles with longer ranges, in the future it will be able to threaten wider areas of Northeast Asia, and potentially portions of the mainland United States. As a principal means of raising hard currency, North Korea also is one of the world's leading exporters of missiles and missile production technology, particularly to the Middle East and South Asia. These exports have added to the overall proliferation problem, and further raised tensions in these regions. Exports of production technologies have the added potential effect of creating more producers, and more suppliers in the future.

China will continue to have substantial NBC weapon and ballistic missile capabilities. Although China's strategic forces are substantially less capable than Russia's, China remains one of the few countries that can threaten the continental United States. China will continue its pursuit of greater influence, a key element of which is the modernization and expansion of its nuclear forces. Concurrently, China will move forward with its broad missile modernization program, focusing on both regional and strategic delivery systems. It has substantially improved its SRBM forces in recent years and eventually will be able to deploy two solid-propellant road mobile ICBMs, one of which will be able to target all of the United States.

China's proliferation behavior has improved in the last several years and it has lived up to its pledges to forego all nuclear cooperation with Iran. China also has pledged not to assist any unsafeguarded nuclear facilities, but we cannot preclude ongoing contacts. Nonetheless, China remains one of the world's key sources for missile-related technologies. Although China has ratified several key nonproliferation treaties and regimes and made numerous nonproliferation pledges, it likely will continue to take advantage of ambiguities in those commitments to advance its strategic and economic interests.

Source: Secretary of Defense William S. Cohen, Proliferation: Threat and Response, Washington DC, Department of Defense, January 2001

## CIA Assessment of North Korea

...A variety of states and groups continue to seek to acquire weapons of mass destruction and the means to deliver them.

First, let me discuss the continuing and growing threat posed to us by ICBMs.

We continue to face ballistic missile threats from a variety of actors beyond Russia and China--specifically, North Korea, probably Iran, and possibly Iraq. In some cases, their programs are the result of indigenous technological development, and in other cases, they are the beneficiaries of direct foreign assistance. And while these emerging programs involve far fewer missiles with less accuracy, yield, survivability, and reliability than those we faced during the Cold War, they still pose a threat to US interests.

For example, more than two years ago North Korea tested a space launch vehicle, the Taepo Dong-1, which it could theoretically convert into an ICBM. This missile would be capable of delivering a small biological or chemical weapon to the United States, although with significant targeting inaccuracies. Moreover, North Korea has retained the ability to test its follow-on Taepo Dong-2 missile, which could deliver a nuclear-sized payload to the United States.

... The three major suppliers of missile or WMD-related technologies continue to be Russia, China, and North Korea. Again, many details of their activities need to remain classified, but let me quickly summarize the areas of our greatest concern.

Russian state-run defense and nuclear industries are still strapped for funds, and Moscow looks to them to acquire badly needed foreign exchange through exports. We remain concerned about the proliferation implications of such sales in several areas.

- Russian entities last year continued to supply a variety of ballistic missile-related goods and technical know-how to countries such as Iran, India, China, and Libya. Indeed, the transfer of ballistic missile technology from Russia to Iran was substantial last year, and in our judgment will continue to accelerate Iranian efforts to develop new missiles and to become self-sufficient in production.
- Russia also remained a key supplier for a variety of civilian Iranian nuclear programs, which could be used to advance its weapons programs as well.
- Russian entities are a significant source of dual-use biotechnology, chemicals, production technology, and equipment for Iran. Russian biological and chemical expertise is sought by Iranians and others seeking information and training on BW and CW-agent production processes.

...Chinese missile-related technical assistance to foreign countries also has been significant over the years. Chinese help has enabled Pakistan to move rapidly toward serial production of solid-propellant missiles. In addition to Pakistan, firms in China provided missile-related items, raw materials, or other help to several countries of proliferation concern, including Iran, North Korea, and Libya.

Last November, the Chinese Foreign Ministry issued a statement that committed China not to assist other countries in the development of ballistic missiles that can be used to deliver nuclear weapons. Based on what we know about China's past proliferation behavior, Mr. Chairman, we are watching and analyzing carefully for any sign that Chinese entities may be acting against that commitment. We are worried, for example, that Pakistan's continued development of the two-stage Shaheen-II MRBM will require additional Chinese assistance.

...With regard to North Korea, our main concern is P'yongyang's continued exports of ballistic missile-related equipment and missile components, materials, and technical expertise. North Korean customers are countries in the Middle East, South Asia, and North Africa. P'yongyang attaches a high priority to the development and sale of ballistic missiles, equipment, and related technology because these sales are a major source of hard currency.

... P'yongyang's bold diplomatic outreach to the international community and engagement with South Korea reflect a significant change in strategy. This strategy is designed to assure the continued survival of Kim Chong-il's regime by ending P'yongyang's political isolation and fixing the North's failing economy by attracting more aid. We do not know how far Kim will go in opening the North, but I can report to you that we have not yet seen a significant diminution of the threat from the North to American and South Korean interests.

P'yongyang still believes that a strong military, capable of projecting power in the region, is an essential element of national power. P'yongyang's declared "military first" policy requires massive investment in the armed forces, even at the expense of other national objectives. North Korea maintains the world's fifth largest armed forces consisting of over one million active-duty personnel, with another five million reserves. While Allied forces still have the qualitative edge, the North Korean military appears for now to have halted its near-decade-long slide in military capabilities. In addition to the North's longer-range missile threat to us, P'yongyang is also expanding its short and medium range missile inventory, putting our Allies at greater risk.

On the economic front, there are few signs of real systemic domestic reform. Kim has recently shown interest in practical measures to redress economic problems, most notably with his trip to Shanghai. To date, however, Kim has only tinkered with the economic system.

External assistance is essential to the recovery of North Korea's domestic economy. Only massive food aid deliveries since 1997 have enabled the country to escape a recurrence of the famine from the middle of the last decade. Industrial operations remain low. The economy is hampered by an industrial base that is falling to pieces, as well as shortages of materials and a lack of new investment. Chronic energy shortages pose the most significant challenge.

Aid and investment from the South bring with them increased foreign influences and outside information that will contradict propaganda from the regime. Economic engagement also can spawn expectations for improvement that will outrace the rebuilding process. The risk for Kim is that if he overestimates his control of the security services and loses elite support, or if societal stresses reach a critical point, his regime and personal grip on power could be weakened. As with other authoritarian regimes, sudden, radical change remains a real possibility in North Korea.

Source: Statement by Director of Central Intelligence George J. Tenet before the Senate Select Committee on Intelligence on the "Worldwide Threat 2001: National Security in a Changing World" 07 February 2001

## North Korea: NBC Weapons and Missile Programs

### **Nuclear:**

- Plutonium production at Yongbyon and Taechon facilities frozen by the 1994 Agreed Framework; freeze verified by IAEA.
- Believed to have produced and diverted sufficient plutonium prior to 1992 for at least one nuclear weapon.
- Concerns remain over possible covert nuclear weapons effort.
- Ratified the NPT; later declared it has a special status. This status is not recognized by the United States or the United Nations. Has not signed the CTBT.

### **Biological:**

- Pursued biological warfare capabilities since 1960s.
- Possesses infrastructure that can be used to produce biological warfare agents; may have biological weapons available for use.
- Acceded to the Biological and Toxin Weapons Convention.

### **Chemical:**

- Believed to possess large stockpile of chemical precursors and chemical warfare agents.
- Probably would employ chemical agents against U.S. and allied forces under certain scenarios.
- Has not signed the CWC.

### **Ballistic Missiles:**

- Produces and capable of using SCUD B and SCUD C SRBMs, and No Dong MRBM.
- Successfully launched variant of Taepo Dong 1 MRBM in failed attempt to orbit satellite. (August 1998)
- Developing Taepo Dong 2 ICBM-range missile; agreed to flight test moratorium on long-range missiles in September 1999; reaffirmed in June 2000.
- Remains capable of conducting test.
- Not a member of the MTCR.

### **Other Means of Delivery Available:**

- Land- and sea-launched anti-ship cruise missiles; none have NBC warheads.
- Aircraft: fighters, bombers, helicopters.
- Ground systems: artillery, rocket launchers, mortars, sprayers.
- Special Operations Forces

Source: Adapted by Anthony H. Cordesman from Secretary of Defense William S. Cohen, Proliferation: Threat and Response, Washington DC, Department of Defense, January 2001

## The Global Nuclear Dimension – Part One

| <u>Country</u>                                 | <u>Sea-Based</u>  | <u>Land Based</u>  | <u>Air Force</u>   |
|--|---|--|--|
| <u>US</u><br>(33,500 nuclear weapons)*         | 18 SSBM/432 SLBM<br>(+1/16 Poseidon C-3 tubes in ex-SSBN)<br><br>10 SSBN-734 with up to 24 Trident D-5 (240 SLBM)<br><br>8 SSBN-726 with up to 24 Trident C-4 (192 SLBM)  | 550 Missiles Total<br><br>50 Peacekeeper MX<br><br>500 Minuteman II/III  | 178 Active.<br>315 START accountable<br><br>2/20 B-2A<br><br>5/92 B-52H with up to 20 ALCM (AGM-86) each (57 combat ready)<br><br>7/91 B-1B                        |
| <u>Russia</u><br><br>(62,500 nuclear weapons)* | 19 SSBN/324 SLBM<br><br>3 Typhoon with 20 SS-N-20 each (60)<br><br>7 Delta IV with 16 SS-N-23 each (112)<br><br>7 Delta II with 16 SS-N-18 each (112)<br><br>2 Delta I with 20 SS-N-8 each (40)<br><br>In addition, 16 SSBN and 228 missiles remain<br>START accountable:<br>3 Typhoon/60 SS-N-20<br>6 Delta III/96 SS-N-18<br>2 Delta I/724 SS-N-8 | 776 ICBM/3,540 Whd.<br><br>180 SS-18 (RS-20)<br>74 START-accountable<br>Mostly Mod4/5 w/<br>10 MIRV<br><br>160 SS-19 (RS-18)<br>Mostly Mod 3,6 MIRV<br><br>20 SS-27 Topol M2 with 20 entering service<br><br>46 SS-24 (RS22) with 10 MIRV<br>36 Rail in Russia<br>10 Silo in Russia<br><br>370 SS-25 (RS12M) single warhead mobile (360) & silo launch (10) in Russia<br>36 SH-11 Galosh &<br>64 SH-08 Gazelle | 74 Hvy Bomber (Start Accountable)<br><br>68 Tu-95H6 with AS-15 ALCM<br><br>15 Tu-160<br><br>7 Tu-95 & 5 Tu-160 test aircraft.<br><br>158 Tu-22M/MR (92 in storage) |
| 11 Oscar SSGN with ABMs                        | 24 SS-N-19<br><br>3 Yankee SSGN with 20+ SS-N-21<br>1 Yankee SSGN/12 SS-NX-24<br><br>10 AkulaSSN/SS-N-21<br>3 Sierra SSN/SS-N-21<br>12 Victor III/SS-N-15   |  |  |

\* Without nuclear warhead or weapons.

## The Global Nuclear Dimension – Part Two

| <u>Country</u>  | <u>Sea-Based</u>   | <u>Land Based</u>  | <u>Air Force</u>  |
|---|--|--|---|
| <u>France</u><br><br>(1,400 nuclear weapons)*         | 4 SSBN/64 SLBM<br><br>2 L'Inflexible with 16 M-4?TN-70 or 71 each<br><br>2 Le Triomphant with 16 M-45/TN-75 each   | None   | 3/60 Mirage-2000N (AMSP)<br><br>36 Super Etendard AMSP plus 16 in storage |
| <u>United Kingdom</u><br><br>(1,100 nuclear weapons)* | 4 SSBN/58 SLBM<br><br>4 Vanguard SSBN<br><br>with up to 16 Trident D-5 each and maximum of 48 warheads per boat. (Each missile can be MIRV'd to 12 warheads, But some had only 1. Total is less than 200 operational warheads. |  | None<br><br>None  |
| <u>China</u><br><br>(500-1,300 nuclear weapons)*      | 1 Xia SSBN with 12 CSS-N-3 (J-1)<br><br>1 Romeo SSGN?  | 20+ CC-4 (DF-5) MIRV ICBM<br><br>20+ CSS-3 (DF-4) ICBM<br><br>30-38 CSS-2 (DF-3 IRBM)<br>50+ CSS-5 DF-21 IRBM<br><br>20L/200M DF-15 CSS-6/M-9 SRBM (600 km)<br><br>40 DF-11 CSS-7/M-11 SRBM (120-300 KM) | Up to 126 H-6, Some nuclear capable.<br><br>200+ H-5?                     |

\* Estimate by Sergei Rogov

Source: Adapted by Anthony H. Cordesman from the IISS, Military Balance, 2000-2001.

## The Uncertain Status of North Korean Force Developments

- There is no debate within the US intelligence community over the fact that North Korea has long had large stocks of chemical and biological weapons, and has deployed them in warheads that can be used in its Scud and extended range Scud missiles. There is more debate over whether North Korea has nuclear weapons and is continuing its nuclear weapons development and production program.
- The first major reports of North Korea's nuclear program began in 1993, when analysts found satellite reconnaissance evidence that a North Korean nuclear reprocessing center at Yongbyon had gone had begun to process plutonium. This led to a diplomatic confrontation and talks where the Clinton administration obtained a North Korean pledge to freeze plutonium production at the site. In exchange, the United States, South Korea and Japan agreed to give the North oil and technical assistance to build a peaceful nuclear power program. The agreement called for international monitoring of the Yongbyon site, and Energy Department experts were allowed to encase the spent fuel rods at the center to ensure that they could not be used for warheads. Before this production freeze, however, North Korea was able to produce about 26 pounds of weapons-grade plutonium. As a result, a consensus developed that North Korea could produce one or two bombs.
- The current debate focuses on what North Korea has done since that time. The Clinton Administration initially declared that North Korea had agreed to freeze its entire nuclear program. It later became clear, however, that the agreement covered only Yongbyon and did not preclude nuclear activity at other sites. North Korea then dumped radioactive nuclear fuel out of the heavy water reactor into a cooling pool in order to replace it with fresh fuel rods. The US intelligence community estimated that the spent fuel rods contained enough plutonium for 10 nuclear warheads, and this raised serious questions as to whether North Koreans were covertly going on with its nuclear program.
- A report in the *New York Times*, which has been informally confirmed by several US experts, indicates that the Defense Intelligence Agency (DIA) began to report that it had detected a series of other secret sites, many of them underground, that analysts suspected were related to an ongoing nuclear program. By the late-1990's, DIA and the National Imagery and Mapping Agency, compiled a list of at least 10 potential sites which raised questions about their function without providing clear evidence of any weapons activity.
- One installation, at Kumchangri, was believed to house an underground nuclear reactor and plutonium reprocessing operation. In May 1999, this led the US to pressure North Korea to allow an inspection of the installation which had the same visual signatures as if North Korea was installing an underground reactor, including the water supplies for water cooling. When North Korea did allow inspection, however, the US only found a series of empty tunnels with no large underground chamber able to hold a nuclear reactor. Another inspection in May 2000 had the same result.
- The *Times* reported that some intelligence experts feel the US gave North Korea too much warning before inspecting the site, making it possible for the North Koreans to hide its purpose. However, State Department officials became leary of the DIA estimates, another installation DIA suspected proved to be nothing more than an underground storage site for the memorabilia of the North Korean leadership.
- This eventually led Secretary of State Madeleine K. Albright and Lt. Gen. Patrick Hughes, director of the DIA, to clash over intelligence report suggesting that North Korea had built a storage installation that housed components for nuclear warheads. State Department officials indicated that DIA was reporting an over-pessimistic picture. DIA indicated in turn that the State Department was too willing to overlook reports of suspicious activity. In their view, the failure of a single inspection does not mean the United States should stop pressing the North Koreans about suspect installations, including the building suspected of housing warhead components. Some of the debate focused on an installation DIA suspected of being a storage building for components of nuclear warheads. The identity and exact location of this center, whose existence has not been released, but the *Times* reports that intelligence on the storage center was obtained at least three years ago, and was based not only on spy satellite photographs and intercepted communications, but also on "human intelligence" -- spies -- reporting to DIA.<sup>i</sup>
- What is clear is that North Korea is steadily acquiring more advanced missile forces in spite of major economic problems, its rapprochement talks with South Korea in June 2000, and its agreements to suspend the test firing of long-range missiles in September 1999 and June 2000. It has tested a booster that could allow it to develop missiles that could strike the US, and it has had a serious nuclear weapons development effort in the past. As Table III.5 shows, North Korea also has a wide range of missile programs. It also has already deployed large numbers of shorter-range missiles with chemical and probably biological warheads. These include extended range Scud-type missiles with ranges over 1,300 kilometers. The US intelligence community also reported in June 2000 that North Korea did not suspend any other aspects of development and production after it agreed to suspend missile tests in September 1999.
- North Korea launched a multistage Taepo Dong-1 missile across Japan on August 31, 1998 -- in an effort to place a satellite in orbit. The mission failed, but the United States and its allies were surprised and shocked by the missile's 2,000-kilometer range. David J. Osias, an officer of the Defense Intelligence Agency, stated that "The third stage concerns us. Nobody knew they had it," during a national media update April 26-27, 1998 at the Army Space and Missile Defense Command headquarters.<sup>ii</sup>
- North Korea has limits. The Taepo Dong 1 test was a failure, and the missile was anything but an advanced design. The first stage was modified from a liquid-fueled Scud and the second from the No Dong. Both are 1960s technology. The third stage was a small, solid-fueled rocket designed to put a small satellite into space. It was too small to carry a nuclear weapon or an effective biological payload and dispersal system, and the system was so inherently inaccurate that it was unclear it had growth potential to hit a city-sized target. US experts feel that North Korea has since abandoned work on the Taepo Dong-1 missile, and is now developing the Taepo Dong-2. This missile is a two-stage system that uses a cluster of No Dong engines in the first stage and a single No Dong in the second stage. It has never been tested.<sup>iii</sup>
- Furthermore, North Korea agreed to suspend further tests of long-range missiles in September 1999 -- largely as a result of the negotiating efforts of former Secretary of Defense William Perry.<sup>iv</sup> This agreement was reached after the NIC report was written, and was renewed in June 2000. However, US intelligence community also reported in June 2000 that North Korea did not suspend any other aspects of development and production after it agreed to suspend missile tests in September 1999.
- A CIA report in August 2000 also summarized the state of proliferation in North Korea as follows,<sup>v</sup>

- P'yongyang continues to acquire raw materials from out-of-country entities to produce WMD and ballistic missiles. During the reporting period, there were increased reflections of North Korean procurement of raw materials and components for its ballistic missile programs from various foreign sources, especially through firms in China. North Korea produces and is capable of using a wide variety of chemical and possibly biological agents, as well as their delivery means.
- During the second half of 1999, Pyongyang sought to procure technology worldwide that could have applications in its nuclear program, but we do not know of any procurement directly linked to the nuclear weapons program. We assess that North Korea has produced enough plutonium for at least one, and possibly two, nuclear weapons. The United States and North Korea are nearing completion on the joint project of canning spent fuel from the Yongbyon complex for long-term storage and ultimate shipment out of the North in accordance with the 1994 Agreed Framework. That reactor fuel contains enough plutonium for several more weapons.
- P'yongyang continues to seek conventional weapons via the gray market. In 1999, for example, North Korea acquired MiG-21 fighter aircraft from Kazakhstan.
- ...Throughout the second half of 1999, North Korea continued to export significant ballistic missile-related equipment and missile components, materials, and technical expertise to countries in the Middle East, South Asia, and North Africa. P'yongyang attaches a high priority to the development and sale of ballistic missiles, equipment, and related technology. Exports of ballistic missiles and related technology are one of the North's major sources of hard currency, which fuel continued missile development and production.
- These factors help explain why the report of the National Intelligence Council has seen North Korea as presenting the most serious near term threat to the US, and why this threat has been used as the rationale for setting early deadlines for the deployment of a US NMD system:<sup>vi</sup>
- "After Russia and China, North Korea is the most likely to develop ICBMs capable of threatening the United States during the next 15 years.
- North Korea attempted to orbit a small satellite using the Taepo Dong-1 SLV in August 1998, but the third stage failed during powered flight; other aspects of the flight, including stage separation, appear to have been successful.
- If it had an *operable* third stage and a reentry vehicle capable of surviving ICBM flight, a converted Taepo Dong-1 SLV *could* deliver a light payload to the United States. In these cases, about two-thirds of the payload mass would be required for the reentry vehicle structure. The remaining mass is probably too light for an early generation nuclear weapon but could deliver biological or chemical (BW/CW) warfare agent.
- Most analysts believe that North Korea *probably will test* a Taepo Dong-2 this year, unless delayed for political reasons. A two-stage Taepo Dong-2 could deliver a several-hundred kilogram payload to Alaska and Hawaii, and a lighter payload to the western half of the United States. A three-stage Taepo Dong-2 could deliver a several-hundred kilogram payload anywhere in the United States.
- North Korea is much *more likely* to weaponize the more capable Taepo Dong-2 than the three-stage Taepo Dong-1 as an ICBM."
- These comments are particularly striking in view of the fact North Korea launched a multistage Taepo Dong-1 missile across Japan on August 31, 1998 -- in an effort to place a satellite in orbit. The mission failed, but the United States and its allies were surprised and shocked by the missile's 2,000-kilometer range. David J. Osias, an officer of the Defense Intelligence Agency, stated that "The third stage concerns us. Nobody knew they had it," during a national media update April 26-27, 1998 at the Army Space and Missile Defense Command headquarters.<sup>vii</sup>
- The fact remains, however, that the Korean test was a failure, and that the missile was anything but an advanced design. The first stage was modified from a liquid-fueled Scud and the second from the No Dong. Both are 1960s technology. The third stage was a small, solid-fueled rocket designed to put a small satellite into space. It was too small to carry a nuclear weapon or an effective biological payload and dispersal system, and the system was so inherently inaccurate that it was unclear it had growth potential to hit a city-sized target. US experts feel that North Korea has since abandoned work on the Taepo Dong-1 missile, and is now developing the Taepo Dong-2. This missile is a two-stage system that uses a cluster of No Dong engines in the first stage and a single No Dong in the second stage. It has never been tested.<sup>viii</sup>
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## North Korean Missile Programs and Developments

| <u>Type</u> | <u>Names</u>  | <u>Range (KM)</u> | <u>Warhead (Kg)</u> | <u>Stages</u> | <u>Service Status</u> |
|-------------|---|-------------------|---------------------|---------------|-----------------------|
| SRBM        | Hwasong 5, Scud B<br>Storable liquid fuel; TEL launch<br>Sold to Iran and a number of other states.   | 302-340           | 1000                | 1             | Since 1985            |
| SRBM        | Hwasong 6, Scud C<br>Storable liquid fuel; TEL launch. Sold to Iran and Syria. Deployed in hardened, underground shelters in North Korea.   | 500               | 770                 | 1             | Since 1989            |
| MRBM        | No Dong 1, Rodong 1,<br>Scud D<br>Storable liquid fuel; Uses missile-erector-launcher (MEL). Seems similar to Shihab 3 in Iran and Ghauri program in Pakistan. First test over East China Sea in May 1993, but did not go over 500 kilometers. Iranian and Pakistani observers present at test. Estimate 50-100 missiles no produced. | 1,350             | 1200                | 1             | Since 1997            |
| IRBM        | Taep'o-Dong 1, No-Dong 2,<br>Rodong 2, Scud X<br>Some reports is similar to the Chinese DF-3.   | 1,500-<br>2,200   | 700-<br>1,000       | 2             | 1998?                 |
| SLV         | Taep'o-Dong 1 Space<br>Launch-Vehicle<br>Partially successful test launch on August 23, 1998. Claim launched small satellite.   | 4,000             | 50-100              | 3             | 1998                  |
| ICBM        | Taep'o-Dong 2, No Dong 3  | 4,000-<br>6,000   | 700-<br>1,000       | 2             | 2000+                 |
| ICBM        | ?   | 6,000+            | 100-500             | 3             | ?                     |

Source: Adapted from Joseph S. Bermudez, Jr., "The Rise and Rise of North Korea's ICBMs, International Defense Review, 7/1999, pp. 57-61.

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<sup>i</sup> New York Times, August 5, 2000, p. A-1.

<sup>ii</sup> Douglas J. Gilbert, "Missile Threats Growing as Nation Pursues Defense," American Forces Press Service, May 7, 1999.

<sup>iii</sup> New York Times, p. A-10.

<sup>iv</sup> For further details, see Review of United States Policy Toward North Korea: Findings and Recommendations, Unclassified Report by Dr. William J. Perry, U.S. North Korea Policy Coordinator and Special Advisor to the President and the Secretary of State, Washington, DC, October 12, 1999; and Testimony Before the Senate Foreign Relations Committee, Subcommittee on East Asian and Pacific Affairs, Washington, DC, October 12, 1999.

<sup>v</sup> CIA, August 10, 2000, Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 July Through 31 December 1999 internet edition.

<sup>vi</sup> National Intelligence Council, "Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015, (September 1999 ([www.cia.gov/cia/publications/nie/nie99](http://www.cia.gov/cia/publications/nie/nie99))). Also see the report of the Rumsfeld Commission, Commission to Assess the Ballistic Missile Threat to the United States, Executive Summary, July 15, 1998, pp. 6-7.

<sup>vii</sup> Douglas J. Gilbert, "Missile Threats Growing as Nation Pursues Defense," American Forces Press Service, May 7, 1999.

<sup>viii</sup> New York Times, p. A-10.

<sup>ix</sup> For further details, see Review of United States Policy Toward North Korea: Findings and Recommendations, Unclassified Report by Dr. William J. Perry, U.S. North Korea Policy Coordinator and Special Advisor to the President and the Secretary of State, Washington, DC, October 12, 1999; and Testimony Before the Senate Foreign Relations Committee, Subcommittee on East Asian and Pacific Affairs, Washington, DC, October 12, 1999.