



North Korea

Overview

The Democratic People's Republic of Korea (DPRK) possesses an increasingly capable ballistic missile inventory and continues to make progress on its nuclear weapons program. Despite it's

struggling economy, North Korea invests significant financial resources into its weapons of mass destruction program in an effort to deter the United States and its allies. The DPRK refuses to cooperate with the international community in efforts to monitor and roll back its nuclear program. Due to a lack of transparency regarding its nuclear and ballistic missile program and unpredictable leadership, North Korea poses a considerable threat to the United States and allies around the world. North Korea has not launched any missiles since November 2017, and is currently engaged in denuclearization talks with the United States. However, according to comments from senior leadership in the Department of Defense, North Korea is still considered to be a missile threat to the United States that missile defense should be postured against.

Ballistic Missile Program

North Korea's efforts to develop ballistic missile capabilities date back to the Cold War, when the Soviet Union and China likely provided the isolationist nation with technical assistance. The DPRK's ballistic missile capabilities have progressed significantly over the last few decades, evolving from artillery rockets in the 1960s, to short- and medium-range ballistic missiles in the 1980s and 90s, and finally developing and testing intermediate-range and intercontinental ballistic missiles (ICBMs), beginning in the late 1990s and continuing today. In 1965, North Korean leader Kim Il-sung chose to develop ballistic missile capabilities by increasing the military budget and relying on outside assistance from the Soviet Union and China. As a result, the isolationist state made rapid progress in its ballistic missile program by the increased military funding as well as reverse engineering the missiles of its Communist allies. In 1998, after an attempted satellite launch with a multi-stage missile, North Korea demonstrated a willingness to develop ICBMs that could target the United States homeland. Since Kim Jong-un came to power, there has been a notable increase in missile tests and rapid technological developments, including the successful launch of an ICBM and some solid-fuel missiles. In 2017 alone, North Korea conducted 23 missile tests, including successful tests of two new long-range missiles, an ICBM labeled the Hwasong-14 and an intermediate-range ballistic missile (IRBM) marked the Hwasong-12, that can reach Guam, Hawaii, Alaska, and the western half of the United States. Despite halts on testing and production of its ballistic missile capabilities, North Korea is an active proliferator of missile systems, components, and technology.

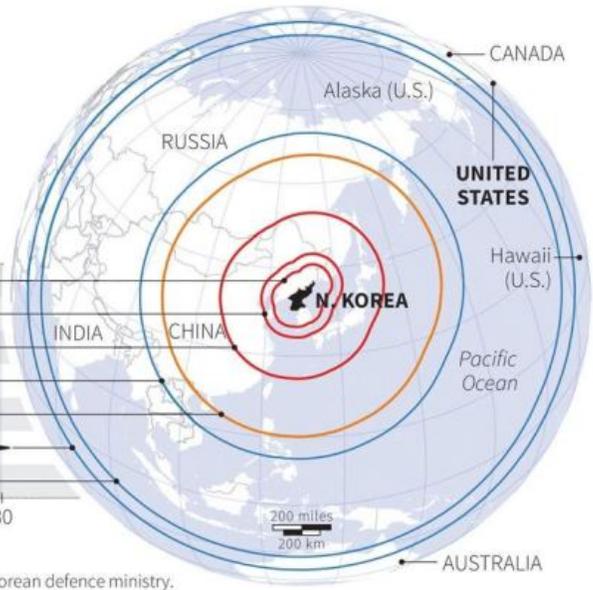
North Korean missile range

North Korea fired four short-range missiles toward the sea off the country's east coast on Thursday, a media official at South Korea's Defence Ministry said.

MISSILE CAPABILITIES — North Korea's estimated ballistic missile ranges

STATUS: ■ Operational ■ Flight tested ■ In development/untested

	Origin	Warhead (kg)	Range (km)	Length (m)
■ Hwasong-5	Russia	1,000	300	~10
■ Hwasong-6	Russia	700	500	~15
■ Rodong	N. Korea	700	1,300	~25
■ Musudan	Russia	650	3,000+	~30
■ Taepodong-1	N. Korea	500	2,500	~25
■ Taepodong-2	N. Korea	700-1,000	6,700	~30
■ KN-08 (Nodong C)	N. Korea	750-1,000	6,000	~30



Sources: Federation of American Scientists; Global Security; Center for Nonproliferation Studies; South Korean defence ministry.

Staff, 27/02/2014

REUTERS

Close-Range Ballistic Missiles

The Kim regime possess just two close-range ballistic missiles (CRBMs), the KN-09 and the KN-02.

While not much is known about the KN-09, it is currently in development and has a suspected range of 190 kilometers. Like the KN-02, it is a solid-fueled missile. It was officially unveiled in October 2015 during a military parade, but was most recently seen again in February 2017 “Day of the Sun” parade. The system was last tested in March 2016. The test was successful and the KN-09 was reported to have flown 200 km.

The KN-02 has a range of up to 120 km and is operational, putting military installations in South Korea at risk. Like the Polaris-1, the KN-02 is a solid-fueled missile believed to have a payload capacity between 250 and 500 kg. The first test of the missile, in April 2004, was a failure. Since 2004, the KN-02 has been tested at least 20 times, most of them successful, and became operational between 2006 and 2008.

Model	Propellant	Deployment	Range (km)	Number of Missiles
KN-09 (KN-SS-X-9)	Solid	Road-Mobile	190	In Development
KN-02 (Toksa)	Solid	Road-Mobile	120	Fewer than 100

Short-Range Ballistic Missiles

The Kim regime possesses a variety of short-range ballistic missiles (SRBMs) and the U.S. estimates that North Korea deploys fewer than 400 Scud missiles. Specifically, the isolationist state is believed to currently employ five types of SRBMs: the [Hwasong-5](#), [Hwasong-6](#), [Hwasong-9](#), KN-21 and the [KN-23](#).

Some SRBMs employed by North Korea are the [Hwasong-5](#) and the [Hwasong-6](#), both of which were developed with Soviet assistance in the 1970s and 80s and are speculated to have been tested and deployed. The [Hwasong-5](#)—also known as the Scud-B—has a range of 300 km and the [Hwasong-6](#)—also known as the Scud-C—has a range of 500 km. It is believed that Pyongyang sold the [Hwasong-6](#) to Iran, where it is known as the Shahab 2.

The [Hwasong-9](#), or Scud-D/Scud-ER, was developed indigenously by North Korea. It is believed to have a range between 800 and 1000 km, and a payload capacity of around 500kg. It can carry chemical or high explosive warheads, and even possibly has the capacity to be fitted with miniaturized nuclear warheads. All North Korea's Hwasong SRBMs have the range to strike targets anywhere in South Korea and in some parts of southern Japan.

The KN-21 is suspected to be a variant of North Korea's first missile, the Hwasong-5 (Scud-B). The KN-21 SRBM is a unitary, scud missile with a non-separating warhead that give it the capability to maneuver in the terminal phase of flight. North Korea has described this missile as an 'ultra-precision' variation of its existing SRBMs. This missile was first flight tested on August 25, 2017, when North Korea launched three KN-21s in 10-minute intervals. The second missile blew up immediately after launch, but the first and third missiles flew around 250km before falling into the sea.

The DPRK tested the [KN-23](#) SRBM missile with three fires in May 2019 in what it described as tests of a 'tactical guided weapon'. The [KN-23](#) tests ranged from 240 km to 420 km. The [KN-23](#) is a ballistic missile but has been designed to fly at low trajectory (quasi-ballistic) which shortens the flight time.

Model	Propellant	Deployment	Range (km)	Number of Missiles
Hwasong-5 (Scud-B Variant)	Liquid	Road-Mobile	300	Fewer than 100
KN-23	Solid	Road-Mobile	450	N/A
KN-21	N/A	Road-Mobile	250	N/A
Hwasong-6 (Scud-C Variant)	Liquid	Road-Mobile	500	Fewer than 100
Hwasong-9 (Scud-D, Scud-ER)	Liquid	Road-Mobile	700-995	Fewer than 100

Medium-Range Ballistic Missiles

In the late 1980s, Pyongyang began developing the **Nodong** missile, also known as the Rodong or the Hwasong-7, based on the Scud design. The missile has an estimated range of 1,350-1,600 km and a payload capacity of about 1000 kg. U.S. sources estimate that the DPRK has around 50 deployed **Nodong** missiles. Japan is the likely target of the Nodong; however, it is believed that the medium-range ballistic missile (MRBM) is relatively inaccurate, having a “circular error probable” of 2 to 4 km. The Nodong is assumed operational, and it is believed that the MRBM was tested in 2006, 2009, 2014, and 2016. In 2016, a salvo of three Nodong missiles were fired and all three missiles landed in the Sea of Japan inside of Japan’s exclusive economic zone (EEZ). North Korea’s Nodong MRBM could potentially be used to strike anywhere in South Korea or Japan.

On February 12, 2017, North Korea successfully tested a land-based variant of its Polaris-1 submarine-launched ballistic missile. Called the **Polaris-2**, this land-based variant is cold-launched, meaning the missile is expelled out of a tube by gas produced by a gas generator which is not part of the missile itself, and then the missile ignites. The Polaris-1 uses solid fuel with an estimated range of 1,200 km. The Polaris-2 was successfully tested again on May 21, 2017. The Polaris-2 represents a drastic advancement in North Korea’s road-mobile ballistic missile capability, because its solid propellant and cold-launch capability increase the missile’s mobility and stability; two factors that increase the challenges associated with tracking its location. Also notable, is that the Polaris-2 was launched from a tracked transporter erector launcher (TEL), which limits the necessity for smooth, paved roads and instead allows the missile to be launched from hidden, off-road sites.

Model	Propellant	Deployment	Range (km)	Number of Missiles
Nodong	Liquid	Road-mobile (fewer than 50 deployed)	1,250	Fewer than 50
Polaris-2 (Pukguksong-2/KN-15)	Solid	Road-mobile	1,200 + (est.)	N/A

Intermediate-Range Ballistic Missiles

Pyongyang is believed to have three types of intermediate-range ballistic missiles (IRBMs): the Taepodong-1, the Musudan, and the Hwasong-12. The **Taepodong-1** was North Korea’s first multi-stage ballistic missile. The IRBM has an estimated range of 2,200 km and a payload capacity of 700 to 1,000 kg. Satellite photographs of the **Taepodong-1** have caused experts to speculate that the intermediate-range missile has two stages: the first stage consists of components from the medium-range **Nodong** missile and the second stage is comprised of parts from the short-range **Hwasong-5** missile. In 1998, a three stage mod of the **Taepodong-1** was tested in an attempt to put a satellite into low earth orbit. During the test, the first two stages worked correctly; however, the third stage malfunctioned and the test was a failure. The

Taepodong-1 is no longer considered operational in North Korea and was thought to be a technology demonstrator for the Taepodong-2.

Another IRBM in the North Korean arsenal is the [Musudan](#). The [Musudan](#) – also known as the Nodong-B or the Taepodong-X – has a speculated range of 2,500 to 4,000 km and an estimated payload capacity of 1,200 kg. The likely targets of the [Musudan](#) missile are U.S. bases in the Pacific, like Guam, Okinawa, and Japan. North Korea first tested the [Musudan](#) in 2016, conducting a total of eight tests that year. Of these tests, only one was confirmed to be successful. U.S. sources estimate that North Korea has fewer than 50 [Musudan](#) and Taepodong-1 IRBM missiles.

On May 14, 2017 North Korea completed its first successful test of a new missile, the [Hwasong-12](#), firing on a lofted trajectory to avoid flying over neighboring countries and to test the missile's reentry vehicle. During the test, the [Hwasong-12](#) flew for around 30 minutes to an altitude of over 2,000 km and travelled approximately 787 km before landing in the Sea of Japan. Experts speculate that if the missile was fired at a standard trajectory, it could have traveled more than 4,000 km. More recently, on August 29 and September 15, North Korea test launched the Hwasong-12 missile directly over Japan. The missile launched on August 29 reached an altitude of 550 km and flew over 2,700 km before breaking apart into three pieces during the final stage of flight, possibly indicating the failure of a newly implemented post-boost vehicle (PBV). The missile launched on September 15 reached an altitude of 770km and flew over 3,700 km before landing in the Pacific Ocean. These two tests of the Hwasong-12 are significant because they are the first time North Korea flew a missile designed specifically to carry a nuclear warhead over Japan. Previous missiles that have flown over Japan, North Korea stated were space-launch vehicles. The [Hwasong-12](#) represents a significant step forward for North Korea's missile program and is the most advanced North Korean IRBM seen to date; potentially serving as a technological precursor to North Korea's KN-08 intercontinental ballistic missile prototype.

Model	Propellant	Deployment	Range (km)	Number of Missiles
Taepodong-1	Liquid	Fixed	2,200 (est.)	Fewer than 50
Musudan	Liquid	Road-Mobile (fewer than 50 deployed)	3,200+	Fewer than 50
Hwasong-12	Solid	Road-mobile	4,000 (approx.)	Fewer than 50

Intercontinental-Range Ballistic Missiles

North Korea's known intercontinental-range ballistic missiles are the Taepodong series of missiles, the KN-08, the KN-14, the Hwasong-14, and the Hwasong-15. The Taepodong series includes both the Unha-2 and the Unha-3. The Unha-2 is a two-stage ballistic missile with an estimated range of 6,000 – 9,000 km and a payload capacity of 100 to 500 kg. The DPRK first tested the Unha-2 in 2006, but the missile failed to perform to standards. Nonetheless, the Unha-2 is considered operational and has the capability to strike Alaska and the U.S. West Coast.

North Korea has also developed and tested a three-stage version of the Taepodong-2, also called the Unha-3, which, according to Pyongyang, is a rocket designed to put a satellite into orbit. However, some experts speculate that the long-range rocket could be employed as a silo-based ICBM. If deployed as a ballistic missile, the Unha would have a potential range of 10,000 km and an estimated payload capacity between 100 and 1,000 kg, meaning the missile could be used to deliver a sizable nuclear payload to targets in the central United States. The Unha has been tested four times: April 2009, April 2012, December 2012, and February 2016. The rocket failed to put a satellite into orbit during the first two tests, but was successful during the last two. Despite the true intentions of the Kim regime for the Unha, the successful tests of the Unha rocket demonstrate a North Korean ability to develop a multi-stage ballistic missile capable of striking the U.S. homeland.

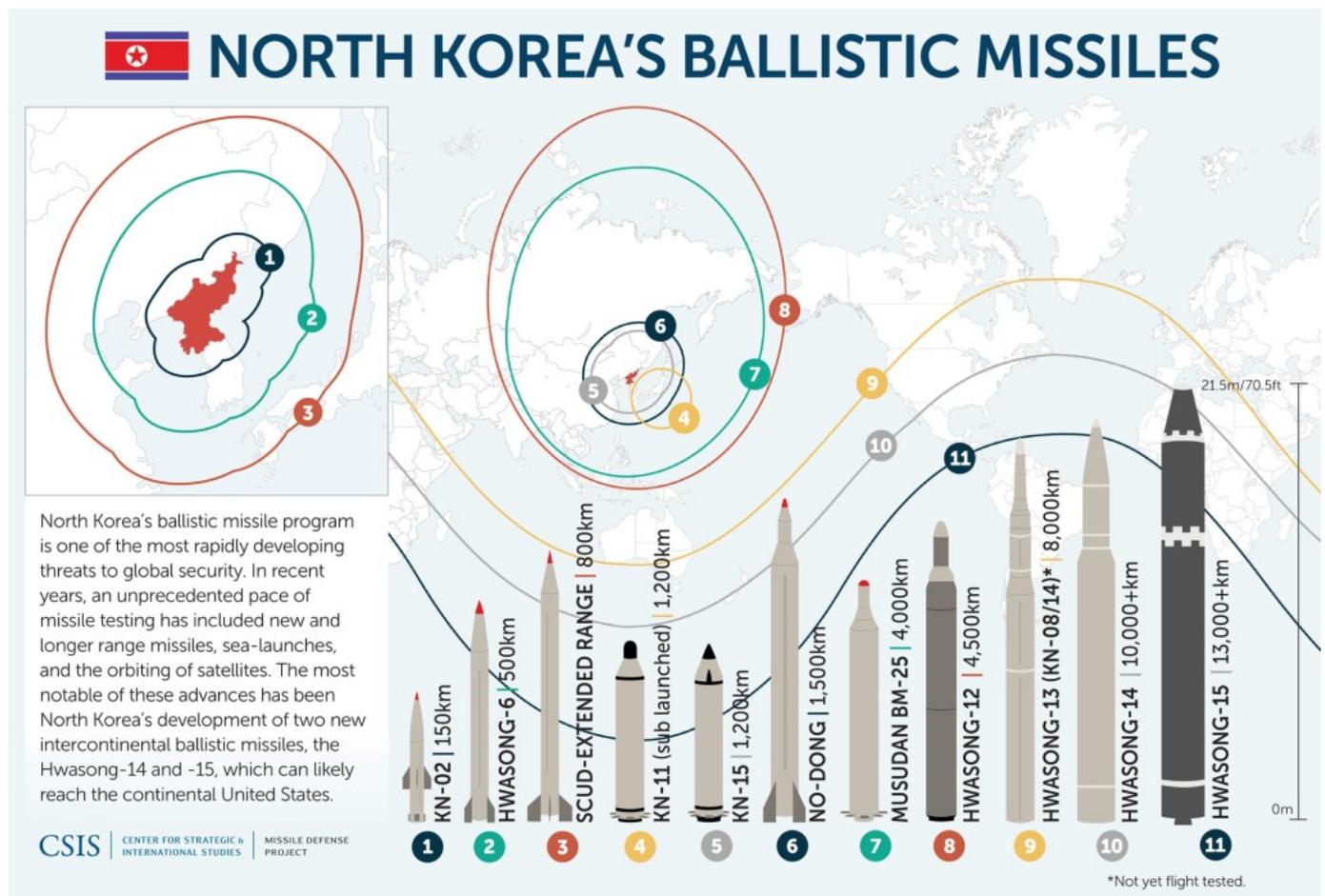
In April 2012, during a parade to honor its founder, Kim Il-sung, the DPRK displayed a new ICBM known as the Hwasong-13 or the KN-08. The KN-08 is a road-mobile ICBM that has never been tested, but experts estimate it has the potential to strike the continental United States with a nuclear payload. Diagrams released in August 2017, depict the KN-08 as a three-stage rocket with a potential range of 12,000 km. The road-mobile capability of the KN-08 increases uncertainty about the missiles launch locations, which presents a significant challenge to U.S. and allied forces.

First unveiled on October 10, 2015, the KN-14 is considered by many experts to be a variant of North Korea's KN-08 ICBM prototype. However, the missile has never been tested. The KN-14 is speculated to have two stages – in contrast to the three-staged KN-08 – and therefore estimated to have shorter ranges of 8,000 – 10,000 km (2,000 – 4,000 km less than the speculated range of the KN-08). Like the KN-08, the KN-14 is road-mobile, increasing the uncertainty of possible launch locations attributed to the missile's deployment.

The Hwasong-14, also known as the KN-20, is a two-stage version of the Hwasong-12 IRBM. The Hwasong-14 was first seen on July 4, 2017, when it was successfully flight tested for the first time by North Korea. It flew for 39 minutes on a lofted trajectory before landing in the Sea of Japan. The Hwasong-14 was successfully tested again on July 28, 2017, where it flew again on a lofted trajectory for 47 minutes to a range of 1,000 km and an altitude of 3,700 km. Based on the July 28th test, experts estimate that the Hwasong-14 has a range over 10,000 km if flown on a range-maximizing ballistic trajectory.

Possessing a wider and blunter nose cone than the Hwasong-14, indicating it could carry a super-large heavy nuclear warhead on its tip, the **Hwasong-15** is a two-stage missile, that most likely uses liquid fuel for both stages. The **Hwasong-15** is the first indigenous North Korea that has a gimballed engine system allowing for more accurate steering. Tested on November 29, 2017, the **Hwasong-15** flew for approximately 54 minutes, reached an altitude of 4,500 km, and traveled around 960 km. The test was a milestone as it marked the longest flight of a North Korean ICBM and theoretically puts the whole continental United States in range.

Model	Propellant	Deployment	Range (km)	Number of Missiles
Taepodong-2	Liquid	Fixed	5,500+	Unknown
KN-08	Solid	Road-mobile	12,000	At least 6
KN-14	Liquid	Road-mobile	8,000-10,000	Prototype/Not yet deployed
Hwasong-14	Solid	Road-mobile	10,400+	Prototype/Not yet deployed
Hwasong-15	Liquid	Road-mobile	13,000+	Prototype/Not yet deployed



Submarine-Launched Ballistic Missiles

The DPRK has a submarine-launched ballistic missile (SLBM) called the **Pukkuksong-1** – also known as the Polaris-1 or KN-11 – that is still in development. In early 2016, state media footage released by North Korea showed the testing of an SLBM, likely the **KN-11**. However, the tests are reported to have been unsuccessful. In August 2016, North Korea again conducted a test launch of the KN-11, which showed a significant improvement in North Korea's SLBM program as the KN-11 flew over 500km into Japan's air identification zone. Based on the August 2016 flight test, experts estimate that the KN-11 has a maximum range of 1,200 km and believe the KN-11 could be fully operational by 2020.

On August 23, 2017, photos released by North Korea showed diagrams of new missiles that may be in development. One diagram was of a new missile called the Polaris-3 (Pukkuksong-3). Based on the diagram, the Polaris-3 appeared to be a two-stage, solid-fueled SLBM.

To complement its developing SLBM program, North Korea is also working on developing and deploying a submarine capable of launching ballistic missiles. Currently, North Korea has one Sinpo class experimental submarine in service, which can hold and launch one ballistic missile. However, the Kim regime is believed to be working on building a bigger submarine that could carry multiple ballistic missiles at a time. The August 2016 successful test of a North Korean SLBM was likely launched from the Sinpo class submarine, demonstrating a significant increase in North Korean submarine technology.

Model	Propellant	Deployment	Range (km)	Number of Missiles
KN-11 (Polaris-1, Bukkeukseong-1)	Solid	Submarine (Not deployed)	Unknown	At least 1

Cruise Missiles

North Korea possesses two known cruise missiles, both of which are purposed for anti-ship operations: the KN-01 and the **Kumsong-3**. Both cruise missiles are based on Russian missile designs, which North Korea either directly or indirectly acquired. Both missiles provide Pyongyang with a capability, albeit limited, to threaten U.S. and allied vessels operating near the Korean Peninsula.

The KN-01 is an anti-ship cruise missile (ASCM) with an operational range of 110-160km. In February 1993, the KN-01 had its first flight test and has been tested nearly 20 times since then. Currently the cruise missile is launched from the ground, but has the potential to be adapted for launch from the sea. The most recent test in June 2015 utilized a new integrated turbojet engine, indicating continued efforts to improve this missile.

The Kumsong-3, also known as the KN-19, is considered a coastal defense cruise missile (CDCM) based on the Russian-designed KH-35 anti-ship cruise missile. This CDCM is capable

of being ground- or sea-launched and has been tested twice since its initial display in 2014. The February 2015 test launch was fired from a patrol boat, whereas the missiles in the June 2017 test were ground-launched.

Model	Mission	Deployment	Range (km)	Number of Missiles
KN-01	Anti-Ship	Ground-Based	160	Unknown
Kumsong-3	Anti-Ship	Land- or Sea-Based	130-250	Unknown

North Korea's Nuclear Program Overview

The United States and its allies have made efforts to address North Korea's proliferation activities through diplomacy and sanctions. Diplomatic efforts began in the early 1990s after the United States announced its intentions to withdraw tactical nuclear weapons deployed around the world, including those in South Korea. Following this initiative, both North and South Korea signed the Joint Declaration of South and North Korea on the Denuclearization of the Korean Peninsula in an effort to eliminate nuclear weapons completely from the Peninsula. In early 1992, North Korea signed a safeguard agreement with the International Atomic Energy Agency (IAEA) which called for an initial declaration of its nuclear facilities and allowed the IAEA to independently inspect the sites.

However, in late 1992, the IAEA discovered inconsistencies with the initial report and requested special inspections to investigate the discrepancies. North Korea refused to allow inspections of the suspect facilities and in March of 1993 gave notice to the United Nations Security Council of its intentions to withdraw from the Nuclear Nonproliferation Treaty (NPT). However by mid 1993, the DPRK reversed this decision just before its withdrawal would be complete and began negotiations to allow the IAEA to resume its work. In 1994, the United States and North Korea entered into an agreement known as the Agreed Framework which called for the U.S. to supply the DPRK with a light water reactor facility to generate energy in exchange for "freezing" its nuclear program. However, by 2003, more complications between North Korea and the IAEA prompted Pyongyang to order inspectors out of the country and withdraw from the NPT. Further efforts to address North Korea's nuclear program were made in the form of multi-lateral discussions between China, the United States, North and South Korea, Japan, and Russia. However after several rounds of discussions, talks broke down yielding no results.

North Korea has the ability to fuel nuclear devices with weapons grade plutonium and uranium. Fissile material for Pyongyang's nuclear program comes primarily from Yongbyon, where the nation has an experimental nuclear reactor that produces reactor-grade plutonium

and centrifuges that create enriched uranium. To produce weapons-grade plutonium-239, North Korea reprocesses spent plutonium from the reactor at Yongbyon. In September 2015, Yongbyon's reactor resumed normal operation after years of inactivity, bolstering the DPRK's supply of reactor-grade plutonium. Despite a reinvigorated supply of plutonium, it is likely that the future of Pyongyang's nuclear program will center on highly enriched uranium because of North Korea's large uranium ore reserves and its ability to produce highly enriched uranium-235. To produce highly enriched uranium, Pyongyang uses centrifuges located at Yongbyon, however, some experts suspect that the DPRK has other centrifuges at clandestine nuclear facilities unknown to outsiders.

The Kim regime conducted underground nuclear tests in 2006, 2009, 2013, and 2016. The 2006 nuclear test involved a device fueled by plutonium and the yield was measured to be less than one kiloton, indicating that the test was not a success. In 2009, the regime conducted another underground test with reprocessed plutonium and a yield of around 4 kilotons. The 2013 underground nuclear test likely used highly enriched uranium rather than plutonium and resulted in a higher yield than the previous tests. The DPRK claimed that the device was a miniaturized nuclear warhead small enough to fit onto a missile. In January 2016, North Korea carried out a fourth underground nuclear test, which the state-controlled media claimed to be a hydrogen bomb. Although the yield for the 2016 test was higher—around 10 to 15 kilotons—many experts argue that it was not in fact a thermonuclear detonation. Later that year in September, the country tested its largest nuclear device to date. While North Korean state media claimed the device tested could fit atop a ballistic missile, many experts believe that the DPRK is years away from having such capability.

In order to weaponize its nuclear capability, the DPRK would need to miniaturize a device small enough to fit on a delivery system, such as a ballistic missile or gravity bomb. Currently, North Korea's only nuclear delivery systems are ground-based ballistic missiles. However, the nation is currently developing submarine launched and cruise missiles as well. While concrete evidence indicating that the DPRK has miniaturized nuclear warheads remains elusive, many experts believe that the isolationist nation has the capability to create nuclear warheads that can fit atop its ballistic missiles. Currently, experts estimate North Korea has a nuclear stockpile of 10-16 nuclear weapons with roughly half being plutonium and half uranium. As North Korea continues to advance its nuclear weapons program, the amount of weapons they can produce will increase and some experts claim that the DPRK could maintain a stockpile of 100 nuclear warheads by 2020. In addition to its nuclear program, North Korea is also suspected of possessing both chemical and biological weapon capabilities.

North Korea's last missile launch was a test of its new ICBM, the Hwasong-15, which it tested on November 28, 2017.

North Korean Nuclear Facilities

Type

Purpose

Status

North Korean Nuclear Facilities	Type	Purpose	Status
Geumho-Jigu Light	Light Water Nuclear		

Water Reactor Site ^[i]	Reactor	Potential source of nuclear power.	As part of 1994 Agreed Framework, U.S. began construction of 2 1000MWe light water reactors.
		U.S. accused DPRK of uranium enrichment activity.	The U.S. suspended construction in 2003 for DPRK expulsion of IAEA inspectors
Taecheon 200MWe Nuclear Reactor ^[ii]	200MWe Nuclear Reactor	Production of weapons-grade plutonium	Construction of reactor halted in 2003 with breakdown of Agreed Framework.
			DPRK has promised to restart reactor project, but the site remains in ruins.
Yongbyon Nuclear Reactor ^{[iii][iv][v]}	Uranium Enrichment Plant	Fissile Material Production	Shut down in 2008, in accordance with the Six-Party Talks
			Reactivated in 2013, uses a 5MWe light water reactor
			Capability to produce weapons-grade or fuel-ready plutonium

2016 satellite imagery confirms continued construction

Date of Test	Location	Yield (kilotons)	[1]
October 9, 2006	Pyongyang-ri Nuclear Test Site	~1	
May 25, 2009	Pyongyang-ri Nuclear Test Site	~2.35	
May 12, 2013	Pyongyang-ri Nuclear Test Site	~6	
January 6, 2016	Pyongyang-ri Nuclear Test Site	~6	
September 9, 2016	Pyongyang-ri Nuclear Test Site	~10	
September 3, 2017	Pyongyang-ri Nuclear Test Site	~250	

[1] <https://www.cbsnews.com/news/north-koreas-nuclear-tests-timeline/>

Suspected Underground Facilities

North Korea's activities at underground facilities are kept a secret, and much of the information on those facilities is years old, when IAEA (International Atomic Energy Agency) inspectors were permitted to monitor the clandestine facilities. Today, satellite images can track surface construction and movements by the North Korean military around those sites, but it is unknown which operations take place there. When North Korea admitted in 2002 that it possessed a uranium enrichment program, the facilities at Hagap and Taecheon were looked at as possible locations of this activity.[vi] Geumchang-ri is a site that is 30km from a uranium mine, Mt. Cheomna, and allegedly ventilates the exhaust fumes from that operation.[vii] Inspectors have not been allowed inside Geumchang-ri since 2003, when they found no evidence of nuclear activity.[viii] However, like with many of these underground sites, such as Bakcheon and Taecheon, satellite imagery suggests that North Korea has since restarted nuclear operations. These operations may include uranium enrichment, underground nuclear testing, preprocessing plutonium, or the production of uranium concentrate.[ix] Satellite surveillance of Geumchang-ri reveals pipelines, waterways, tunnels, dams, and barracks.[x] It is probable that North Korea, known for both its secrecy and aggressive behavior, is reinforcing its nuclear capabilities at these sites, out of view of the international community.

Recent News

- North Korea's Newest Ballistic Missile: A Preliminary Assessment
- As North Korea fires missiles again, diplomacy teeters on the brink of collapse
- North Korea calls coal ship seizure a 'robbery,' says it betrays spirit of US summit agreement
- North Korea launches two short-range missiles, at same time as U.S. ICBM test

Sources:

[i] <http://www.nti.org/learn/facilities/768/>

[ii] <http://www.nti.org/learn/facilities/764/>

[iii] <http://www.nti.org/learn/facilities/766/>

[iv] <http://large.stanford.edu/courses/2017/ph241/fernandez2/>

[v] <https://www.theguardian.com/world/2017/jan/28/north-korea-has-restarted-reactor-to-make-plutonium-fresh-images-suggest>

[vi] <http://www.nti.org/learn/facilities/741/>

[vii] <http://www.nti.org/learn/facilities/748/>

[viii] <http://www.nti.org/learn/facilities/748/>

[ix] <http://www.nti.org/learn/facilities/675/>

[x] <http://www.nti.org/learn/facilities/748/>

Missile Threat and Proliferation

Threat Basics

Today's Missile Threat

North Korea

KN-09

KN-23

KN-02 (Toksa)

Hwasong-5 (Scud-B Variant)

Hwasong-6 (Scud-C Variant)

Hwasong-9 (Scud-ER/Scud-D Variant)

NoDong

Polaris-2 (Pukguksong-2/KN-15)

Taepodong-1

Musudan

Hwasong-12/KN-17

Taepodong-2

KN-08 / Hwasong-13

KN-14

Hwasong-14/KN-20

Hwasong-15/KN-22

KN-11

KN-01

Kumsong-3

Iran

China's Anti-Access Area Denial

Russia's Anti-Access Area Denial

Non-State Actors

Missile Proliferation Index by State

Notable Missile Tests

Combat Launches

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International Cooperation



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