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The North Korean Nuclear Weapons and Ballistic Missile Threat: An American Perspective*

Bruce E. Bechtol Jr.

Angelo State University

Abstract: North Korea's nuclear weapons program has grown surprisingly fast in recent years. The program has gone from small explosions in testing to well over 100 kilotons, even in conservative estimates. As their nuclear weapons capability has grown, so have their capabilities of the platforms that carry it. North Korea now has nuclear capable missiles that can target nodes all over the Asia-Pacific region and parts of the United States. Often forgotten in the rhetoric of the press all over the world regarding the North Korean threat is proliferation. Yet, this is a proven threat that is a danger to security and stability of nation-states in regions all over the world – but especially in the Middle East. Thus, once again, despite America's hesitance to address the North Korean threat, Pyongyang's nuclear weaponization and ballistic capabilities are at the top of Washington's policy agenda. The Trump administration appears to be using both the carrot and the stick – agreeing to talks between the leaders of the two nations yet maintaining what appears to be effective sanctions and other important pressure initiatives against the DPRK.

Keywords: *North Korea, nuclear proliferation, missile proliferation, nuclear weapons, ballistic missiles, foreign policy*

Introduction

North Korea's nuclear weaponization program has been under world scrutiny since the first nuclear crises ended up being "solved" by the Agreed Framework in 1994. But even from the very beginning of the on-again-off-again nuclear crisis that North Korea has created for the international community, for the most part, North Korea was never at the top of the agenda for the United States. In the 1990s, as war raged in Bosnia and a plethora of issues existed all over the world that were in Washington's interests, despite the growing threat of North Korea's Weapons of Mass Destruction (WMD), the US rarely put North Korean issues at the top of its agenda. When the attacks of 9/11/01 occurred, this situation became exacerbated. For the rest of the following decade, the United States was focused first on Afghanistan and then on both Iraq and Afghanistan. But things have changed. When President Barak Obama briefed then President-elect Donald Trump on the most compelling security issues he would confront, most analysts agree that they were speaking of the North Korean threat – largely arising from nuclear weapons and the platforms that would carry them. In fact, according to

press sources, President Obama told President Trump that North Korea was the most urgent problem he would face.¹ As of August 2018, this has not changed.

There are many reasons why the views of American policy makers toward North Korea have changed. Key among these reasons are the evolving and developing capabilities of North Korea's weapons systems. Of course, key among these systems are the nuclear weaponization program and the platforms that would carry nuclear weapons – largely ballistic missiles. When the North Koreans conducted their first nuclear test in 2006, it was considered a threat, but the actual threat it could present to the United States was more ambiguous. That is not the case now. Thus, it is important to cover how North Korea's nuclear weaponization program has evolved to the capabilities it possesses in 2018.

While North Korea's nuclear weaponization development is compelling and important when evaluating the threat we face from that rogue state, a nuclear weapons system is only as good as the platforms that will carry it. Thus, I will evaluate North Korea's ballistic missile programs and the almost lightning-fast speed at which they have been developed. There are a variety of reasons that analysts have assessed for the very fast growth in North Korea's ballistic missile programs – particularly in the Kim Jong-un era.² I will address all of this and will also address alternative platforms that North Korea could use to conduct an attack against the United States or one of our allies.

There has been a great deal of publicity surrounding North Korea's nuclear and ballistic missile programs – particularly from 2016 to 2018. But most of this publicity has revolved around the threat that these systems present to the region or to the United States. Very little has been reported on North Korea's threat to the United States and its allies through military proliferation. This article will address this exact security threat. North Korea is a proven proliferator of nuclear weapons to the Middle East (Syria and possibly Iran). And North Korea is also a proven proliferator of the platforms that could carry nuclear weapons in these countries (ballistic missiles).³ Thus, I will address this very important but largely unreported aspect of the nuclear and ballistic missile threat that North Korea presents to the United States and its interests worldwide.

All of these issues are important in the consideration of the US perspective surrounding the North Korean threat and how to address it. While there is disagreement among pundits, analysts and policy makers – often based on which end of the political spectrum one views the world from, I will use the evidence as it is presented in this article to conclude with policy recommendations.

The Evolving and Advancing North Korean Nuclear Weaponization Programs

There is no doubt that most analysts now assess North Korea to have a small number of nuclear weapons – up to 30-60 weapons is the number many analysts project.⁴ While it seems routine that North Korea is now regarded as a nuclear power, it can be easy to forget that just 12 short years ago, there was much ambiguity surrounding North Korea's nuclear

weaponization programs, the types of nuclear weapons that Pyongyang actually held in its possession, and what platforms were viable to carry this threat throughout the region, and (of great concern from an American perspective) even to American sovereign territory. Much of the ambiguity is gone now. But many questions remain. There is still debate regarding how extensive the damage would be from a North Korean weapon (depending on where it was detonated). There is also some debate about the number of weapons and how they would be used (though much of the argument about the numbers has largely abated). Finally, there is the question of whether or not this program is simply a paper tiger – a program (or set of programs) that the North Koreans choose to display for the world simply as a “Potemkin Village,” yet have no intentions of ever using.⁵ To truly understand the North Korean program and how serious Pyongyang is about using it, one needs to examine the evolving capabilities and the advancing power of this set of weapons programs. Thus, in this section, I will describe and analyze how this program has evolved and advanced since the first test was conducted.

North Korea conducted its first nuclear test in 2006, in a move that shocked the world and showed the world that it had reached the point in its development where it could now weaponize fissile material. The test was conducted during a time period when North Korea was under heavy sanctions and sanction-like initiatives, such as the Patriot Act Section 311, and it is possible that the test was conducted to force the United States back to the bargaining table. It is still not clear whether that was true or not. Nevertheless, the first test produced a resulting explosion that most analysts assessed to be 0.5 to 1.0 kilotons. The test showed that while the North Koreans had now reached the capability of weaponizing their nuclear program, it appeared to still be very small and primitive in what it could do.⁶

While the test in 2006 was quite small, it was at least a partial success. However, it showed that the North Koreans still had a lot of work to do in improving their nuclear weaponization programs. Certainly, this was not (as we now see) something that could happen overnight. But it was something that the North Koreans were obviously continuing to develop. As President Bush left office in 2009 to be replaced by the newly elected President Obama, there were those who were hopeful that things would progress differently. In fact, the Bush administration’s talks with North Korea ended up in total failure and with North Korea giving up none of its nuclear weapons. Thus, perhaps the North Koreans, rather than showing promise as a new American President took the helm, chose to take an aggressive stance as the world looked on. One of the ways that they did this was to conduct a nuclear test. On May 25, 2009, just a few short months after President Obama was inaugurated, the North Koreans once again tested a nuclear device (likely a weapon). This time the yield from the weapon increased significantly, and the assessment reached by most analysts was 2-4 kilotons. While still a low yield (and probably a primitive weapon), the test showed Pyongyang had made progress from the first test conducted nearly three years earlier.⁷

North Korea’s third underground nuclear test (2013) was believed at the time to be a test with a yield of six to seven kilotons.⁸ The third test was the largest of the tests to

that date and showed that North Korea continued to advance its capabilities. The third test was far more concealed than previous tests – making it more difficult for American and allied intelligence collection to assess whether the detonation was of a Plutonium or (Highly Enriched Uranium) HEU device.⁹ According to press reports, high-ranking Iranian officials were present at the test – perhaps to consider collaboration for their own program.¹⁰ North Korea has been assessed for several years to have the capability to mount a 500 kilogram HEU warhead on a missile. The most likely candidate for this at the time would have been the No Dong. North Korea probably got the designs for the warhead as a result of their nuclear deal with Pakistan. Pakistan acquired the No Dong systems (at least some of which came as a result of a trade deal that involved “nukes for missiles”) from North Korea. Pyongyang supplied No Dong missiles to Pakistan beginning in the late 1990s, and Pakistan probably ended the deal because of United States pressure around 2002.¹¹ With a range of up to 1,500 kilometers, the No Dong can hit important targets all over Japan. Key among these potential targets are several US military bases and Tokyo.¹²

North Korea had typically conducted nuclear tests several years apart. That changed in 2016. By the fall of 2015, imagery had shown the North Koreans were building a tunnel at the test facility near Punggye-ri located in northeastern North Korea. The North Koreans decided to conduct the fourth nuclear test during January of 2016. In an interesting twist, North Korea announced to the world that they had detonated a “hydrogen bomb.” To date, there is no definitive evidence to support this claim (at least not in unclassified channels). The test was similar in size to the third underground test North Korea conducted. It did however show that North Korea was continuing to advance and tweak its nuclear weapons program – and a big part of this would be the capability to put a nuclear warhead on a missile.¹³

North Korea conducted its fifth nuclear test in September of 2016. In keeping with its march toward a larger yield, this was the largest test yet conducted by Pyongyang. Additionally, in a break with precedent, this test was conducted just eight months following North Korea’s fourth nuclear test. Previous tests had been conducted several years apart. The majority of analysts who assessed the yield of the blast estimated that the nuclear device power was 10-12 kilotons. Following the completion of the test, North Korea publicly announced that this test was a “smaller, lighter” device – presumably a device that could be mounted on a ballistic missile. This test left no ambiguity about the fact that North Korea was advancing its nuclear programs at a stepped up pace.¹⁴

A year after North Korea’s fifth nuclear weapons test (September 2017), North Korea conducted its largest nuclear test ever. In fact, this test was probably up to 10 times larger than the fifth nuclear test (which itself was far larger than any previous tests). Many experts assessed the sixth nuclear test to have a yield of 100 kilotons or more. Some analysts judged the yield of the test to be much higher. A research institute in Norway released estimates assessing the yield of the blast for the weapon tested to be around 250 kilotons. Kim Jong-un was photographed in North Korean propaganda photos, showing a briefing being conducted with him about a two-stage thermonuclear device. Based on the photos,

it appears that the missile that would carry such a device would be the “Hwasong-14,” a missile I will address in detail later. In a rather shocking bit of publicity, the North Koreans announced to the world that the sixth nuclear test was of a “thermonuclear device.” Pyongyang further asserted that the test was of a hydrogen bomb – a device with the possibility of being mounted on a ballistic missile. Based on the data from the test and the numerous reports regarding its yield, this test showed that North Korea had (easily) tested the most capable nuclear device seen to date. In 11 short years, North Korea had gone from a yield of about one kiloton to a yield of (even in the most conservative estimates) at least 100 kilotons. This leaves no doubt that the North Korean nuclear threat is one that has advanced quickly and must be taken seriously.¹⁵

Platforms That Can Carry North Korean Nuclear Weapons

North Korea has been considered a potential nuclear threat since before the Agreed Framework was negotiated to fruition in 1994. This is important, and while some have said in the past that North Korea’s nuclear threat was really a “paper tiger,” the compelling developments in the size of the yield of North Korea’s nuclear weapons should prove to the world (as it was intended) that Pyongyang is serious about developing its nuclear weapons capability to the point that it cannot only threaten the region North Korea sits in, but potentially the United States. However, nuclear weapons systems are only as good as the platforms that deliver them. Thus, it will be important to assess details regarding North Korea’s ballistic missiles systems, and another platform that most analysts have not considered. In this section, I will describe the plethora of missile systems that North Korea now possesses or that are in development. An assessment of this section will provide the reader with an explication not only of the capabilities Pyongyang’s missiles have, but the gradual development of these platforms since the early 1990s.

Because North Korea can potentially launch Scud missiles that are nuclear-capable, it is important to understand the range of these missiles. While it is unlikely North Korea will use these missiles, if they chose to attack South Korea, these may be the kinds of platforms that would be used – and all of the systems that North Korea has are road-mobile. North Korea’s Scud missiles range from around 300 kilometers for the Scud-B to nearly 1,000 kilometers for the extended range Scud, also known as the “Scud-ER.” All of these missiles are currently operational and have been tested many times, not just in North Korea but in nations that North Korea has proliferated them to.¹⁶ While these missiles are largely 1960s era technology and largely considered primitive and less than accurate, they are credible weapons for attacking cities and present a legitimate threat to South Korea.

A missile that North Korea could potentially use as an Intercontinental Ballistic Missile (ICBM) (though this is unlikely because it takes days to set up and could be destroyed before launch) is the Taepo Dong series of missiles, the latest version of it being called by some the “Taepo Dong 3,” while the North Koreans call it the “Unha-3.”¹⁷ While this

system could potentially be used for long-range missile launches, the North Koreans call it a space launch vehicle (SLV), and one should keep in mind that this is also a good way to test three stage ballistic missile technology (as the North Koreans have done). On February 7, 2016, North Korea completed a successful launch of the Taepo Dong (for the second time). Pyongyang was able to also successfully put a satellite into space. Following the launch, South Korea was able to retrieve parts of the first stage. Specialists who conducted tests and analysis of the “Unha-3” assessed that if fired as a missile, it potentially had a range of 12,000 kilometers. Additionally, analysis of the launch site following the 2016 rocket launch showed an underground railway. This now allows technicians to ready the missile for launch more covertly than in the past and thus shortens warning time for the United States and its allies (from as long as several weeks to as short as a few days), should the rocket be carrying a military payload. With regards to that payload, some analysts have assessed that this rocket was capable of carrying a larger payload than previous versions.¹⁸

North Korea has tested a mobile missile capable of hitting Japan in recent years. This system, the No Dong, was tested several times during 2014. Simulated launches occurred during 2015, as well. During 2014, the testing of what appeared to be a modified version of the No Dong showed a version that appeared to be capable of carrying a nuclear warhead. In addition, analysis of the firing angle when the systems were launched may indicate a modification of the missile completed in order to evade ballistic missile defense systems, such as the Patriot Advanced Capability-3 (PAC-3).¹⁹

North Korea conducted tests of an intermediate range ballistic missile on a mobile launcher (the Musudan) during June of 2016. They conducted two launches, one of which was successful (though the other launch may have been a decoy). The Musudan tested during June of 2016 attained an altitude of at least 1,400 kilometers. The missile launch (which looked almost as if the missile was launched straight up into the air) showed that if its trajectory was leveled out to a normal flight pattern, the Musudan has the range that may legitimately allow it to target Guam (range of 3,500 to 4,000 kilometers). The successful launch of the Musudan showed some new capabilities not previously assessed by analysts. The missile appeared to have newly designed grid fins, and perhaps even new engines. The Musudan also (perhaps most importantly) showed that it could fly at a speed and altitude that might allow it to evade South Korea’s Patriot ballistic missile defense systems (the PAC-2 or maybe even PAC-3 systems).²⁰ After several failures in early launches, the North Koreans showed that the Musudan missile could in fact be launched successfully – at least some of the time.

The North Koreans tested another new (nuclear capable) ballistic missile system during May of 2017. Pyongyang identified this system as the “Hwasong 12,” and the United States Department of Defense (US DOD) called it the KN-17. While the missile looks a lot like the Musudan, it appears to have a longer range. The engines may be different from the Musudan as well, and the newer missile is now equipped with Vernier engines – which may be what gave it the longer range. Analysts who studied the launch of the new missile

have assessed that, if instead of being launched at the high trajectory the missile was tested with, it was tested at a more typical ballistic missile launch pattern (a leveled out pattern that would give it maximum range), the “Hwasong 12” is likely to have a range of 4,500 kilometers. North Korea thus now has two ballistic missile systems with the potential to target Guam. Guam’s American population is nearly 170,000 people, and it is home to several military bases (as sovereign territory of the United States, Guam presents a lucrative North Korean target for a variety of reasons).²¹ Since its initial test-launch in May of 2017, the “Hwasong-12” has been tested again several times.²²

North Korea successfully tested their first mobile ICBM on July 4, 2017. The missile appeared to have both ICBM range and atmospheric re-entry capability. The North Koreans have designated this missile “Hwasong-14.” The “Hwasong-14 is a two-stage missile. Based on the steep angle that the missile was launched on, if the launch pattern was leveled out to maximum range, it appears that the range of the “Hwasong-14” is around 6,700 kilometers, which would put Anchorage Alaska within range of a North Korean ICBM (almost 300,000 people live in the Anchorage area – roughly 40 percent of Alaska’s population). With no ambiguity, the Hwasong-14 is a mobile missile that can threaten population centers in United States sovereign territory. Thus, this means that on the day this missile was first successfully tested, United States defenses experienced a paradigm shift. North Korea proved on that day – a day celebrating American independence – that they had a road-mobile, nuclear weapons capable missile, and could threaten the United States with it.²³ The North Koreans tested an even more advanced version (apparently) of the “Hwasong-14” on July 28, 2017 (US DOD calls this missile the KN-20). This test was also successful to an even longer range.²⁴

The North Koreans chose to stretch the edge of the envelope one step further on November 29, 2017. It was on that day that Pyongyang chose to launch a missile that appears to be even more capable and with a longer range than the “Hwasong-14.” The North Koreans named this missile the “Hwasong-15,” and US DOD has named it the KN-22. On that day in November, it flew for longer and at a higher altitude than either one of the test flights of the “Hwasong-14.” The newer, more advanced ICBM can carry more fuel than the “Hwasong-14” and appears to operate with 80 tons of thrust. It can also target nodes farther inside of the United States and thus, when operational will be even more of a threat.²⁵ Thus, the North Koreans have not one, but two ICBM platforms that can potentially carry a nuclear warhead and target the United States. Both platforms are mobile and thus harder to detect during wartime. According to General Paul Selva, Vice-Chairman of the Joint Chiefs of Staff, North Korea is missing only two pieces of technology to perfect its ICBMs. Quoted in the press, the General stated that these two pieces were, “a reliable reentry vehicle and a reliable arming, firing and fusing system.”²⁶ It is unknown what the general meant by “perfect,” as these two aspects of technology seemed to work in the test-launches we have seen. But, logically, more testing would make these two technological aspects of their ICBMs more efficient and capable.

Another ballistic missile that may be considered a legitimate nuclear threat platform (to the US) is considered exactly that – not so much because of its range but because of the vehicle that carries it (a submarine). The missile is called the “Pukguksong-1” by the North Koreans and is a submarine launched ballistic missile (SLBM). The submarine (for now) that has successfully conducted test launches of the missile is often called the “Sinpo-class” sub. The missile has a range of up to 2,000 kilometers and uses solid fuel. Thus, if the submarine (a vessel that may have the capability to conduct long-range blue water operations) can get within 2,000 kilometers of American territory like Hawaii or Guam, this could potentially be an ominous threat to the United States.²⁷

There is one more platform that I consider a credible nuclear threat to the security of the region and to the United States: The North Koreans could put even a primitive nuclear device on a non-descript merchant ship, sail it into any port in South Korea, Japan, or the United States (or elsewhere), detonate it, and kill tens of thousands of people. This is almost never discussed when analysts address the North Korean nuclear threat, but it is not as far-fetched as it sounds. The North Koreans are well known for being able to reflag their ships when they are carrying illicit cargo and proliferating weapons.²⁸ The examples are quite compelling. In 2015 it was confirmed that North Korean crews had used ships flagged under Mongolia, Kiribati, Tuvalu, and Niue to avoid sanctions. In 2016, several North Korean ships and crews were confirmed to be operating under the flag of Sierra Leone. Also in 2016, up to 50 North Korean ships were reportedly flying under the Tanzanian flag.²⁹ In 2017, a North Korean ship was caught operating under the Cambodian flag.³⁰ Ships carrying North Korean illicit cargo also often turn off their transponders – making it even more difficult to track them.³¹ They are very skillful at using this methodology for proliferation, so why would they not be able to do it if they wanted to conduct an attack against the United States or one of our allies?

The Threat of Nuclear and Missile Proliferation: How Real Is It?

North Korea is now becoming known as a nation-state that proliferates weapons to not only other rogue states (and many states that some find surprising), but to non-state actors such as Hezbollah and the Houthis.³² Because this article is about North Korea’s nuclear and missile threat to the United States and its key allies, though, I will address only the nuclear weapons and ballistic missile proliferation highlights that North Korea has engaged in over the time span of Kim Jong-un’s rule. While there has been much debate about North Korea’s nuclear proliferation (particularly when it comes to Iran), the evidence will speak for itself. In addition, North Korea is proliferating missiles and missile technology to some surprising customers.

North Korea began cooperation with Syria to develop a nuclear reactor beginning in the 1990s. Former Director of the CIA, Michael Hayden, discussed North Korea’s support to Syria’s nuclear program with the World Affairs Council of Los Angeles in 2008. He

addressed that the North Koreans assisted in building a plutonium reactor for the Syrians (later bombed and decimated by the Israeli Air Force in 2007), when he stated, “The depth of that relationship was revealed in the spring of last year...” He further commented, “similar to Yongbyon in North Korea, but with its outer structure heavily disguised.” Finally, he left no doubt that it was North Korea that was assisting Syria with its plutonium program (and no doubt about the diverse amount of intelligence sources they used to uncover this) when he said, “Virtually every form of intelligence – imagery, signals, human source, you name it – informed their assessments, so that they were never completely dependent on any single channel.”³³

There is a plethora of evidence confirming North Korea’s proliferation of a plutonium nuclear weaponization program to Syria. The Office of the Director of National Intelligence (ODNI) provided a briefing for public consumption. In it, they uncovered a nuclear weaponization deal that North Korea brokered with Syria dating back to 1997. Intelligence identified a facility in Syria in 2006, and intelligence collected during 2007 showed elements both inside and outside of the facility, leaving no ambiguity that it was a plutonium nuclear reactor – one that closely and remarkably resembled the North Korean plutonium reactor at Yongbyon.³⁴

Other evidence regarding the plutonium reactor that was revealed at the press briefing included proof that a tin roof and thin curtain walls were added to the facility following the completion of its construction. This activity was probably undertaken so that the building’s outline would no longer closely resemble the outline of its brother facility in North Korea at Yongbyon. It is likely that the North Koreans built the changes to the outline of the facility to prevent outsiders from realizing they were the ones who built it – in addition to the fact that it needed to be altered to prevent destruction by forces (such as Israel) who would recognize the threat that it posed (which is actually what happened). According to the ODNI report, several high ranking North Korean officials had conducted visits to the facility since at least 2001. One key official who visited the facility was Chon Chi-bu. Chon is known as one of the top nuclear scientists in North Korea who deals with nuclear weapons. One of the senior intelligence officials at the press briefing remarked in part, “... our information shows that Syria was building a gas-cooled, graphite-moderated reactor that was nearing operational capability in August 2007. The reactor would have been capable of producing plutonium for nuclear weapons. It was not configured to produce electricity and was ill-suited for research.” He left no doubt about the assessment we should all draw from this when he further stated, “Only North Korea has built this type of reactor in the past 35 years.”³⁵

What may have triggered the Israeli attack were reports of a cargo ship arriving at port in Syria carrying 45 tons of yellowcake. The ship had originated in North Korea. Following the destruction of the nuclear reactor, the evidence suggests the yellow cake instead was sent to Iran (if the evidence is correct, because the yellowcake was no longer of use to Syria because their nuclear facility had been destroyed).³⁶

According to Ali Reza Asghari, a high-ranking Iranian defector, the Iranians financed most of the cost for the North Koreans to build a nuclear reactor for the Syrians. Asghari was formerly a general in the Iranian Republican Guard Corps and also former deputy defense minister. According to Asghari, the Iranians spent up to two billion dollars to help pay for Syria's plutonium nuclear reactor. While there is no proof of Iran's motives, it is possible they were looking to go "offshore" with another nuclear program as an alternative to their HEU program.³⁷

North Korea has also helped Syria develop its ballistic missile programs. North Korea had proliferated Scud B's to Syria beginning in the 1990s. Since then they have also proliferated Scud C's, and built fabrication facilities for the Syrians so that they could ship parts and technicians there to assist in the assembling of the missile. In addition, North Korea has shipped Scud D's to Syria and has now built facilities there for fabrication of these missiles with North Korean parts and assistance. North Koreans have also assisted the Syrians with the testing and development of upgrades to these missiles.³⁸

Less linear than Syria's nuclear relationship – though still compelling – is the North Korea-Iran nuclear weaponization relationship. In 2003, the *Los Angeles Times* reported (in a piece by Douglas Frantz) that Iran had received assistance from China, Pakistan, Russia, and North Korea while they were in the process of building their nuclear weaponization program. Frantz stated, "So many North Koreans are working on nuclear and missile projects in Iran that a resort on the Caspian coast is set aside for their exclusive use."³⁹ In 2006, Robin Hughes of *Jane's Defense Weekly* reported that more than 10,000 meters of underground nuclear facilities had been constructed for Iran by North Korea.⁴⁰ According to reports in the European press during 2011, Pyongyang proliferated a computer program to Iran that simulated neutron flows. The North Koreans also reportedly conducted training on how to use the program.⁴¹ Later in 2011, Joby Warrick of the *Washington Post*, wrote that he was using UN officials as a source (the officials reportedly cited secret intelligence provided to the International Atomic Energy Agency [IAEA]), to report, "Iran also relied on foreign experts to supply mathematical formulas and codes for theoretical design work – some of which appear to have originated in North Korea."⁴²

While the evidence to date regarding North Korea's support to Iran's nuclear program is largely anecdotal, there is a great deal of diverse reporting by respected sources in the press and academic world that simply cannot be ignored. Dissidents and defectors have also stated that this activity occurred.⁴³ Thus, one must dwell on all of this evidence, because as often as not, "where there is smoke, there is fire." The North Korea-Iran nuclear proliferation relationship is one that rates continued investigation and analysis.

When it comes to ballistic missiles, Iran is easily North Korea's biggest and most longstanding customer. North Korea started off by selling Iran the Scud B in the mid-1980s.⁴⁴ The North Koreans next proliferated the Scud C to Iran and set up fabrication facilities there where North Koreans could assist in assembling these missiles for Tehran.⁴⁵

North Korea has developed and honed the capabilities of the Scud D for a fabrication facility that exists in Syria (which still uses North Korean parts and technical assistance). Reportedly, Iran also uses this missile. It is unclear if they take deliveries of this missile from North Korea or directly from Syria.⁴⁶ In the mid-1990s, Iran took delivery of the No Dong, a missile with a range of up to 1,500 kilometers.⁴⁷ During 2015, Iran test-launched what was called a “new” missile. But the missile, in fact, appeared to be simply an upgraded variant of the No Dong – likely built with assistance from the North Koreans. The Iranians called this “new” missile the “Emad,” and it has an increased range over previous versions of the No Dong (by about 200 kilometers), in addition to what appears to be an improved guidance system.⁴⁸

In 2005, North Korea proliferated the Musudan missile to Iran (18 systems). This gave the Iranians (at the time) a drastically improved range capability as the Musudan is an Intermediate-range Ballistic Missile (IRBM) and has a range of 3,500 to 4,000 kilometers.⁴⁹ The Iranians apparently tested what may have been an improved variant of the Musudan missile during the month of January 2017.⁵⁰ Iranians have been present at several North Korean missile tests. These tests include tests of what the North Koreans call the “Unha,” and what is commonly known in the west as the Taepo Dong. The Taepo Dong has evolved a great deal over the years, but the most recently tested version has a cluster of four No Dong engines in its first stage.⁵¹ Additionally, in July of 2017, the Iranians tested a missile (they called it a “space launched vehicle”). The Iranians called this SLV (which no doubt had technology that could later be used for ballistic missiles) the Simorgh. The two-stage rocket had a stage that was a cluster of four No Dong engines – clearly technology they got from the North Koreans and likely based on assistance they received after having observed launches of the DPRK “Unha” system.⁵² Yet another example of North Korean assistance to Iranian missile programs can be seen in the “Safir” SLV. This is a system that the Iranians have tested several times. Leaked State Department cables found on “WikiLeaks” reveal that one stage of Iran’s Safir system (the Safir is a two-stage system) is a No Dong.⁵³

There is no doubt that as Iran seeks to advance its missile and “SLV” programs, North Korea has been there to assist them since the 1980s. Many of these systems are nuclear weapons capable – so it is important to monitor their development, as we continue to monitor Iran’s on-again-off-again nuclear weaponization program. However, while Iran and Syria are important customers of North Korea’s ballistic missiles, there are two other customers in the Middle East I would also like to highlight. Egypt has been a customer for Pyongyang since the 1980s, and evidence shows that they likely continue to seek Scuds and perhaps other systems from North Korea.⁵⁴ This is particularly disturbing given the fact that Egypt is a recipient of American foreign aid – including military aid. Another entity I will address is the Houthis. They captured Scuds from the previous (US friendly) government, but now appear to be using even longer range ballistic missiles – missiles that reportedly may have been acquired based on deals that were brokered between the Houthis and the North Koreans by a Syrian intermediary. These newer versions appear to now give the Houthis the ability to target the Saudi capital.⁵⁵

The proliferation activities I have described thus far are only the threats from missiles and nuclear programs. In the Middle East in particular (but in other regions to a lesser extent), North Korea also proliferates conventional weapons, chemical weapons, and the training that is necessary for states to continue to operate their military infrastructure. Thus, as we examine the North Korean threat or as we watch new and more threatening weapons being deployed or tested, we must keep in mind that North Korea is truly a two-track military threat. They are a threat to their own region and to the United States through the direct use of their advancing military systems (nukes and missiles), but they are also a two-headed threat because of the fact that they proliferate their WMD and the platforms that carry it to the Middle East.

Policy Implications

North Korea's military capabilities have grown quite effectively, and indeed quite quickly, during the final years of Kim Jong-il, and especially during the years since Kim Jong-un has come to power in the DPRK. However, while these capabilities have grown, the capabilities that have gained the most attention have been those that could specifically threaten the United States. Thus, the fact that North Korea has now developed a nuclear device that can – even by the most conservative estimates – detonate at 100 kilotons or above is of great concern. What exacerbates this concern is the successful testing of missiles that can hit Guam (Hwasong-12) and if launched from a submarine, Hawaii (Pukguksong-1), as well as mobile missiles successfully tested that can hit at least Alaska (Hwasong-14), or even the west coast of the United States and beyond (Hwasong-15). When one combines the proven capability of a large (by North Korean standards) nuclear warhead with the also proven capabilities of the several platforms that could launch a nuclear warhead, not only in the region, but against much of the sovereign territory of the United States, it is these capabilities that have proven the naysayers of the North Korean military threat to be wrong (again). It is also these capabilities that have changed the policy implications for the United States. Now, it is no longer about what North Korea may be able to do in the predictable future. It is about what the DPRK can do now.

The nuclear and missile tests of 2017 proved that North Korea was no longer a nation on its way to being more than a just a direct regional threat, but now a state that could directly threaten the sovereign territory of the United States. This did not change the paradigm that had existed before. South Korea, for example, is the sixth largest trading partner of the United States. Japan is the fourth largest trading partner of the United States.⁵⁶ It would thus be in the national interest (and always has been) of the United States to deter any North Korean attack against these two nations. The United States has always been a staunch ally of both Japan and South Korea – a signatory to treaties that protect both of these nations from attack.⁵⁷ So, tensions in the region have always had a major impact on the United States and its foreign policy. What the new, proven capabilities of 2017 did was to add a

sense of urgency to American policy. Now, North Korea was no longer that far away threat to US key allies; they could attack the sovereign territory of the United States with WMD that would kill tens of thousands of people in mere minutes. Thus, dismantlement of North Korea's nuclear capabilities as of 2017 was now no longer just something the American government wanted in order to protect its interests overseas; it was something it needed in order to protect its people in the homeland.⁵⁸

After nearly a year and a half of rhetoric between the United States and North Korea, the leaders of the two nations agreed to meet in Singapore in June 2018. For the first time, the leaders of North Korea and the United States would meet. While it was important that the two leaders met in 2018, the results of the meeting were ambiguous and lacking in detail.⁵⁹ The good thing however, about what came afterward was that the Trump administration did not give up its policy of "maximum pressure." This is a policy that remained in effect after the meeting in Singapore, largely because North Korea did not agree to anything. The policy consisted of a number of things, but key among them were sanctions (both unilateral and UN) and financial policies that would hamper North Korea's ability to conduct illicit activities – including the large-scale proliferation referenced earlier in this article. After the summit in Singapore, the "maximum pressure" policy remains in effect.⁶⁰ With another meeting between Kim and Trump likely as of the writing of this article, it is very likely that the President will offer incentives to Kim in order to get North Korea on the path of denuclearization. Nevertheless, sanctions, and other aspects of the "maximum pressure" campaign are likely to continue as long as North Korea continues to maintain its nuclear weaponization program.

Conclusion

North Korea has steadily marched forward with a robust nuclear weapons program and a matching ballistic missile program that can potentially carry these weapons as far away as the United States. The program to be a nuclear-armed and threatening state continues unabated as of the writing of this article.

Throughout the time of the four American Presidents who have dealt with North Korea's nukes thus far, Pyongyang has been able to draw the United States to the bargaining table and then gain concessions before making any actual moves to dismantle its program. The key here is that North Korea has demanded American concessions before it made any real initiatives. The Bush administration actually had North Korea on the ropes in 2006, before caving to North Korean demands about coming to talks – talks that led to an agreement that North Korea violated the next year and that ended up in complete failure.⁶¹ In my view, this is the important lesson that President Trump can take from past failures. It is important to conduct talks. It is important to go the extra mile to deal with North Korea. However, no concessions should be made – none – until North Korea, transparently – to be inspected at sites and time of American choosing – dismantles its nuclear weaponization

program. Unless or until that happens, the economic pressure (sanctions and “sanction-like” initiatives) can and should continue. As North Korea engages in hyperbole and obnoxious rhetoric, the United States should remain focused on a pressure campaign that stops only when North Korea takes action to fulfill its obligations and to join responsible nations in dismantling its rogue nuclear program – and that is only the first step for normalization and peace on the Korean Peninsula.

The Trump administration appears to be following this *modus operandi*, as new sanctions on a Russian bank (as well as other important sanctions) have occurred since the talks, and other initiatives appear to be on the way to keeping the pressure on.⁶² Once North Korea chooses to join the world’s responsible nations and begins to cease its rogue state behavior (if that happens), the pressure can begin to be eased. But unless or until it happens, economic pressure must remain as a tool that will coerce the DPRK into nation-state behavior that eases tension in the region and stops the threats posed to the United States and its allies.

Bruce E. Bechtol, Jr. (Ph.D. Union Institute), is an award-winning professor of political science at Angelo State University and a retired Marine. He was an intelligence officer at the Defense Intelligence Agency from 1997 until 2003, eventually serving as the senior analyst for Northeast Asia in the Intelligence Directorate (J2) on the Joint Staff in the Pentagon. He is currently on the editorial advisory board of the Korea Observer, the editorial board of the International Journal of Security Studies, and the scientific board of Global Humanities. He is the president of the International Council on Korean Studies, and on the board of directors of the Council on US-Korean Security Studies. He is the author of North Korean Military Proliferation to the Middle East and Africa: Enabling Violence and Instability (University Press of Kentucky: 2018), North Korea and Regional Security in the Kim Jong-un Era: A New International Security Dilemma (Palgrave Macmillan: 2014), The Last Days of Kim Jong-Il: The North Korean Threat in a Changing Era (University of Nebraska Press: 2013), Defiant Failed State: The North Korean Threat to International Security (Potomac Books: 2010), and Red Rogue: The Persistent Challenge of North Korea (Potomac Books: 2007). He is the author of more than thirty articles in peer-reviewed journals. Dr. Bechtol has presented commentary to the BBC, CNN, CBC, FOX News, Radio New Zealand, syndicated nationwide radio shows such as POTUS politics on SIRIUS/XM, the John Batchelor show, the Frank Gaffney show, and several interviews on National Public Radio.

Notes

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