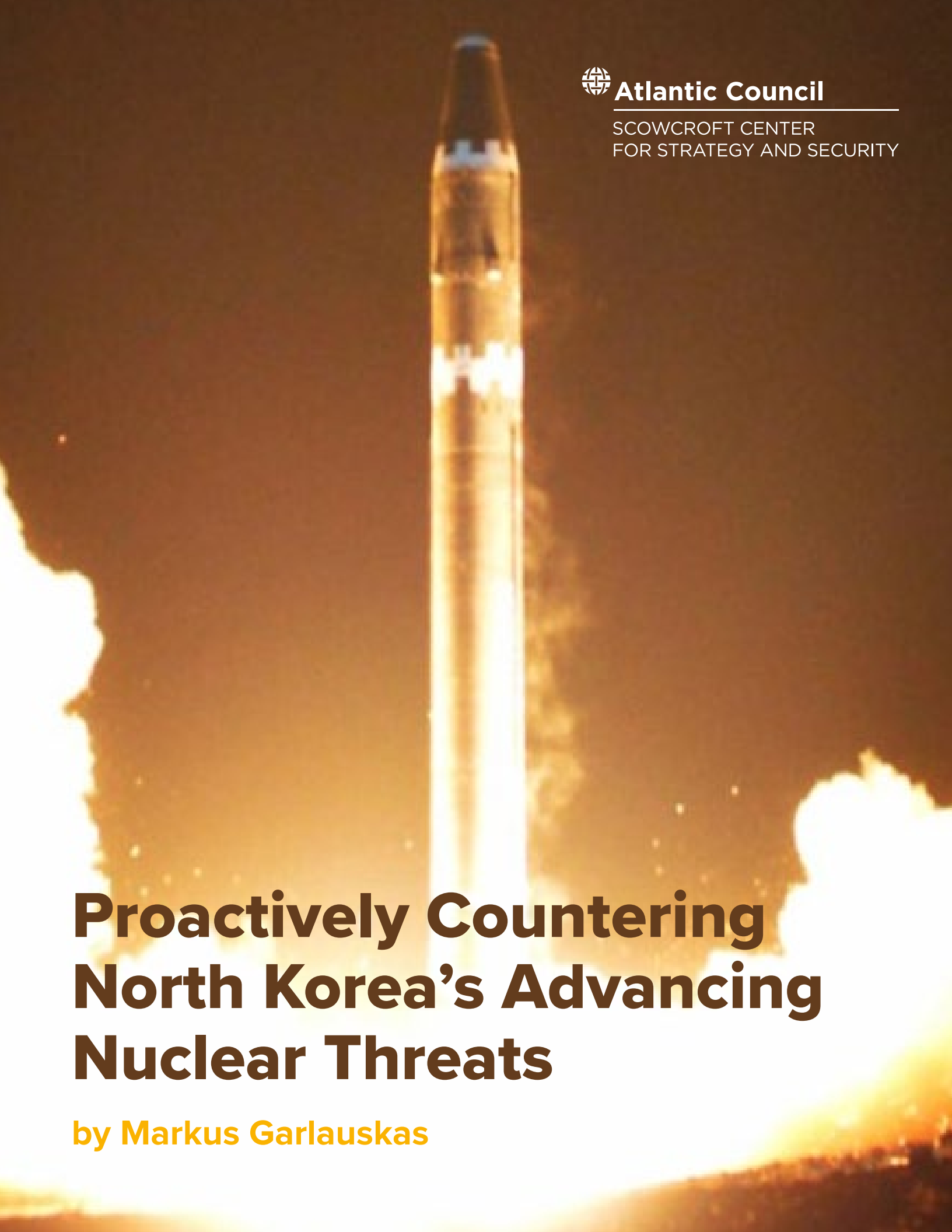

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Proactively Countering North Korea's Advancing Nuclear Threats

by Markus Garlauskas

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Cover: North Korea's only test launch of its Hwasong-15 mobile intercontinental ballistic missile. North Korea claimed the missile is capable of delivering a "super super-large heavy warhead" to anywhere in the United States. Writing for *38 North*, US missile expert Michael Elleman assessed that it "...could deliver a moderately-sized nuclear weapon to any city on the US mainland." November 28, 2017. Source: Korea Central News Agency.

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Executive Summary

If North Korea's nuclear and missile capabilities continue advancing along the path laid out by North Korean leader Kim Jong Un, they will far outstrip those needed simply to ensure regime survival by deterring external threats. As this report explains, despite the economic challenges North Korea faces, it has continued to make quantitative and qualitative progress in its weapons programs toward ambitious goals. At a major ruling party meeting in January 2021, Kim unveiled plans that include fielding smaller tactical nuclear weapons suitable for battlefield use, missiles with multiple warheads, and more capable intercontinental ballistic missiles (ICBMs) that can hit targets throughout the United States with nuclear warheads.[1]

If this nuclear threat expands unchecked, and if North Korea continues its longstanding pattern of coercion against South Korea, Washington could face a terrible choice: either risk a military confrontation that could lead to millions of American deaths in an ensuing nuclear war or stand by as North Korea intimidates a US treaty ally into submission.

This report contends that a proactive strategy—unlike the largely reactive approaches that have characterized US policy on North Korea for decades—is required to prevent such a situation. Though the United States and South Korea are investing in military modernization with huge technological and economic advantages over North Korea, their capabilities are not advancing quickly enough to forestall such a scenario.

This report outlines a strategy of impeding the progress of North Korea's nuclear and missile programs, investing to get out ahead of improvements in North Korea's arsenal, and adjusting operational approaches to counter the growing threat. Under this strategy, North Korea's weapons programs would be further inhibited by a diplomatic focus on weapons tests and a recalibrated approach to sanctions. US defense acquisitions would encompass new theater-level counter-missile assets and national missile defenses alongside overall nuclear modernization efforts. Meanwhile, reinvigorated training and reinforced resilience of US and allied forces in Korea would help shore up deterrence despite North Korea's advancing capabilities.

Introduction

North Korea's nuclear and missile capabilities—once viewed with derision by outside observers—have been advancing rapidly in recent years despite international diplomatic efforts and United Nations (UN) economic sanctions designed to end these weapons programs. If these programs continue along the path North Korean leader Kim Jong Un has outlined to his country's ruling body, then North Korea's nuclear capabilities will provide a flexible tactical nuclear force, robust regional nuclear strike options, and the capability to credibly threaten the US homeland with nuclear retaliation with a robust second-strike capability.[2] Taken together, these capabilities increase the odds that Pyongyang would aggressively leverage its nuclear weapons for coercion and would even risk escalating to limited nuclear use in the event of war.[3]

The continued improvement and expansion of North Korean nuclear and missile capabilities, if unchecked, would therefore drive a dramatic increase in the risk of two serious scenarios coming to pass in the years ahead. First, a North Korea emboldened by its enhanced capabilities could make a grave miscalculation that would lead to spiraling escalation, eventually leading to a nuclear war that results in millions of deaths—many of them Americans. Alternately, North Korean nuclear-backed coercion could lead to Seoul's acquiescence to Pyongyang's demands, effectively ending the US-South Korea alliance as Washington distances itself to avoid the risk of nuclear retaliation.

1 "On Report Made by Supreme Leader Kim Jong Un at 8th Congress of WPK," *Korea Central News Agency* as reflected on *KCNA Watch* (website of aggregator), September 1, 2021, https://kcnawatch.org/newstream/1610155111-665078257/on-report-made-by-supreme-leader-kim-jong-un-at-8th-congress-of-wpk/.

2 "On Report Made by Supreme Leader Kim Jong Un at 8th Congress of WPK."

3 Nuclear use short of a full-scale attack on South Korean and American cities could be considered "limited."

North Korea's Growing Nuclear Capabilities

After decades of slow and halting progress, North Korea began demonstrating rapid growth in its nuclear weapons capabilities in recent years. Though these capabilities were still nascent when Kim was consolidating power in the aftermath of his father's death a decade ago, North Korea is now a nuclear-armed state posing an increasingly credible threat to US allies, military bases, and even cities in the continental United States.

North Korea's nuclear weapons capabilities have advanced in three key areas over the last few years:

- **The display and testing of more advanced nuclear warhead designs**, particularly of a "standardized" fission missile warhead and an apparent "standardized" thermonuclear missile warhead (detailed below).
- **Highly enriched uranium production and a growing stockpile of fissile material**—assessed by a range of experts to already be sufficient for dozens of nuclear warheads.
- **Qualitative and quantitative growth in nuclear-capable ballistic missiles and their mobile launchers.** Indicators of qualitative growth included the first flight tests of ICBMs and intermediate-range ballistic missiles (IRBMs), along with repeated tests of various new types of missiles short of IRBM range.[4] This growth also encompassed the production and display of additional launch platforms, including larger wheeled transporter-erector-launchers (TELs) with more axles and entirely new tracked TEL designs, as well as submarine- and train-launched systems.

ADVANCING WARHEAD DESIGNS

North Korea has been conducting underground tests of nuclear weapons since its first attempt in 2006 produced a yield so small that US officials characterized it as a "fizzle."[5] The next two tests in 2009 and 2013 showed progress in yield, albeit slowly. Then, in 2016 and 2017, the pace of testing sharply accelerated to three more tests in just twenty-one months—with the seismic readings from the last one showing a dramatic increase in yield.[6]

North Korea's last two nuclear tests, in September 2016 and 2017, also mark key milestones because North Korea claims they are of "standardized warhead designs" that can fit into missile reentry vehicles (RVs).[7] Prior to these tests, the commander of US Forces Korea publicly expressed the view that North Korea probably had the technology to make warheads small and light enough to mount on missiles, but had not yet tested them.[8] These tests each came after state media aired pictures of Kim inspecting a new warhead design. In 2016, North Korea displayed a "standardized" spherical fission-implosion warhead design—dubbed the "disco ball" by US analysts—months before an underground nuclear test estimated to have been at least as large as the explosion that destroyed Nagasaki.[9] In 2017, North Korea displayed a two-stage thermonuclear warhead design—this one dubbed "the peanut"—just hours before a test that was over ten times larger and consistent with the yield of a hydrogen bomb, a far more destructive and advanced nuclear weapon design.[10] Each of these warhead designs was displayed alongside a missile RV, to make it clear that the design would fit inside the appropriate RV. Though it is

4 ICBMs are typically defined as having a range greater than 5,500 kilometers (3,500 miles, and roughly the distance from North Korea to Anchorage, Alaska), while IRBMs have a range between 3,000 km and 5,500 km (missiles that could reach Guam and the Aleutian Islands of Alaska from North Korea would fall into this category). See Kelsey Davenport, "Worldwide Ballistic Missile Inventories," Arms Control Association, December 2017, https://www.armscontrol.org/factsheets/missiles.

5 "9 October 2006–First DPRK Nuclear Test," Comprehensive Nuclear-Test-Ban Treaty Organization, https://www.ctbto.org/specials/testing-times/9-october-2006-first-dprk-nuclear-test; and "U.S. Official: N. Korea Test Likely 'Nuclear Fizzle,'" *NBC News*, October 13, 2006, https://www.nbcnews.com/id/wbna15249383.

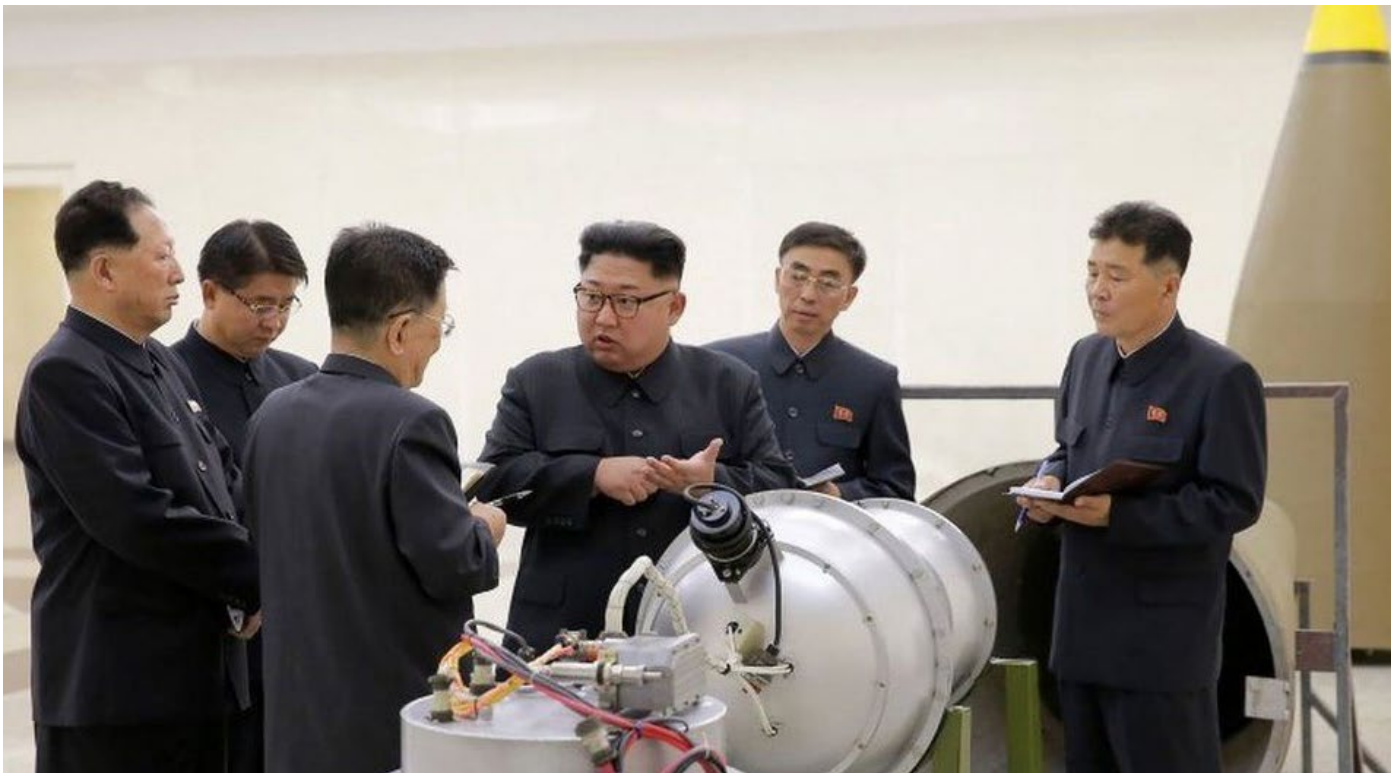
6 American Geophysical Union, "2017 North Korean Nuclear Test 10 Times Larger than Previous Tests, New Study Finds," *EurekAlert*! (science news service), June 3, 2019, https://www.eurekalert.org/pub_releases/2019-06/agu-2nk060319.php.

7 "North Korea Claims Success in Fifth Nuclear Test," *BBC News*, September 9, 2016, https://www.bbc.com/news/world-asia-37314927; "North Korea Nuclear Tests: What Did They Achieve?" *BBC News*, September 3, 2017, https://www.bbc.com/news/world-asia-17823706.

8 David Alexander and Phil Stewart, "U.S. General Says He Believes North Korea Can Build Nuclear Warhead," *Reuters*, October 24, 2014, https://www.reuters.com/article/us-usa-northkorea-arms/u-s-general-says-he-believes-north-korea-can-build-nuclear-warhead-idUSKCN0ID2CJ20141024.

9 Jeffrey Lewis, "North Korea's Nuke Program Is Way More Sophisticated Than You Think," *Foreign Policy*, September 9, 2016, https://foreignpolicy.com/2016/09/09/north-koreas-nuclear-program-is-way-more-sophisticated-and-dangerous-than-you-think/.

10 Jeffrey Lewis, "Welcome to the Thermonuclear Club, North Korea!" *Foreign Policy*, September 4, 2017, https://foreignpolicy.com/2017/09/04/welcome-to-the-thermonuclear-club-north-korea/; and "U.S. Nuclear Commander Assumes North Korea Tested H-bomb Sept. 3," *CBS News*, September 15, 2017, https://www.cbsnews.com/news/u-s-nuclear-commander-assumes-north-korea-tested-h-bomb-sept-3/.



Kim Jong Un inspects what North Korean state media claimed to be a nuclear warhead in 2017. Source: Korea Central News Agency.

hard to entirely rule out an elaborate deception whenever Pyongyang is involved, the burden of proof is now fully on anyone claiming that North Korea does not have nuclear warheads that can fit on its missiles.

Further, Kim declared in January 2021 that North Korea has "already accumulated nuclear technology" to "miniaturize, lighten and standardize nuclear weapons," including tactical nuclear weapons.[11] If true, this development has major implications for the threat that North Korea poses to the United States and its allies. This development would mean that even relatively small North Korean missiles and larger artillery rockets could be nuclear capable, dramatically increasing the risk that a conflict with North Korea would escalate to nuclear use—either because Pyongyang believed that battlefield use of tactical warheads would not necessarily escalate to full-scale nuclear war or because South Korean and US forces would end up striking nuclear-armed systems that are essentially indistinguishable from conventional ones.

Such a development would also mean that North Korea has nuclear warheads small enough to dramatically expand its options for missiles carrying multiple RVs. (See page 7 below for more on multiple RVs.) Warheads much smaller than the "disco ball" would allow North Korea to use RVs small enough that more than one could fit on a wider variety of its missile designs, with correspondingly larger numbers of RVs on its largest missiles.

If Kim's statement is true, North Korea would also have the incentive to display and test a smaller tactical warhead design beyond the two warhead designs it has already shown.

EXPANDED PRODUCTION, GROWING NUCLEAR STOCKPILE

In addition to this highly publicized qualitative improvement of North Korea's nuclear arsenal, its fissile material production capacity has expanded, and its nuclear stockpile has grown in quantity. Because North Korea has never claimed a particular number of warheads, and no precise intelligence assessment of the number has ever been publicly released, open-source analysts must base estimates of the stockpile on the limited information available.

11 "On Report Made by Supreme Leader Kim Jong Un at 8th Congress of WPK."

Today, it is widely known that North Korea has produced two different types of fissile material: plutonium and highly enriched uranium (HEU). In the early days of North Korea's nuclear weapons program, it established a reactor at Yongbyon—along with the equipment for reprocessing spent reactor fuel into plutonium for nuclear weapons.[12] Ending the plutonium program was the focus of the 1994 US-North Korean Agreed Framework, which collapsed after North Korea admitted it had also been enriching uranium for nuclear weapons.[13] Though the North Koreans revealed a uranium enrichment facility at Yongbyon in 2010, a range of international nuclear experts have since warned that North Korea has also been producing highly enriched (i.e., weapons-grade) uranium at other sites.[14]

There is virtual unanimity in published analysis of North Korea's nuclear weapons program that fissile material and warhead production is continuing, making the size of North Korea's stockpile a moving target. As a result of this combination of uncertainty and ongoing production, publicly available estimates of North Korea's stockpile vary, and are typically expressed as a range of figures with an estimate of growth in warheads per year.[15] The Stockholm International Peace Research Institute—an oft-cited source for global nuclear stockpiles—estimated forty to fifty North Korean warheads as of June 2021, an increase from its estimate of thirty to forty in 2020.[16]

IMPROVING, GROWING NUCLEAR-CAPABLE MISSILE FORCE

In 2017, North Korea's ability to threaten US cities with nuclear weapons moved from just a notional possibility to at least a nascent capability. North Korea test-launched new mobile ballistic missiles that can reach US territory, including Guam and parts of Alaska, with IRBMs and Hawaii and the contiguous United States with ICBMs.

After a limited success with test launches of the Hwasong-10 (Musudan) IRBM in 2016, North Korea began testing the Hwasong-12 IRBM in 2017.[17] With two test launches over Japan well into the Pacific, the Hwasong-12 proved it had the range to reach the US strategic bomber base on Guam and potentially US missile defense facilities in Alaska.[18] Pyongyang's state media claimed that the Hwasong-12 can carry a "large-size

12 David Albright, "North Korean Plutonium Production," *Science & Global Security* Vol. 5 (1994): 63-87.

13 Paul Kerr, "North Korea Admits Secret Nuclear Weapons Program," Arms Control Association, November 2002, https://www.armscontrol.org/act/2002-11/news/north-korea-admits-secret-nuclear-weapons-program.

14 Siegfried S. Hecker, "What I Found in Yongbyon and Why It Matters," *APS News* 20, No. 3 (March 2011), https://www.aps.org/publications/apsnews/201103/backpage.cfm; Peter Krail, "N. Korea Judged to Have More Enrichment Sites," Arms Control Association, March 2011, https://www.armscontrol.org/act/2011-03/n-korea-judged-more-enrichment-sites; also see Jack Kim and James Pearson, "North Korea Ramps Up Uranium Enrichment, Enough for Six Nuclear Bombs a Year: Experts," *Reuters*, September 13, 2016, https://www.reuters.com/article/us-northkorea-nuclear-fuel/north-korea-ramps-up-uranium-enrichment-enough-for-six-nuclear-bombs-a-year-experts-idUSKCN11K07Y.

15 Hans M. Kristensen and Matt Korda, "North Korean nuclear weapons, 2021," *Bulletin of the Atomic Scientists*, 77 (2021):4, 223-224, https://doi.org/10.1080/00963402.2021.1940803.

16 "Global nuclear arsenals grow as states continue to modernize–New SIPRI Yearbook out now," Stockholm International Peace Research Institute, June 14, 2021, https://www.sipri.org/media/press-release/2021/global-nuclear-arsenals-grow-states-continue-modernize-new-sipri-yearbook-out-now; cited by Kelsey Davenport, "Nuclear Weapons: Who Has What at a Glance," Arms Control Association, October 2021, https://www.armscontrol.org/factsheets/Nuclearweaponswhohaswhat.

17 Ankit Panda, "What's Up with North Korea's Repeated Failed Musudan Launches?" *Diplomat*, June 7, 2016, https://thediplomat.com/2016/06/whats-up-with-north-koreas-repeated-failed-musudan-launches/; Anna Fifield, "North Korea's Missile Launch Has Failed, South Korea's Military Says," *Washington Post*, April 15, 2016, https://www.washingtonpost.com/world/asia_pacific/north-koreas-missile-has-failed-officials-from-south-say/2016/04/14/8eb2ce53-bc38-40d0-9013-5655bed26764_story.html; and Ralph Savelsberg, "A Quick Technical Analysis of the Hwasong-12," 38 North (website), Stimson Center, May 19, 2017, https://www.38north.org/2017/05/hwasong051917/.

18 Ankit Panda, "North Korea Overflies Japan With Another Intermediate-Range Ballistic Missile: Early Analysis," *Diplomat*, September 15, 2017, https://thediplomat.com/2017/09/north-korea-overflies-japan-with-another-intermediate-range-ballistic-missile-early-analysis/; and Brad Lendon, "US Air Force Pulls Bombers from Guam," *CNN*, April 24, 2020, https://www.cnn.com/2020/04/24/asia/guam-us-air-force-bombers-pull-out-intl-hnk/index.html. Such US missile defense facilities in Alaska include the COBRA DANE radar and the ground-based interceptors at Fort Greely; see Missile Defense Agency, US Department of Defense, "Missile Defense Agency Fact Sheet," Missile Defense Agency, September 30, 2020, https://www.mda.mil/global/documents/pdf/cobradane.pdf; and "Ground-based Midcourse Defense (GMD)," Missile Defense Agency, April 8, 2021, https://www.mda.mil/system/gmd.html.

heavy nuclear warhead"—apparently referring to the "peanut" thermonuclear design.[19] A variety of credible international nongovernment research centers also assess that the Hwasong-12 can carry a nuclear payload.[20]

In 2017, North Korea also conducted three test launches of mobile ICBMs that demonstrated North Korea's ability to strike the continental United States for the first time. The first two launches, in July, of the Hwasong-14, were followed by the even larger Hwasong-15 in November.[21] Though all three tests were on a "lofted" trajectory high into outer space, they demonstrated the capability to range the United States with a sizeable payload if launched on a flatter trajectory.[22] The Hwasong-15 was so massive that international missile experts assessed North Korea's claim that it could reach anywhere in the United States with even a large warhead to be credible.[23] Some went even further, assessing that the Hwasong-15's payload capacity was sufficient for it to also carry decoys or other countermeasures to US national missile defense (NMD).[24]

Though these tests demonstrated an increasing North Korean nuclear threat to the continental United States, just three launches on a lofted trajectory do not definitively prove that North Korea can successfully strike a city in the United States with a nuclear weapon—much less do so reliably. Skeptics particularly point to open questions regarding accuracy at that distance and whether the RVs would survive reentry on an intercontinental trajectory.[25] These are fair questions to raise.

However, these are incremental details compared to the substantial progress North Korea has already made on ICBMs. Given the opportunities that North Korea has had to learn from the experience of others, and to exploit off-the-shelf technologies undreamt of when the Soviets were conducting their early ICBM tests, analysts should not be complacent about North Korea's potential to succeed with its first ICBM test on a realistic trajectory. Once the Soviet Union had developed a sufficiently powerful ICBM booster and a practical nuclear warhead, the remaining technical obstacles to refining a reliable RV and achieving accuracy sufficient to hit a city were quickly overcome—even with the primitive state of computing power and materials science seventy years ago.[26] Even if the first such test were to fail, there is no reason to believe that North Korea could not quickly learn from it to field a reliable and sufficiently accurate RV if it continued flight testing.

In addition to testing these systems capable of reaching United States territory, North Korea also has developed, flight tested,

19 Jesse Johnson, "North Korea Says New, Longer-range Missile Can Carry 'Large' Nuclear Warhead," *Japan Time*s, May 15, 2017, https://www.japantimes.co.jp/news/2017/05/15/asia-pacific/north-korea-says-missile-launch-aimed-testing-carrying-large-nuclear-warhead/.

20 Savelsberg, "A Quick Technical Analysis of the Hwasong-12"; Zach Berger, "Hwasong-12/KN-17," Missile Defense Advocacy Alliance, May 2017, https://missiledefenseadvocacy.org/missile-threat-and-proliferation/todays-missile-threat/north-korea/hwasong-12/; and "Hwasong-12," Missile Defense Project, Center for Strategic and International Studies, May 16, 2017, last modified June 24, 2019, https://missilethreat.csis.org/missile/hwasong-12/.

21 Michael Elleman, "The New Hwasong-15 ICBM: A Significant Improvement That May Be Ready as Early as 2018," 38 North, November 30, 2017, https://www.38north.org/2017/11/melleman113017/; Theodore A. Postol, "North Korean Ballistic Missiles and US Missile Defense," *Physics & Society* 47, No. 2 (April 2018): 16, https://engage.aps.org/fps/resources/newsletters/april-2018; and "Hwasong-15/KN-22," Missile Defense Advocacy Alliance, November 2017, https://missiledefenseadvocacy.org/missile-threat-and-proliferation/todays-missile-threat/north-korea/hwasong-15/.

22 John Schilling, "What Next for North Korea's ICBM?" 38 North, August 1, 2017, https://www.38north.org/2017/08/jschilling080117/; and "Hwasong-14 (KN-20)," Missile Defense Project, Center for Strategic and International Studies, July 27, 2017, last modified November 5, 2019, https://missilethreat.csis.org/missile/hwasong-14/.

23 Dave Majumbar, "Hwasong-15: North Korea's New Missile That Shocked the World," *The Buzz* (blog), *National Interest* (magazine website), Center for the National Interest, November 29, 2017, https://nationalinterest.org/blog/the-buzz/hwasong-15-north-koreas-new-missile-shocked-the-world-23416 .

24 Elleman, "The New Hwasong-15 ICBM"; and Majumbar, "Does North Korea's New Hwasong-15 ICBM Have Soviet and Chinese 'DNA'?'"

25 Robert A. Manning and Patrick O'Reilly, "North Korea's Progress Towards an ICBM (In One Graphic)," *Korea Watch* (blog), *National Interest*, December 23, 2019, https://nationalinterest.org/blog/korea-watch/north-koreas-progress-towards-icbm-one-graphic-107936.

26 Vincent J. Wilson, Jr. "The Soviet Land-based Ballistic Missile Program 1945-1972: An [*sic*] Historical Overview," National Security Agency, Declassified in 2010, https://www.archives.gov/files/declassification/iscap/pdf/2010-005-doc2.pdf#page=72.

A test launch of the Pukuksong-3 submarine-launched ballistic missile. Source: Rodong Sinmun.

and displayed a growing variety of new shorter-range missiles that could reach US and allied targets throughout South Korea and parts of Japan.[27] Once operationally ready, these new missiles would be far more advanced and effective than North Korea's aging Scud missiles, with much greater potential accuracy, better performance against missile defenses, and the flexibility and survivability that come from not requiring fueling before launch.[28] If North Korea truly has a tactical nuclear warhead, then all of these new missiles would be nuclear-capable ones, but at least some of them are likely so already. Pyongyang twice tested a missile in March 2021, which it claimed to have a 2.5-ton payload, more than enough for even a primitive nuclear warhead.[29]

Though most of these missiles would be fired from the new types of tracked and wheeled mobile launchers shown off at Pyongyang parades, North Korea has test fired missiles from a train, and some of its missiles are submarine-launched ballistic missiles (SLBMs) suited for deployment as part of a future North Korean ballistic missile submarine force.[30] This increasing diversity of launchers also enhances the survivability and flexibility of North Korea's nuclear arsenal.

27 "North Korea Military Power," Defense Intelligence Agency (DIA), September 2021, 22-27, https://www.dia.mil/Portals/110/Documents/News/NKMP.pdf.

28 Michael Elleman, "North Korea's New Short-range Missiles: A Technical Evaluation," 38 North, October 9, 2019, https://www.38north.org/2019/10/melleman100919/; and Vann Van Diepen, "Six Takeaways from North Korea's 'Hypersonic Missile' Announcement," 38 North, October 13, 2021, https://www.38north.org/2021/10/six-takeaways-from-north-koreas-hypersonic-missile-announcement/.

29 Josh Smith, "Analysis: Inter-Korean Missile Race May Leave North Korea with Tactical Nuclear Weapons," *Reuters*, March 30, 2021, https://www.reuters.com/article/us-northkorea-missiles-southkorea-analys-idUSKBN2BM0G8.

30 "North Korea Military Power," Defense Intelligence Agency, 50, 62.

Prospects and Implications for Further Growth

At Pyongyang's Eighth Party Congress in January, Kim personally briefed a detailed report on North Korea's weapons programs, including both past successes and future plans for North Korea's nuclear and ballistic missile development.[31] Kim's report provided official confirmation of North Korea's intentions to develop and field nuclear and missile capabilities that US analysts had long considered under development, including missiles with multiple warheads, tactical nuclear weapons, cruise missiles, solid-propellant ICBMs, and other advancements.[32]

Taken together with the ongoing quantitative growth in North Korea's fissile material stockpile and missile force, the fielding of such weapons systems would be destabilizing and dramatically increase the risks posed by North Korea to the United States homeland, its allies, and its deployed forces. These deployments would mark a transition from a level of capability sufficient to buttress deterrence of external intervention to a level of capability that would open the potential to pursue other goals, particularly coercion of South Korea. Three interrelated developments would be of greatest concern:

- **Testing and deployment of missiles carrying multiple RVs and/or decoys.** This would undermine the effectiveness of US and allied missile defenses and help to offset questionable RV reliability. It could even raise the incentives for a North Korean first strike—given the risk of losing multiple warheads for each missile destroyed before launch.

- **Expansion of the number and type of nuclear weapons and delivery systems to enable a wide range of limited nuclear options** while preserving credible second-strike retaliatory options. This would raise the risk of North Korean escalation in general, and specifically the potential for North Korea to initiate limited nuclear use in a full-scale conflict.

- **Establishment of a credible, robust capability to strike the US homeland with mobile ICBMs.** This would raise the risk of alliance decoupling, challenge US NMD, and even have implications for US-China rivalry.

MULTIPLE REENTRY VEHICLES

If North Korea were to test and field missiles with multiple reentry vehicles, this would provide a number of advantages to Pyongyang while increasing the challenges it poses to the United States.[33]

To begin with, being able to fire more than one warhead per missile would allow North Korea to deliver more warheads to long-range targets, far exceeding the limited number of missiles and mobile launchers it can build. Therefore, if North Korea fields missiles with multiple RVs, it could increase its nuclear threat to the United States by an order of magnitude while only slowly expanding its number of ICBM launchers. Even if such missiles did not offer the capability to target each RV independently, being able to bracket a target with multiple RVs would also exponentially increase the odds of a successful strike despite potential problems with RV reliability. Similarly, multiple RVs would pose an exponentially greater challenge to missile defenses by presenting many more targets to shoot down. Even if North Korea could launch only a limited number of missiles at once, using multiple RVs per missile could still saturate US defenses and allow warheads to reach their targets.

In addition, such a capability on land-based missiles has long been theorized to be destabilizing because the elimination of several warheads for each missile destroyed before launch gives each side a much stronger incentive to consider a first strike.[34]

31 Choe Sang-Hun, "Kim Jong-un Uses Party Congress to Double Down on Nuclear Program," *New York Times*, January 13, 2021, https://www.nytimes.com/2021/01/13/world/asia/north-korea-kim-jong-un-nuclear.html.

32 Ankit Panda, "What Biden Should Know About North Korea's New Nuclear Plans," Carnegie Endowment for International Peace, January 15, 2021, https://carnegieendowment.org/2021/01/15/what-biden-should-know-about-north-korea-s-new-nuclear-plans-pub-83638.

33 For more details, see Markus V. Garlauskas, "We Must Prevent North Korea from Testing Multiple Reentry Vehicles," Beyond Parallel (project), Center for Strategic and International Studies, November 5, 2020, https://beyondparallel.csis.org/we-must-prevent-north-korea-from-testing-multiple-re-entry-vehicles/; and Markus V. Garlauskas, "What an 'October Surprise' from North Korea Might Actually Look Like," *New Atlanticist* (blog), Atlantic Council, October 1, 2020, https://www.atlanticcouncil.org/blogs/new-atlanticist/what-an-october-surprise-from-north-korea-might-actually-look-like/.

34 Adam J. Hebert, "The Rise and Semi-fall of MIRV," *Air Force Magazine*, June 1, 2010, https://www.airforcemag.com/article/0610issbf/.

SHIFT FROM SURVIVAL TO COERCION—EVEN WARFIGHTING

Given how much of a deterrent North Korea has garnered from its longstanding ability to hold Seoul at risk with conventional artillery and chemical weapons, it is an open question how much additional nuclear capability—if any—North Korea actually needs to deter even a limited attack.[35] As a result, the plans for expanded capabilities that Kim outlined at the party congress strongly suggest purposes beyond a simple regime-preserving deterrent. Former National Security Advisor H. R. McMaster, among others, argues that Kim's pursuit of greater nuclear capabilities is intended to give him the leverage to break the US-South Korea alliance and reunify the Korean peninsula under his regime.[36] Though reunification figures into North Korea's propaganda, and its efforts to coerce South Korea are likely to continue, a full-scale invasion-and-occupation scenario is probably impractical for the foreseeable future.[37]

Regardless of the reasons why Kim has ordered the development of these systems, once fielded, they would change the dynamics of confrontation and conflict on the Korean peninsula. Once Kim has at his disposal a robust and diverse nuclear arsenal—with numerous small tactical nuclear weapons alongside many larger nuclear-armed missiles that can strike bases in the region and threaten the US homeland—it would vastly increase the scope of options and freedom of action he would have available for coercion and warfighting. Given the past behavior of Kim and his predecessors, it would require a triumph of hope over experience to believe that Kim would not assume calculated risks to take full advantage of these new capabilities. Were Kim to overreach and begin a major conflict, he might even believe that limited use of tactical nuclear weapons on the battlefield could be just the tool to impose a military stalemate and to convince Washington not to escalate further because US cities would be the next nuclear targets.

RISK OF ALLIANCE DECOUPLING AND THE CHINA FACTOR

Continued unchecked growth in North Korea's nuclear capabilities could be particularly destabilizing and problematic due to the consequences of North Korea demonstrating a reliable, credible second-strike capability to reach the US homeland with thermonuclear warheads. It is not difficult to imagine that North Korea's Kim regime would be willing to use nuclear weapons if backed into a corner and pushed to the brink of destruction. Academic experts on escalation theory have laid out a range of scenarios where limited first use of nuclear weapons followed by threats of further nuclear escalation could make sense to Pyongyang as a means to end a conflict on terms that would allow the regime to survive.[38] If anything, Kim seems to have a harder time convincing some in the United States that North Korea will make rational calculations about use of nuclear weapons to the point that it can be treated like other nuclear-armed states.[39] What has primarily been in question to date, instead, is how much capability North Korea has to retaliate with nuclear weapons if pushed to the brink of destruction.

North Korea's limited number of ICBM tests and its small, cumbersome, liquid-fueled mobile ICBM force—combined with high confidence in US NMD—lend little credibility to a

35 As long ago as 1994, South Korea's president has said that even a limited US strike against North Korea was too risky because of the likely retaliation. Washington agreed. See Choe Sang-Hun, "Korean Crisis Is Different This Time," *New York Times*, August 3, 2009, https://www.nytimes.com/2009/08/04/world/asia/04iht-letter.html; in 2007, Victor Cha made the same point after his nomination to be US ambassador to Seoul was withdrawn: Victor Cha, "Giving North Korea a 'Bloody Nose' Carries a Huge Risk to Americans," Opinion, *Washington Post*, January 30, 2018, https://www.washingtonpost.com/opinions/victor-cha-giving-north-korea-a-bloody-nose-carries-a-huge-risk-to-americans/2018/01/30/43981c94-05f7-11e8-8777-2a059f168dd2_story.html.

36 *Hearings on Global Security Challenges and Strategies, Before the Senate Armed Services Committee*, 117th Cong. (2021) (statement of Lieutenant General Herbert R. McMaster, Jr., (Ret.), former US National Security Advisor), https://www.armed-services.senate.gov/imo/media/doc/McMaster--Statement%20for%20the%20Record_03-02-21.pdf#page=24 .

37 Such an approach would be risky from a military and political perspective alone, but it is also questionable how Pyongyang's regime would be able to consolidate control over the South and survive. See Terence Roehrig, "North Korea and Reunification: The Limits of Nuclear Coercion," *Asian Survey* 60, No. 5 (2020): 859-881, https://doi.org/10.1525/as.2020.60.5.859.

38 Vipin Narang, "Why Kim Jong Un Wouldn't Be Irrational to Use a Nuclear Bomb First," *Washington Post*, September 8, 2017, https://www.washingtonpost.com/outlook/why-kim-jong-un-wouldnt-be-irrational-to-use-a-nuclear-bomb-first/2017/09/08/a9d36ca4-934f-11e7-aace-04b862b2b3f3_story.html; and Keir A. Lieber and Daryl G. Press, "The Next Korean War," *Foreign Affairs*, April 1, 2013, https://www.foreignaffairs.com/articles/north-korea/2013-04-01/next-korean-war.

39 See Uri Friedman, "Can America Live with a Nuclear North Korea?," *Atlantic*, September 14, 2017, https://www.theatlantic.com/international/archive/2017/09/north-korea-nuclear-deterrence/539205/.

potential North Korean retaliatory second strike against the US homeland today.[40] This could quickly change, for example, if North Korea were to test and field solid-propellant mobile ICBMs carrying multiple RVs, which is exactly the sort of capability Kim publicly ordered for the years ahead in January 2021. The as-yet untested "monster" ICBM that North Korea first displayed in October 2020, for example, looks likely to be able to carry multiple RVs.[41] Similarly, though a more far-off threat, North Korea could field capabilities that allow its ICBMs to evade defenses rather than overwhelm them, such as hypersonic glide vehicles (HGVs), maneuvering reentry vehicles (MaRVs) for its ICBMs, or even a fractional orbital bombardment system (FOBS).[42] Though the fielding of such systems capable of reaching the United States now appears to be well in the future, Kim has publicly announced the development of HGVs, and North Korea conducted an initial test of such a HGV design on a shorter-range missile in September 2021.[43]

If North Korea is able to field this level of capability—presuming it is unchecked by improved US NMD—a North Korean second strike against the US homeland would be much more credible. In this event, Washington would have a tough case to make that it is willing to push a conflict with Pyongyang to the point that North Korea could retaliate by killing tens of millions of American civilians in a thermonuclear attack on the continental United States. In turn, this development would call into question Washington's willingness to back Seoul if it faces renewed threats or aggression from Pyongyang.

The erosion of the credibility of US commitment to the defense of South Korea as North Korea's nuclear capabilities advance is further exacerbated by North Korea's close geographic and political connections with the People's Republic of China (PRC). If a military conflict with North Korea threatens to go nuclear, Beijing would face increasing incentives to engage in political and military intervention to protect its interests in the context of the US-PRC strategic rivalry.

Questions about US resolve to escalate during a conflict would only grow alongside North Korea's nuclear capabilities. Could the United States credibly threaten full-scale nuclear retaliation if North Korea made limited tactical use of nuclear weapons and it was able to hold the US homeland at risk for a second strike? Would Washington really be willing to use nuclear weapons against targets near North Korea's border with China? Would Washington even be willing to press for an end to the Kim regime—as the Department of Defense's (DOD's) 2018 *Nuclear Posture Review* calls for, should North Korea employ a nuclear weapon—while Beijing opposed it and Pyongyang was ready to fight on with nuclear weapons?[44] These questions are not easily answered. However, unchecked advancement of North Korean nuclear and missile capabilities would bring them to the forefront—straining Washington's alliance with Seoul possibly to the breaking point, potentially emboldening Pyongyang, and introducing new risks into US-PRC strategic competition.

40 Jeff Seldin, "US General '100% Confident' against North Korean Missiles," Voice of America (VOA), January 17, 2020, https://www.voanews.com/usa/us-general-100-confident-against-north-korean-missiles.

41 Markus V. Garlauskas, "North Korea's New ICBM: Why the 'Monster Missile' Matters," *Korea Watch* (blog), *National Interest*, October 19, 2020, https://nationalinterest.org/blog/korea-watch/north-korea%E2%80%99s-new-icbm-why-%E2%80%9Cmonster-missile%E2%80%9D-matters-170981.

42 Joshua Pollack, "Peeking under the Shroud of North Korea's Monster Missile," Arms Control Wonk, November 5, 2020, https://www.armscontrolwonk.com/archive/1210289/north-koreas-new-icbm-whats-under-the-shroud/.

43 Van Diepen, "Six Takeaways."

44 Office of the Secretary of Defense, *Nuclear Posture Review*, DOD, 2018, https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF.

Reorienting US Strategy and Policy

The United States has no realistic, acceptable options for bringing an end to the nuclear and missile threats posed by North Korea in the next few years. After more than two decades of diplomatic efforts and repeated North Korean pledges to "work toward denuclearization of the Korean peninsula," there is little reason to be optimistic that Kim would give up his nuclear arms for any price—particularly given Beijing's refusal to apply its full economic leverage over Pyongyang to force the issue.[45] Meanwhile, if there was ever a window of time in which the United States could initiate preventive military strikes on North Korea at acceptable cost and risk of escalation, the growth in North Korea's nuclear capabilities—along with the increasingly confrontational relationship between Washington and Beijing—mean that this window has now passed.

As a result, there has been increasing discussion in Washington of strategies and policies with more limited aims. Though some in Washington and Seoul favor ambitious plans for "arms control" frameworks that envision some sort of "comprehensive freeze" or "cap" on North Korean nuclear weapons production, even this seems unrealistic for now.[46] Presuming Washington could ever accept a nuclear arms control framework that would leave North Korea armed with nuclear weapons, North Korea does not seem inclined to agree to anything that would fully and verifiably halt its production of nuclear weapons. For example, given the diffusion of North Korea's nuclear program, would Pyongyang ever make a full declaration of facilities or accept the intrusive verification scheme that would be required?[47]

Instead, a realistic US strategy to counter the threat posed by North Korea's nuclear weapons capabilities should be based on the assumption that North Korea can and will continue qualitative and quantitative improvements of its nuclear and missile arsenal—while only accepting partial limits at most. Such a strategy should be designed to counter the growth in North Korean capability, deny Pyongyang coercive leverage, deter nuclear use, and ensure preparation to swiftly defeat North Korea in the event of full-scale war.

This approach would require action at the three different levels—the White House, the DOD, and the relevant military commands, including:

- **Policy changes driven by the White House** mobilizing multiple US government agencies to more effectively impede the growth in the threat—by dissuading testing and constraining North Korea's weapons programs. These measures are outlined in this section, while some aspects are also addressed in more detail by Andrea Mihailescu in a recent Atlantic Council report.[48]

- **Expanded investments by the Department of Defense** (enabled by the US Congress) to ensure that the United States remains far enough ahead of North Korea's capabilities. These would include acquisition of expanded theater-level counter-missile capabilities, calibrated improvements to NMD, and completion of planned US nuclear modernization efforts. This will be discussed in greater detail starting on page 14.

- **Operationalization of new countermeasures by relevant military commands,** particularly to reinforce deterrence by denial. Demonstrating the readiness, will, and capability to absorb a nuclear attack and still defeat North Korea would strengthen deterrence, and could help reassure US allies. These operational measures will be detailed starting on page 18.

DISSUADING MISSILE AND NUCLEAR TESTING

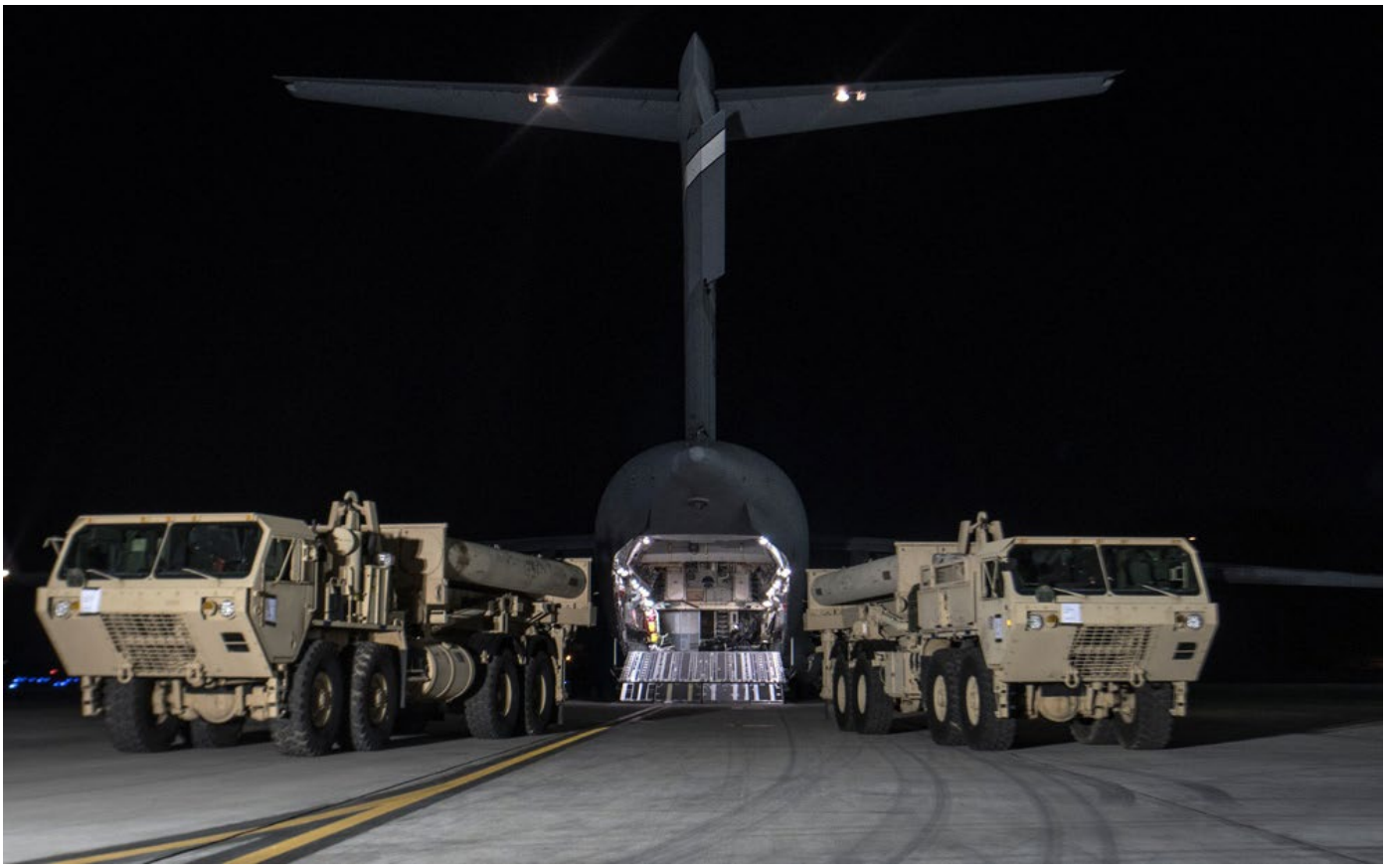
Dissuading further weapons testing by North Korea is vital to prevent the qualitative improvements to North Korean nuclear missiles that would make them exponentially more credible and capable than they are today. Though it is probably impractical to dissuade North Korea from conducting all types of relevant weapons testing, flight tests of ballistic missiles and live nuclear tests could probably be halted or at least constrained further.

45 Markus Garlauskas, "It's Time to Get Real on North Korea," United States Institute of Peace, February 9, 2021, https://www.usip.org/publications/2021/02/its-time-get-real-north-korea.

46 Hyonhee Shin, "North Korea, US Should Aim for Initial Nuclear Freeze: South Korean PM," *Reuters*, January 28, 2021, https://www.reuters.com/article/us-southkorea-politics-northkorea/north-korea-u-s-should-aim-for-initial-nuclear-freeze-south-korean-pm-idUSKBN29X13Y.

47 Ambassador Alexander "Sandy" Vershbow noted that these issues could be where such a process comes to a "screeching halt." Alexander Vershbow, "A Step-by-Step Strategy for Denuclearization and Peace on the Korean Peninsula: The Road Not Taken after Singapore," in *The Future of the US-ROK Alliance*, Atlantic Council, 2021, 27-32, https://www.atlanticcouncil.org/in-depth-research-reports/report/the-future-of-the-us-rok-security-alliance/.

48 Andrea R. Mihailescu, "It's Time to Get Serious about a Pressure Strategy to Contain North Korea," Atlantic Council, March 4, 2021, https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/its-time-to-get-serious-about-a-pressure-strategy-to-contain-north-korea/.



Components of a THAAD missile defense system arrive in South Korea. Source: Courtesy Photo Master Sgt. Jeremy Larlee/US Forces Korea.

Such an agreement would be plausible and worth paying a significant cost to obtain and maintain—as long as Washington stuck to negotiating terms that fully accounted for the potential of North Korea reneging on the agreement. In contrast to the inspection schemes associated with a verifiable freeze of production, North Korean flight tests of ballistic missiles and warhead tests producing nuclear yields would be simple to detect without intrusive means, so a violation could be identified and publicly identified unequivocally.[49] This means that, if a blanket agreement to refrain from these specific types of tests could be negotiated, it could be credibly monitored and implemented without the sticking point of requiring a verification mechanism including the presence of inspectors within North Korea.[50]

Meanwhile, even if no agreement with North Korea could be made, such tests are already in contravention of UN Security Council resolutions. These violations can be detected and publicized, and Washington can work with its allies to put pressure on even reluctant members of the international community to act. A clear commitment by the international community, including the PRC, to strongly punish North Korea for escalating such tests could affect Pyongyang's decision calculus for weapons testing. Though Beijing has been reluctant overall to support economic sanctions on North Korea, it has repeatedly done so in the aftermath of weapons tests that meet the threshold of triggering a significant response from Washington. Beijing typically cites the "tensions," "destabilization," or the risk of a crisis "spiraling

49 For more on the difficulties involved in concealing underground nuclear testing, see National Research Council, "Appendix E: Dealing with Evasive Underground Nuclear Testing," in *The Comprehensive Nuclear Test Ban Treaty: Technical Issues for the United States* (Washington, DC: National Academies Press, 2012): 161-180; and for a comprehensive example of the US government's ability to catalog North Korean ballistic missile launches at the unclassified level, see "North Korea Military Power," 22-26.

50 Joshua H. Pollack, Miles Pomper, Ferenc Dalnoki-Veress, Joy Nasr, and Dave Schmerler, *Options for a Verifiable Freeze on North Korea's Missile Programs*, Middlebury Institute of International Studies at Monterey, James Martin Center for Nonproliferation Studies, CNS Occasional Paper 46, April 2019, 19-20, https://nonproliferation.org/op46-options-for-a-verifiable-freeze-on-north-koreas-missile-programs/.

out of control" that result from such tests to contextualize its willingness to support sanctions to punish such tests.[51] The PRC's interest in forestalling US military deployments like the Terminal High-Altitude Area Defense (THAAD) battery in response to tests are also likely a factor in its grudging support for sanctions.[52] Given these motivations, Washington must show that it will react strongly to a test for there to be any incentive for a strong Chinese reaction.

There is recent precedent for seeing restraint in North Korean testing. In 2018, North Korea refrained entirely from ballistic missile launches as new sanctions were coming into effect and Kim's diplomatic efforts were gathering momentum.[53] By spring 2019, it had resumed periodic ballistic missile test launches, but kept the types of missiles tested sufficiently limited in range in order to still fall below the threshold of any international punishment as of its latest launches in the fall of 2021.[54] Kim warned in December 2019 that he was no longer bound by his earlier self-imposed pledges not to test ICBMs or nuclear weapons, yet he still did not take the risk of such tests—possibly because he feared the costs that could be imposed in reaction.[55]

Even a partial or temporary success of such an effort to halt testing would be worthwhile. A delay of months or years in testing a new system could delay progress accordingly. Similarly, a reduced number of tests of a particular type of system could reduce its credibility and reliability, making it less of a threat, even if it were deployed. Though an end to all ballistic missile testing by North Korea would be ideal, some constraints are better than no constraints.

Though the primary US concern on North Korean missile testing has been the potential for an ICBM flight test, restricting other types of missile flight tests would also be valuable.[56] Preventing or delaying flight tests of missiles with multiple RVs, decoys, and/or increasingly large solid fuel motors would be particularly helpful to constraining the qualitative growth of the missile program. Similarly, preventing tests of smaller and lighter nuclear warheads would be helpful for hamstringing North Korea's tactical nuclear capabilities. Tests of smaller and lighter warheads and missiles capable of carrying multiple RVs and decoys, combined, would exponentially increase the threat that North Korea could pose to the United States and its allies, so preventing or delaying either or both types of tests would be a practical measure to help limit and contain the growth of the threat.

CONSTRAINING RESOURCES FOR PYONGYANG'S PROGRAMS

Strong sanctions should be maintained on North Korea but not because they are likely to lead to denuclearization.[57] The broad, if unevenly enforced, economic sanctions currently in place on North Korea are insufficient to pressure Pyongyang into changing approach or even halting its weapons programs.[58] Based on an extensive body of expert research, it is clear that North Korea has developed robust sanctions work-arounds that enable importation of specific technologies, materials, and components needed for its weapons programs through subterfuge.[59] This does not mean that sanctions should be neglected or abandoned, however. The wide array of UN sanctions levied against North Korea still limits the resources available to North Korea's weapons programs, as demonstrated by the numerous examples in UN Panel of Experts (PoE) reporting examining sanctions enforcement on North Korea.[60]

The sectoral sanctions that deny the importation of broad categories of material, even if imperfectly enforced, appear

51 Rodrigo Campos and Hyonhee Shin, "UN Security Council Imposes New Sanctions on North Korea over Missile Test," *Reuters*, December 22, 2017, https://www.reuters.com/article/us-northkorea-missiles/u-n-security-council-imposes-new-sanctions-on-north-korea-over-missile-test-idUSKBN1EG0HV.

52 Brian Padden and Margaret Besheer, "US, China Agree on North Korea Sanctions," *VOA News*, February 24, 2016 and updated February 25, 2016, https://www.voanews.com/a/us-china-agree-on-north-korea-sanctions/3207294.html.

53 "North Korean Missile Launches & Nuclear Tests: 1984-Present," Missile Defense Project (website), Center for Strategic and International Studies, July 30, 2020, https://missilethreat.csis.org/north-korea-missile-launches-1984-present/.

54 Hayes Brown, "Trump Cares More About His Friendship with Kim Jong-Un than North Korea's Missile Tests," *Buzzfeed News*, September 9, 2019, https://www.buzzfeednews.com/article/hayesbrown/trump-allow-north-korea-kim-missile-test; and "US, Europeans Condemn North Korea Submarine Missile Launch at UN," *France24*, October 21, 2021, https://www.france24.com/en/americas/20211021-us-europeans-condemn-north-korea-submarine-missile-launch-at-un.

55 Anthony Kuhn, "North Korea's Kim Jong Un Says He Is No Longer Bound by Nuclear Missile Moratorium," *NPR*, December 31, 2019, https://www.npr.org/2019/12/31/792793583/north-koreas-kim-jong-un-says-he-is-no-longer-bound-by-nuclear-missile-moratoriu.

56 Phil Stewart and Idrees Ali, "US General Says North Korea Might Flight Test New ICBM Design 'in the Near Future'," *Reuters*, March 16, 2021, https://www.reuters.com/article/us-usa-northkorea-pentagon/u-s-general-says-north-korea-might-flight-test-new-icbm-design-in-the-near-future-idUSKBN2B82KM.

57 For more details on this premise, see Garlauskas, "It's Time to Get Real on North Korea."

58 *Annual Threat Assessment of the US Intelligence Community*, Office of the Director of National Intelligence, April 9, 2021, 15-16, https://www.dni.gov/files/ODNI/documents/assessments/ATA-2021-Unclassified-Report.pdf#page=15.

59 John Park and Jim Walsh, *Stopping North Korea, Inc.: Sanctions Effectiveness and Unintended Consequences*, MIT Security Studies Program, August 2016, 13, accessible on Harvard Kennedy School's Belfer Center website, https://www.belfercenter.org/sites/default/files/legacy/files/Stopping%20North%20Korea%20Inc%20Park%20and%20Walsh%20.pdf .

60 President of the UN Security Council and UN Panel of Experts Established Pursuant to Security Council Resolution 1874 (2009), "Note [Transmitting Final Report of the PoE Concerning the Democratic People's Republic of Korea]," Letter Dated February 5, 2021, United Nations Security Council, S/2021/211, March 4, 2021, 3-6, https://digitallibrary.un.org/record/3906140?ln=en.

to be more effective in hindering North Korea's weapons programs than the more easily evaded sanctions designed to deny very specific items or materials. Meanwhile, sanctions that reduce the North Korean regime's ability to earn foreign currency will limit its ability to purchase resources for its weapons programs and to pay the premiums required to evade sanctions. Without these limitations imposed by sanctions, North Korea's ability to produce more nuclear-capable missiles and their mobile launchers would be far greater. It is not enough just to avoid rolling sanctions back, however. Rather, they require continued effort and political will to maintain them by continuously closing loopholes and keeping up with the latest methods of evasion—what one former member of the PoE referred to as "pick and shovel work."[61]

More aggressive and effective efforts to block North Korean cyber activity are also vital to slow the growth of North Korea's nuclear and missile programs. Cyber theft is one of North Korea's primary remaining sources of foreign currency and perhaps its most efficient and flexible means of doing so. Meanwhile, cyber espionage also holds the prospects of obtaining specific technical know-how useful for weapons development that might otherwise be denied to North Korea. Though US government efforts against North Korea's illicit cyber activity are ongoing, as evidenced by occasional cyber threat notifications and indictments, there is space to increase the scope and intensity of these efforts in cooperation with partners in the international community—particularly to mobilize international law enforcement efforts against these cyber actors.

61 Stephanie Kleine-Ahlbrandt, "Maximum Pressure against North Korea, RIP," 38 North, October 7, 2019, https://www.38north.org/2019/10/skleineahlbrandt100719/.

Investing To Outpace North Korea

US defense investments should be designed to get out ahead of continued growth in North Korean nuclear capabilities, given the long lead times required to develop and field new and improved capabilities. Though a combination of a realigned US policy and Chinese self-interest in constraining North Korea's nuclear program would impede the growth in North Korea's nuclear capabilities, some growth in North Korea's nuclear arsenal is still likely. Given the ambitious plans that Kim laid out at the party congress, and, given his history of prioritizing such capabilities over the lives of his people, quantitative and qualitative improvements in North Korea's nuclear and missile capabilities are likely to continue as long as he remains in power.

Capabilities development to counter these growing challenges should focus on three main areas:

- **Improving theater-level counter-missile capabilities** with forward deployment in South Korea, Japan, and Guam to deal with the expanding North Korean theater ballistic missile threats, particularly the increasing numbers of mobile launchers and the expanding potential for short-range tactical nuclear missiles.
- **Calibrating National Missile Defense** to stay ahead of the North Korea threat and improve its resilience, without incurring unintended consequences vis-à-vis China and Russia.
- **Modernizing US nuclear forces** broadly at the strategic level to maintain credible deterrence, and specifically to improve nonstrategic nuclear capabilities to fill a potential "gap" in options to quickly respond with nuclear weapons at the tactical level.

IMPROVEMENTS IN FORWARD-DEPLOYED THEATER-LEVEL COUNTER-MISSILE CAPABILITIES IN KOREA

Improving the ability to deal with the expanding nuclear missile threat from North Korea begins with improving the capabilities available immediately at the outset of a confrontation or conflict. If North Korea's use of tactical nuclear weapons can be prevented by early setbacks to the North Korean missile force or defeated by conventional means, this could ideally forestall nuclear escalation entirely. Further, to the extent that Pyongyang understands these capabilities, their improvement could also reinforce deterrence by making Pyongyang less confident about its prospects of success in a confrontation or conflict.

South Korea has robust counter-missile capabilities and continues to invest in the capability to track and strike North Korean mobile launchers, along with improving its own missile defenses.[62] However, South Korean capabilities alone are unlikely to be sufficient to ensure the rapid defeat of North Korea's theater ballistic missiles, given the scale of this challenge. Expanded US contributions are still vital, particularly given the increasing scope of the threat.

The detection and tracking of missile threats should be improved by accelerating the acquisition and forward deployment of persistent intelligence, surveillance, and reconnaissance (ISR) assets. More expendable uncrewed aerial vehicles (UAVs) that could be put at risk to operate inside North Korea early in a conflict—before North Korean air defenses are fully suppressed—would be vital to maximizing the capability to find mobile launchers.

Over the long term, the administration should propose, and Congress should support, expanding investment in theater missile defense capabilities to counter growing North Korean capabilities. The US DOD should increase the proportion of US theater missile defense assets allocated for forward deployment in South Korea, and US top policymakers and military leaders should lay the groundwork for such deployments while encouraging further South Korean development of such defenses.

Given the political controversy that erupted over China's objections to the deployment of a single THAAD missile defense battery to South Korea, and the limited number of interceptors one such battery can fire, it may not be feasible or advisable to add another THAAD battery.[63] More numerous lower-tier systems with shorter ranges would be more politically realistic and operationally useful. On the political level, it would be much harder for China to claim that these systems are a threat to its interests and object to their deployment. From an operational perspective, they are useful to deploy in numbers sufficient to protect a range of targets against a wider range of incoming missiles—particularly smaller short-range missiles.

62 Jeff Jeong, "South Korea Moves to Kick Its Missile Defense Shield Up a Notch," *Defense News*, August 14, 2019, https://www.defensenews.com/global/asia-pacific/2019/08/14/south-korea-moves-to-kick-its-missile-defense-shield-up-a-notch/.

63 Michael Elleman and Michael J. Zagurek, Jr., "THAAD: What It Can and Can't Do," 38 North, March 10, 2016, https://www.38north.org/wp-content/uploads/pdf/2016-03-10_THAAD-What-It-Can-and-Cant-Do.pdf.

South Korea completed upgrades of its Patriot batteries to the Patriot Advanced Capability–3 (PAC-3) standard and continues to purchase new interceptors, even as it develops and deploys indigenous systems with similar capabilities.[64] However, these improvements will not be enough to ensure that the alliance is outpacing advances in North Korean missile capabilities. DOD should also allocate a larger proportion of Patriot PAC-3 batteries to be stationed in South Korea, or at least ensure that the US Indo-Pacific Command can deploy additional batteries to South Korea at the first sign of a crisis.[65]

The US Army has already acquired the proven Israeli-developed Iron Dome system that is designed to intercept shorter-ranged rockets and missiles. The Army is training and preparing only two batteries—one of which was deployed to Guam in October 2021 for testing—with plans to acquire a follow-on system to perform a similar role.[66] Batteries of Iron Dome, and its successors, should be stationed in South Korea to ensure they can reinforce deterrence and be available at the outset of a conflict. However, given that each battery can only intercept a limited number of incoming projectiles, such US capabilities alone would only be a partial improvement.[67] South Korea also plans a larger program to develop a domestic version of Iron Dome to enable a more comprehensive defense, and this should be strongly supported by Washington.[68] Given Kim's guidance on developing smaller nuclear warheads, as noted above, the future tactical nuclear threat from North Korea may come from smaller, short-range missiles of the type that Iron Dome is ideally suited to intercept.

In addition, the United States should invest in, and encourage South Korean investments in, improving the capability to rapidly strike to disrupt and destroy North Korean missile forces with nonnuclear assets. Given the increasing number of mobile launchers possessed by North Korea, the ability to rapidly strike a mobile launcher when it is detected will be at a premium. Combat aircraft or armed UAVs may not be the best option to destroy a mobile launcher before it can move, particularly in the contested air defense environment that would prevail early in a conflict. Alliance capabilities to rapidly strike these fleeting targets could instead be augmented by a range of ground-based systems currently in development, including the Extended Range Guided Multiple Launch Rocket System (ER GMLRS) and Precision Strike Missile (PrSM).[69] Further development of ground-based counter-missile assets would help to enable destruction of North Korean mobile missile launchers before they can relocate and also give the alliance a wider range of options to attack the fixed infrastructure—including roads, bridges, tunnels, and garrisons—that supports North Korea's mobile missile forces and enable quick relocation of launchers.

CALIBRATING NATIONAL MISSILE DEFENSE

The United States should also invest in improved National Missile Defense (NMD) capabilities to stay ahead of North Korea's ICBM program, despite the financial cost and the strident domestic and international critics of such improvements. NMD is often criticized as expensive, potentially unreliable, and even unrealistic.[70] Though these doubts will likely remain, and could increase if North Korea successfully tests ICBMs with multiple RVs and decoys, such advancements by North Korea developments make NMD improvements all the more important. The planned Next Generation Interceptor (NGI) has the potential to keep US missile defenses ahead of North Korea's missile arsenal—making it a worthwhile investment.[71] Improvements to NMD, including development and deployment of NGI, would serve a number of important purposes as North Korea's ICBM capabilities increase.

First, in the very unlikely event that North Korea decides to fire on the US homeland, improving NMD reduces the prospects of massive casualties and destruction, even if it cannot guarantee an impenetrable defense. Given that even a single warhead of similar yield as North Korea's last test would kill millions if it hit the most populated areas of the United States, each

64 Gabriel Dominguez, "Deliveries of PAC-3 Air-defence systems to RoKAF Completed," *Janes*, December 14, 2020, https://www.janes.com/defence-news/news-detail/deliveries-of-pac-3-air-defence-systems-to-rokaf-completed; and Jeong, "South Korea Moves to Kick Its Missile Defense."

65 The US military has recently demonstrated the ability to quickly deploy Patriot batteries to locations in the Pacific; see Seth Robson, "Moving Missiles: Army Shuttles Patriot Batteries around the Pacific in Message to Adversaries," *Stars and Stripes*, July 16, 2021, https://www.stripes.com/branches/army/2021-07-16/us-army-patriot-missiles-talisman-sabre-china-2165729.html.

66 Jen Judson, "Iron Dome Plans Being Finalized as US Army Begins Training on Systems," *Defense News*, February 15, 2021, https://www.defensenews.com/land/2021/02/15/iron-dome-plans-being-finalized-as-us-army-begins-training-on-systems/; and Wyatt Olson, "US Army is Testing Israel's Iron Dome Missile-defense System on Guam," *Stars and Stripes*, October 22, 2021, https://www.stripes.com/theaters/asia_pacific/2021-10-22/guam-missile-defense-iron-dome-israel-3330839.html.

67 David Hambling, "Under the Iron Dome: The Problem with Israel's Rocket Shield," *Forbes*, May 12, 2021, https://www.forbes.com/sites/davidhambling/2021/05/12/under-the-iron-dome-the-problem-with-israels-rocket-shield/.

68 "South Korea to Develop Iron Dome-like Air Defense System," Defense World.net (portal owned by Digitalwriters Media Pvt. Ltd.), August 10, 2020, https://www.defenseworld.net/news/27618/South_Korea_to_Develop_Iron_Dome_like_Air_Defense_System#.YIcWiX1ueEt.

69 "Extended Range (ER) Guided Multiple Launch Rocket System (GMLRS)," Office of the Director, Operational Test and Evaluation, 2020, https://www.dote.osd.mil/Portals/97/pub/reports/FY2020/army/2020gmlrs.pdf?ver=SfzliCDdq9xYX1cPWKkUBg%3D%3D; and "Precision Strike Missile (PRSM)," United States Army Acquisition Support Center, https://asc.army.mil/web/portfolio-item/ms-prsm/.

70 "Missile Defense," Center for Arms Control and Non-Proliferation, accessed May 1, 2021, https://armscontrolcenter.org/issues/missile-defense/.

71 Theresa Hitchens, "MDA Can Accelerate Next-Gen Interceptor: NORTHCOM Nominee," Breaking Defense (business-to-business site), July 29, 2021, https://breakingdefense.com/2020/07/mda-moving-to-speed-ngi-says-northcom-nominee-vanherck/.

successful NMD intercept of an RV in such a scenario could save millions of American lives.[72]

Second, NMD could enhance the credibility of the United States' security commitment to South Korea. More likely than an attack on the US homeland is the potential that North Korea would seek to gain leverage to decouple the US-South Korea alliance by improving its ability to hold the US homeland at risk, as noted above. Continued improvements to NMD are therefore necessary to prevent the emergence of the belief in Pyongyang or Seoul that North Korea poses a threat to the US homeland sufficiently credible that it could affect Washington's calculus for responding to North Korean coercion.

These improvements to NMD would also have to be calibrated to take into account concerns in Moscow and Beijing about the potential for NMD to affect the stability of their deterrent relationships with Washington, even though the United States has tried to make it clear that NMD is focused on defeating the limited threat from North Korea, and not the larger arsenals of Russia or China.[73] Thus, the United States must undertake the aforementioned efforts to limit the improvement of North Korean capabilities in concert with improving NMD—lest the level of NMD capability required to stay ahead of North Korean ICBM capabilities trigger unintended reactions from Moscow and Beijing.

The exact technologies and level of effort beyond the existing Ground-based Midcourse Defense system should be driven by what is needed to stay ahead of North Korea's progress to ensure effective and credible defense of the US homeland against North Korean ICBMs. Robustly funding the Next Generation Interceptor program, for example, would probably be sufficient if North Korea's progress is inhibited. That said, limitations on NMD driven by hopes to cut costs or avoid antagonizing Moscow and Beijing would be unwise if they cause NMD to fall behind North Korea's capabilities. The considerable expenditures on NMD will be virtually wasted if NMD does not establish sufficient capacity to prevent North Korea from developing a credible ability to overwhelm it with multiple RVs and decoys.

A Ground-based Midcourse Defense interceptor is tested in September 2021. Source: courtesy US Missile Defense Agency.

MODERNIZING US NUCLEAR FORCES

US nuclear weapons also have a foundational role to play in countering the threats posed by North Korea's advancing nuclear weapons capabilities. Modernizing US nuclear weapons and delivery systems is essential to keep this critical foundation from crumbling. According to the 2018 Nuclear Posture Review, the four goals of US nuclear strategy are to deter nuclear and nonnuclear attack, assure allies, achieve national goals if deterrence fails, and hedge against an

72 Casualty estimate based on calculations in: "This Is What a Nuclear Bomb Looks Like," *Intelligencer* (vertical), *New York* magazine, June 11, 2018, https://nymag.com/intelligencer/2018/06/what-a-nuclear-attack-in-new-york-would-look-like.html.

73 Seth Robson, "Top General: US Missile Defense Is Aimed at North Korea, not China, Russia, Iran," *Stars and Stripes*, February 25, 2021, https://www.stripes.com/news/pacific/top-general-us-missile-defense-is-aimed-at-north-korea-not-china-russia-iran-1.663508.

uncertain future.[74] These overall goals of US nuclear posture are all relevant to dealing with North Korea's rising nuclear threats and all of them require a modernized force in the years ahead.

The credible ability of the United States to respond to a nuclear attack on itself or its allies with a devastating nuclear counterattack is foundational for nuclear deterrence of adversaries. The aging US nuclear force is in the midst of a modernization effort to maintain this credibility, including new ICBMs through the Ground-Based Strategic Deterrent, new bombers through the B-21 Raider, new air-launched missiles through the Long-Range Standoff weapon (LRSO), and new ballistic missile submarines through the *Columbia* class.[75] Ensuring that these updates are completed, and that the United States maintains a robust strategic nuclear capability, will help provide a firm foundation for US nuclear deterrence of North Korea.

However, because the United States withdrew its nuclear weapons from South Korea and disinvested from low-yield nuclear weapons since the 1990s, a perceived gap in nonstrategic US nuclear capabilities may be emerging that must also be addressed.[76] As noted above, North Korea is apparently expanding its arsenal of such tactical nuclear weapons, meaning that Kim may come to believe that he can "get away with" limited nuclear use because the United States would have constrained options to quickly respond in kind. However, the redeployment of US tactical nuclear weapons to South Korea, or even supporting domestic nuclear weapons development in South Korea, would incur high political costs and many risks.[77] Instead, the reintroduction of low-yield capabilities such as the W76-02 warhead on the Trident II SLBM and the nuclear-armed sea-launched cruise missile (SLCM-N) as part of the ongoing US nuclear modernization effort could correct any misperception of an exploitable escalation gap, without incurring such political costs and risks.[78] In addition, the LRSO and the B61 gravity bomb—if delivered from the new B-21 bomber—could provide additional responsive nuclear options based well away from Korea to address the same problem without introducing US or South Korean nuclear weapons to the peninsula.[79]

Continuing US investments in the nuclear triad will also be essential to assuring Indo-Pacific allies as North Korea's capabilities increase. The US commitment to nuclear modernization is a strong signal that the United States is committed to its extended deterrence pledges. Further, the modernization of US nuclear forces to be able to deliver lower-yield weapons with greater accuracy would be key to credibly providing assurance to allies that the United States could conduct nuclear strikes in their defense without exposing South Korean and Japanese populations to massive fallout.[80]

If deterrence of North Korea failed catastrophically and it used nuclear weapons, then US nuclear weapons would give Washington a range of additional capabilities beyond conventional options that would help enable the defeat of North Korea's forces with the least amount of additional damage to the United States and its allies. Having responsive, modernized US nuclear forces would be key to enabling rapid and effective strikes against North Korea's nuclear force in such a conflict, to limit, and ideally forestall, any additional North Korean nuclear strikes.

Finally, as all three of the United States' nuclear rivals (Russia, China, and North Korea) continue to expand their nuclear forces, building a nuclear arsenal that is able to respond to a North Korea contingency while still having enough flexibility to support deterring Beijing and Moscow is essential. This is particularly critical given that they could both easily be drawn into a Korea crisis—China and Russia share a border with North Korea, have often been sympathetic apologists for Pyongyang, and assert strong security interests in and around the Korean peninsula.

In sum, US nuclear forces remain foundational to deterring North Korea, assuring South Korea and Japan, defeating North Korea if it uses nuclear weapons, and hedging against the potential for multiple nuclear crises. It is essential to modernize US nuclear weapons so that they can meet all of these requirements.

74 "Nuclear Posture Review," Office of the Secretary of Defense, February 2018, https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF.

75 Amy F. Woolf, "US Strategic Nuclear Forces: Background, Developments, and Issues," Congressional Research Service, RL33640, Updated July 13, 2021, https://sgp.fas.org/crs/nuke/RL33640.pdf.

76 Lauren Sukin and Toby Dalton, "Why South Korea Shouldn't Build Its Own Nuclear Bombs," *War on the Rocks*, October 26, 2021, https://warontherocks.com/2021/10/why-south-korea-shouldnt-build-its-own-nuclear-bombs/.

77 Sukin and Dalton, "Why South Korea Shouldn't Build."

78 Ben Werner, "Pentagon Confirms Low-Yield Nuclear Warhead on Ballistic Missile Sub," USNI News, US Naval Institute (news portal), February 4, 2020, https://news.usni.org/2020/02/04/pentagon-confirms-low-yield-nuclear-warhead-on-ballistic-missile-sub; and David A. Cooper, "A Nuclear Cruise Missile Could Be Vital for Arms Control and Nonproliferation Efforts," Breaking Defense (business-to-business site), September 7, 2021, https://breakingdefense.com/2021/09/a-nuclear-cruise-missile-could-be-vital-for-arms-control-and-nonproliferation-efforts/.

79 Keir A. Lieber and Daryl G. Press, "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence," *International Security* 41, No. 4 (Spring 2017): 31, https://doi.org/10.1162/ISEC_a_00273.

80 Lieber and Press, "The New Era of Counterforce," 31.

Improving Operational Countermeasures

Operationalization of US military countermeasures to improve deterrence and defense against North Korean nuclear missile threats will be limited both by the resources available and the political optics that require some degree of restraint. For example, a dramatic strengthening of *deterrence by punishment*—which is founded on proving the will and capability to retaliate—is probably impractical to accomplish in any significant degree in the current political environment, because it would be seen in Seoul, Beijing, and even some quarters in Washington as provocative and inflammatory. A dramatic improvement in deterrence by punishment would require the deployment or demonstration of retaliatory capabilities and strong messaging that could be easily misinterpreted as an "offensive" posture, appearing to be threatening or even preparing for an attack.

In contrast, *deterrence by denial*, founded on the ability to prevent an adversary from achieving its goals if it attacks, can be operationalized through a lower-key and more defensive approach. The US military should, in close coordination with the Republic of Korea (ROK) armed forces, improve the operational countermeasures of its forces in the ROK to strengthen both deterrence by denial and the ability to counter a North Korean attack with little additional warning. Strengthening such countermeasures to keep ahead of North Korea's growing missile and nuclear capabilities would include two main elements:

- **Reinvigorating US-ROK alliance training** to deter and defeat the full spectrum of potential North Korean aggression, ranging from limited provocations to nuclear strikes, is vital. Such training should place particular emphasis on alliance counter-missile operations to quickly and decisively defeat North Korean missile capabilities by detecting, defending against, disrupting, and destroying North Korean missile forces.

- **Reinforcing resilience** in the face of potential North Korean nuclear and conventional missile attacks to bolster deterrence by denial and to ensure the alliance has the ability to absorb a North Korean escalation and still mount an effective counterattack.

REINVIGORATING TRAINING

US military training on and around the Korean peninsula, including bilateral US-ROK training by the Combined Forces Command, has been constrained by political considerations for decades. Pyongyang's continuing complaints about such training, its use of such training as a pretext for weapons development and testing, and Beijing's often open sympathy for North Korea's position have combined to make it difficult for Seoul and Washington to sustain the political will to maintain robust training in recent years.[81]

Constraints on such training reached an entirely new level in the aftermath of the Singapore Summit in June 2018, when President Trump announced the suspension of joint US-South Korea military exercises.[82] Though alliance military training events have increased since, training has not returned to its previous profile, particularly with the additional constraint of COVID-19.[83] As a former commander of US Forces Korea pointed out last fall, continuing such restrictions past the high point of diplomatic efforts in 2018 led to "some degradation" in readiness while doing little to advance diplomacy.[84]

It is time to reinvigorate such training, with a particular focus on robust and visible counter-missile efforts. The complex operations involved in detecting, tracking, defending against, disrupting, and destroying North Korean mobile missiles is a demanding mission that places a premium on interoperability between complex US and ROK systems. This requires frequent, realistic, robust US-ROK training to ensure that alliance counter-missile operations can be fully effective on short notice.

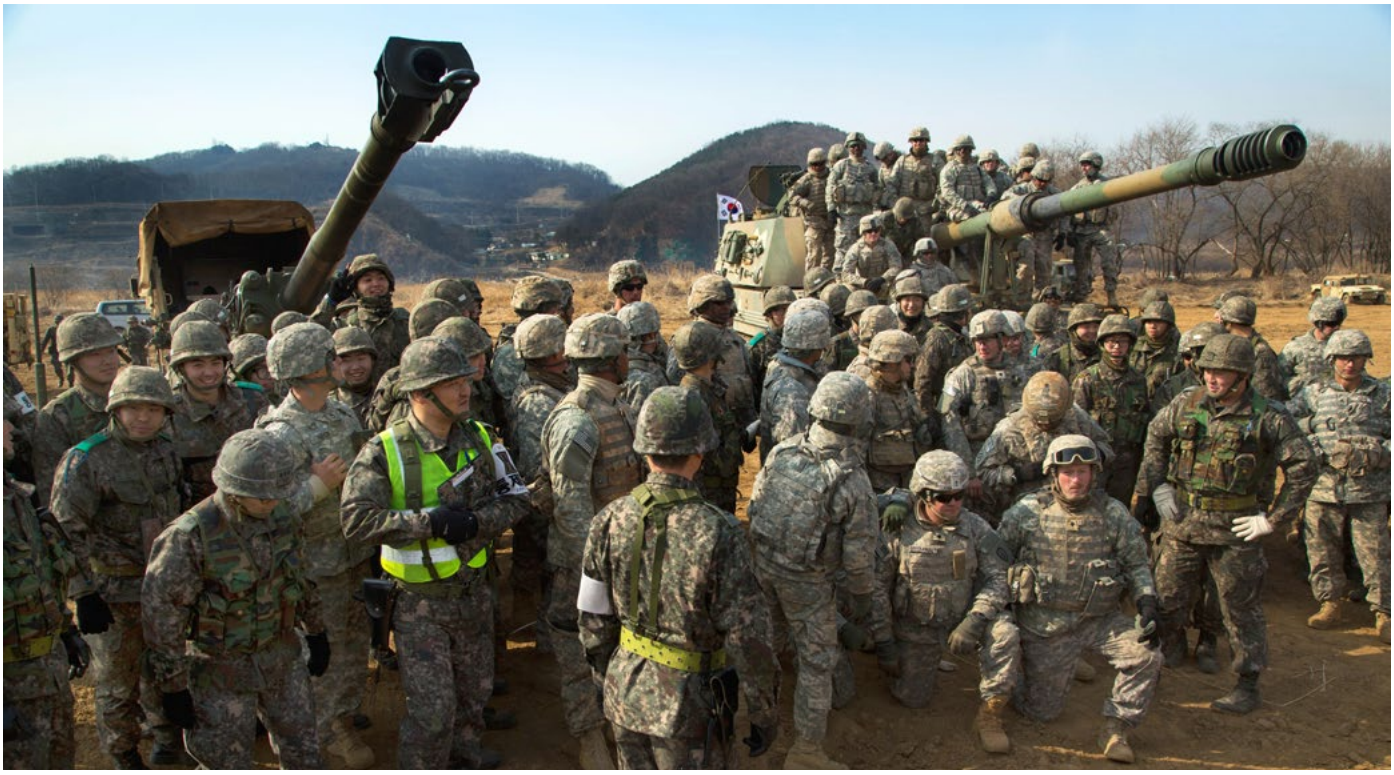
Further, strengthening deterrence by denial, through reinforcing the credibility of the alliance's capability to swiftly defeat North Korean missile attacks, requires that such training has a sufficiently visible profile to affect Pyongyang's perceptions of alliance readiness. As North Korea's tactical nuclear-capable missile forces continue to visibly improve and grow, it will be vital to integrate and display new alliance counter-missile capability acquisitions to ensure robust readiness and deterrence by denial.

81 Bryan Port, "Defense Readiness and the US-ROK Alliance," in *Korea Net Assessment 2020: Politicized Security and Unchanging Strategic Realities*, eds. Chung Min Lee and Kathryn Botto (Washington, DC: Carnegie Endowment for International Peace), 43-53, https://carnegieendowment.org/files/Korea_Net_Assesment_2020.pdf.

82 Steve Holland, Soyoung Kim, and Jack Kim, "In Surprise Summit Concession, Trump Says He Will Halt Korea War Games," *Reuters*, June 11, 2018, https://www.reuters.com/article/us-northkorea-usa/in-surprise-summit-concession-trump-says-he-will-halt-korea-war-games-idUSKBN1J72PM.

83 John Grady, "US Forces Korea CO: America Still Conducting Theater-level Training Exercises," *USNI News*, US Naval Institute, January 4, 2021, https://news.usni.org/2021/01/04/u-s-forces-korea-co-america-still-conducting-theater-level-training-exercises.

84 Grady, "Pausing Exercises 'No Longer Relevant' to North Korea Nuclear Negotiations."



US and South Korean soldiers conduct an after-action review following field artillery training during exercise Foal Eagle 2015 on Warrior Base, New Mexico Range, South Korea, March 15, 2015. Source: courtesy US Department of Defense.

REINFORCING RESILIENCE: PREPARING TO PREVAIL

To reinforce deterrence by denial of North Korea, the United States and South Korea should also clearly ensure resilience in the face of North Korean conventional and nuclear missile attacks on the Korean peninsula. One of the key reasons that North Korea may believe it can garner leverage and battlefield utility from its tactical nuclear capabilities is through the threat of being able to achieve a decisive operational military advantage against the US-ROK alliance through the first use of nuclear weapons on the peninsula. In such a scenario, North Korea might believe that tactical nuclear use, or even threat of such use, would leave the alliance with no meaningful conventional military options—only the choice of either halting the conflict or escalating to massive US nuclear use.

Though some might call it unthinkable to consider how to prevail in a conflict where North Korea employed tactical nuclear weapons, that very perception is part of what makes those weapons so dangerous and destabilizing. To prevent North Korea from believing that alliance forces would be caught unprepared and could not prevail if North Korea used tactical nuclear weapons, it is vital to seriously and visibly prepare for the possibility. Reinforcing deterrence by denial requires emphasizing resilience in the face of such attacks in the training programs of US and South Korean forces, which could include normalizing preparation for North Korean tactical nuclear use in training scenarios at all echelons. Another method to strengthen resilience would be to increase dispersion of high-value assets, along with improved preparations of mobile and alternate sites for key military assets, to ensure that a limited North Korean tactical nuclear attack cannot easily cripple allied military operations.

Operationalizing such an approach would be tricky from the standpoint of public messaging. Such training and other resiliency improvements would have to be conducted in such a way so as not to generate undue civilian concern about the potential for a North Korean nuclear attack, while also not being cavalier about the serious harm North Korea nuclear weapons would inflict. In addition, such an approach would also have to be carefully couched so as not to unintentionally undermine the credibility of the "nuclear umbrella." It would be vital to avoid giving North Korea or US allies the impression that the United States would necessarily refrain from retaliating with nuclear strikes and pursue only a conventional response if North Korea uses tactical nuclear weapons.

Conclusion

This report argues that the United States must take a proactive approach to counter the growing nuclear and missile capabilities of North Korea. It reviews the qualitative and quantitative progress North Korea has made in improving its nuclear missile capabilities to threaten the United States, its forces, and its allies. It summarizes the plans that Pyongyang has outlined to continue to improve its nuclear capabilities, and the implications for US national security in the years ahead if such development proceeds unchecked. Finally, it outlines actionable recommendations for national, DOD, and military command levels, that would impede North Korean capabilities development and ensure the United States stays ahead of the threat—to ultimately ensure that North Korean nuclear aggression and nuclear-backed coercion is deterred or defeated.

Though it would be ideal if North Korea could be convinced to comply with UN Security Council resolutions prohibiting its nuclear weapons and ballistic missile programs, it is likely that its nuclear and weapons development will continue despite any pressures and incentives the international community can realistically bring to bear. If the current trajectory remains unchanged, Washington may be left with the unpalatable choice of either conceding to North Korean coercion of South Korea and the resulting decoupling of the alliance with Seoul or risking a nuclear war that could escalate to US cities and draw in China. The recommendations in this report provide a pragmatic and feasible road map to proactively counter the threats this continuing development would pose to US national security—rather than waiting for Pyongyang to initiate a new nuclear crisis when it feels its capabilities are sufficient.

About the Author

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Mr. Garlauskas served in the US government for nearly twenty years as an intelligence officer and strategist. He was appointed to the Senior National Intelligence Service as the national intelligence officer (NIO) for North Korea on the National Intelligence Council from July 2014 to June 2020. As NIO, he led the US intelligence community's strategic analysis on North Korea issues, and provided analytic support to the development of US policy on North Korea, including both summits with North Korea. He also served for nearly twelve years overseas at the headquarters of United Nations Command, Combined Forces Command, and US Forces Korea in Seoul. His assignments there included chief of the Intelligence Estimates Branch and director of the Strategy Division.

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This report reflects research conducted by Mr. Garlauskas since leaving US government service, and the views expressed do not reflect the official assessments or position of any element of the US government.

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