

# Thinking Strategically About North Korea

Dr. Joseph Roger Clark\*

**Abstract:** *Thinking strategically about policy options regarding North Korea's nuclear weapons and ballistic missile programs requires consideration of the political ends sought by Washington and Pyongyang. It also requires consideration of the policy means by which each side may pursue said ends. This paper puts forth a logic for doing just that. It begins by differentiating the terms strategic and strategy. Then, it considers the objectives and relevant capabilities of each nation-state. Throughout the paper the potential effects of each nation-state's choices, actions, and instruments are given consideration based on the political objectives identified. The paper concludes with a brief consideration of the effects of strategic orientation and the risks presented by some of the choices before American policymakers.*

North Korea's nuclear weapons and ballistic missile programs present American foreign policymakers with an intractable set of policy choices. Every plausible course of action carries substantial risk. Paradoxically, many of the most effective options available to the president would trade a reduction in the immediate — more limited, yet severe — threat posed by North Korea for an exponential increase in the gravity of future threats posed by China, Russia, and other nuclear armed nation-states. This situation is the result of lack of intelligence about the motives driving the regime of Kim Jong-un and the constraints of the international system. Under these conditions, the achievement of any given set of American political objectives requires careful consideration of the *strategic* context.

This is a paper about how to think, not what to think. It is, perhaps subtly, perhaps not so subtly, an argument for the importance of thinking about the effects of a given policy before the selection of any policy. To highlight the differences between political purpose and policy, this paper begins with an examination of the differences between strategic and strategy. To introduce the current context of the Korean peninsula, it then reviews the potential political objective of Pyongyang. After that, an examination of the resources with which North Korea might pursue its strategic objectives is presented. Because the strategic context is interactive, this paper then reviews the potential political objectives of Washington and the resources with which the United States might pursue its strategic objectives. With the above in mind, a brief discussion about how to orient political objectives and strategy is put forth — all with an eye toward the final section, a general review of the strategic choices before American policymakers and how one ought to think about them.

## The Concepts of Strategic and Strategy in the Abstract

In discussions of foreign policy and debates about the use of military force, the word “strategic” is widely used. It is rarely used properly. In this context, strategic is not the adjectival form of the word strategy. Strategic does not mean important or significant. Yet, as Colin Gray notes, the term is often inserted into text and conversation when the author or speaker

\*Dr. Joseph R. Clark serves as an Assistant Professor in the Department of Political Science at Towson University.

means just that — important or significant.<sup>1</sup> Within the context of foreign policy and debates about the use of military force, the word strategic approximates, but is not synonymous with, the meaning of the word decisive. That said, the term should not be used to make assertions of aspirational decisiveness. Historical examples, including Germany's use of the V-2 rocket against the United Kingdom<sup>2</sup> and the US's use of the B-52 bomber against North Vietnam,<sup>3</sup> warn of assuming decisive effect *a priori*. As instruments of policy, Germany's V-2 and America's B-52 produced little in regard to the aims sought (the surrender of the United Kingdom and preservation of South Vietnam's independence, respectively).

Within the context of foreign policy and debates about the use of military force, the term "strategic" refers to the consequences of a choice, action, or instrument on the political outcome pursued. A choice, action, or instrument is strategic *if* it has a direct effect on the achievement of the desired political outcome or, *if* it has a direct effect on the inability to achieve such.<sup>4</sup> The critical element is the effect on the political objective. Foreign policy, including the use of military force, is undertaken to achieve political, and politically defined, objectives. For a choice, action, or instrument to possess strategic value, it must affect the achievement of the identified objective. Although it is possible to make estimates of likely strategic effect based on evidence from past use, the actual strategic effect of a choice, action, or instrument will only be known after selection and application.

Although this conceptualization of the term strategic can be found in writings that pre-date the work of the Prussian general and theorist Carl von Clausewitz, it is his work *On War* that provides the foundational expression of this idea in the West. At the beginning of his discussion regarding the nature of war, Clausewitz writes "War is thus an act of force to compel our enemy to do our will".<sup>5</sup> With this, Clausewitz is arguing that war is a contest over politics. The political object of the war is key. Clausewitz returns to this idea repeatedly, often more explicitly. Later, he continues to expand on the idea, writing that "...the *political object*, which was the *original motive*, must become an essential factor..." in the use of force.<sup>6</sup> For Clausewitz, the political objective is the motivating force behind policy (military and non-military). The political objective is also the criteria by which policy success is measured, and by which the effectiveness of a given choice, action, or instrument is judged. Clausewitz's argument established the standard that something could only be strategic *if* it had a direct effect on the political objective(s) being sought. His conceptualization of the term has endured. Its logic is present in Giulio Douhet's theories regarding air power,<sup>7</sup> and in Bernard Brodie's work

---

<sup>1</sup> Colin S. Gray, *The Future of Strategy* (Cambridge: Polity, 2015), 26.

<sup>2</sup> Karl W. Deutsch, "The Impact of Science and Technology on International Politics," *Daedalus* 88, no. 4 (1959): 669-85, <http://www.jstor.org/stable/20026535>.

<sup>3</sup> Chad Parker, "American Bombing Strategy and Teaching the Vietnam War," *OAH Magazine of History* 18, no. 5 (2004): 59-62, <http://www.jstor.org/stable/25163724>.

<sup>4</sup> Gray, *The Future of Strategy*, 26.

<sup>5</sup> Carl von Clausewitz, "On the Nature of War," in *On War*, translated by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 75.

<sup>6</sup> Carl von Clausewitz, "On the Nature of War," in *On War*, 80. Italics in original.

<sup>7</sup> Giulio Douhet, *The Command of The Air*, translated by Dino Ferrari (Washington, DC: Air Force History and Museums Program, 1998).

regarding nuclear weapons.<sup>8</sup> It is also present in modern arguments about military doctrine<sup>9</sup> and the potential of weaponized cyber technologies.<sup>10</sup>

Strategy, as opposed to the term strategic, is about causal logic — not effect. Strategy is a causal argument about the mix of choices, actions, and instruments most likely to achieve a desired end. In regard to foreign policy and the use of military force, that end is ultimately political. However, strategy may not bring about immediate or direct effects. Strategy is an expression of the ways and means by which a political objective is sought. Strategy attempts to coordinate the use of choices, actions, and instruments to create conditions in which strategic effect becomes possible.<sup>11</sup>

Something is strategic based on the desires of one actor, but strategy is interactive. To be successful, strategy must be based on calculations of the likely effects of the choices, actions, and instruments of all parties — the originator of any interaction and the respondents. Based on such calculations, strategy is a plan for how the political objective ought to be pursued.<sup>12</sup> In this, the term *ought* is critically important.

The use of the word *ought* seeks to capture judgments about the costs and benefits (the relative efficiency) of any proposed strategy, the probable reaction of the target audience, and the likely interpretation of the strategy's legitimacy on the part of the target and other observers. The achievement of any political objective, even when pursued without military force, requires legitimation. The permanent achievement of the political outcome, that is, for the condition sought by the originator to be static, respondents — even former adversaries — must ultimately accept it. Respondents must be convinced that the costs of resistance are greater than the costs of accepting the originator's desired outcome. If the political objective has been sought via the use of military force, such legitimation is even more important — it is the source of lasting peace.<sup>13</sup> Short of genocide, peace cannot be achieved without it. If the political objective has been sought via choices, actions, and instruments that will be viewed as illegitimate or unacceptable by the target or observers, said strategy reduces the likelihood that the political objective will be achieved. It also reduces the likelihood that any resulting peace and security will be permanent. Even if the originator of the interaction achieves their political objective with such a strategy, the costs of doing so may make them worse off — a pyrrhic victory.<sup>14</sup> As a result, whether or not a choice, action, or instrument possesses strategic value is contextual.

Strategic success, therefore, is predicated on the degree and accuracy with which an actor takes into account the political objectives they seek, the political objectives others seek, the choices, actions, and instruments available to each, and the objectives, choices, actions, and instruments of observers — as well as strategically important interpretations regarding the perceived legitimacy of objectives, choices, actions, and instruments. In total, and whether

---

<sup>8</sup> Bernard Brodie, "Implications for Military Policy" in *The Absolute Weapon: Atomic Power and World Order*, edited by Bernard Brodie (New Haven, CT: Yale Institute of International Studies, 1946), 57-123.

<sup>9</sup> David H. Ucko, "Innovation or Inertia," in *The New Counterinsurgency Era* (Washington, DC: Georgetown University Press, 2009), 141-167

<sup>10</sup> Paul Rosenzweig, *Cyber Warfare* (Santa Barbara, CA: Praeger Security International, 2013).

<sup>11</sup> B. H. Liddell Hart, *Strategy*, Second Revised Edition (London, England: Faber & Faber Ltd., 1967), 322-330.

<sup>12</sup> Gray, *The Future of Strategy*, 7-22; Lawrence Freedman. "Part II: Strategies of Force" in *Strategy: A History*, (New York, NY: Oxford University Press, 2013), 69-244; Carl von Clausewitz, "On Strategy in General," in *On War*, translated by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 177-222.

<sup>13</sup> Carl von Clausewitz, "On the Nature of War," in *On War*, 75-123.

<sup>14</sup> Emile Simpson, *War from the Ground Up* (Oxford: Oxford University Press, 2013).

consciously considered or not, these elements constitute the strategic context within which strategy is formed.

Understanding the strategic context requires knowledge. It requires information that is (ideally) complete, accurate, timely, and capable of serving as a basis for decision making. This knowledge, referred to as strategic intelligence, provides policymakers with insights regarding the choices, actions, and instruments that strategically important nation-states and non-state actors may engage — both proactively and in response to the originator's attempt to achieve their desired political objective.<sup>15</sup>

Turning to the current situation with North Korea, the first questions to ask — before attempting to develop an American policy response — is this: what is the strategic context? Answering that question requires developing answers to the following questions. What are the political objectives of the Kim Jong-un regime? What instruments does it have with which to pursue its objectives? Given its objectives and instruments, what is Pyongyang's likely strategy? What are the political objectives of the United States? What instruments does it possess with which to pursue those objectives? Given its objectives and instruments, what are the US's options in regard to strategies? What are the likely effects of the interaction among potential North Korean strategies and those of the United States — and other potential respondents and observers?

Strategy making is always done under conditions of uncertainty. The closed nature of the North Korean regime enhances the degree of uncertainty. The US lacks key pieces of strategic intelligence that would normally be provided by the American intelligence community. Nonetheless, policymakers must make choices. They must forge a strategy. The US's policy response may be based on a range of actions or inaction (inaction is still a response, better that it be considered as much as the use of any other specific instrument).

The US needs a strategy for dealing with North Korea. That requires making tough choices about the wisdom of particular actions and instruments. Imperfect as it is, what is known about the strategic context provides key pieces of wisdom to help one think through the crafting of such a strategy.

### **Potential to Plausible North Korean Political Objectives**

The biggest unknown of the strategic context is that of North Korea's political objectives. Based on observations of North Korean behavior — the pursuit and production of increasingly powerful nuclear weapons, the pursuit and production of increasingly capable ballistic missiles, and the promulgation of aggressive anti-American rhetoric — it is logical to assume Pyongyang is following a strategy motivated by four possible political objectives:

- *Prevent the collapse of the North Korean nation-state.*
- *Ensure the survival of the North Korean nation-state.*
- *Ensure the survival of the Kim regime.*
- *Bring about the reunification of the Korean peninsula under Pyongyang.*

Strategies for achieving the first three of these possible objectives are not mutually exclusive. For example, the decision to develop a nuclear deterrent could be part of a strategy to

---

<sup>15</sup> Sherman Kent, *Strategic Intelligence for American World Policy* (Princeton, NJ: Princeton University Press, 2015).

ensure the survival of the North Korean nation-state by preventing forcible regime change as a result of South Korean or American military action. The decision could also be part of a strategy to ensure the survival of the Kim regime by increasing Kim Jong-un's prestige within the governing elite and/or by diverting resources from the traditional military establishment that potentially poses the greatest risk to young Kim's political (and perhaps, personal) survival. The decision could also be part of a strategy to prevent the collapse of the North Korean nation-state by leveraging nuclear weapons and ballistic missiles to extort aid and resources from South Korea, the US, and/or the international community writ large.

This lack of exclusivity creates a situation in which observation of the methods being used does little to help discern the motives of Pyongyang. Furthermore, it is possible that multiple political objectives — perhaps even inconsistent and intransitive objectives — might be sought by Kim Jong-un (as a result of individual personality traits) or by the regime itself (as a result of bureaucratic politics). In a closed society, with little opportunity for collecting evidence about the actual objectives, it becomes impossible to resolve questions about which one of these first three objectives might be the outcome sought by North Korea.

It is only the fourth possible objective, reunification of the peninsula under Pyongyang, in which it is possible to gain some clarity. This is possible because the strategy for seeking this fourth possible objective threatens the other three. It is rational to assume that North Korea understands that the existing South Korean regime will not submit to such an outcome through the use of any non-military instruments. Pyongyang cannot talk Seoul into reunification under Kim Jong-un. Only a strategy predicated on military force could potentially achieve this political objective. Yet, such a strategy would catalyze responses from the current government in Seoul, from Washington, and even from Beijing, which would threaten one, or more, of the first three potential political objectives outlined above. South Korea, the United States, China, and other nation-states and international governing organizations have expressed their position that any strategy that seeks to achieve changes in national boundaries by force is unacceptable.<sup>16</sup>

Although Pyongyang seeks reunification under a communist political system, and despite continuing rhetoric concerning reunification, evidence suggests Pyongyang's ways and means for seeking reunification do not include the use of military force against the South. In the late 1980's, Kim Il-sung dropped talk of reunification through offensive military action. Instead, Kim Il-sung began promoting defensive reunification. Kim Il-sung argued that reunification would be brought about through the removal of imperialist (read, American) influence and forces. Kim Il-sung believed that the denunciation of the US and the removal of US forces would lead naturally to a communist revolution in the South, paving the way for reunification. During the last half decade of his life, Kim Il-sung pursued a strategy aimed at reducing the ability of the United States to leverage its power in support of the existing South Korean

---

<sup>16</sup> Christine Kim and Kaori Kaneko, "South Korea says Trump's warning to North Korea 'firm and specific'," *Reuters*, September 20, 2017, accessed November 07, 2017, <https://www.reuters.com/article/us-northkorea-missiles-trump-reaction/south-korea-says-trumps-warning-to-north-korea-firm-and-specific-idUSKCN1BV0DQ>; Matthew Nussbaum, Bryan Bender, Brent D. Griffiths, "Mattis warns of 'massive military response' if North Korea threatens attack," *POLITICO*, September 03, 2017, accessed November 07, 2017, <https://www.politico.com/story/2017/09/03/trump-north-korea-nuclear-242289>; "Reckless game over the Korean Peninsula runs risk of real war," *Global Times*, August 10, 2017, accessed November 07, 2017, <http://www.globaltimes.cn/content/1060791.shtml>; Simon Denyer and Amanda Erickson, "Beijing warns Pyongyang: You're on your own if you go after the United States," *The Washington Post*, August 11, 2017, accessed November 07, 2017, [https://www.washingtonpost.com/world/china-warns-north-korea-youre-on-your-own-if-you-go-after-the-us/2017/08/11/a01a4396-7e68-11e7-9026-4a0a64977c92\\_story.html?utm\\_term=.de0c3622609d](https://www.washingtonpost.com/world/china-warns-north-korea-youre-on-your-own-if-you-go-after-the-us/2017/08/11/a01a4396-7e68-11e7-9026-4a0a64977c92_story.html?utm_term=.de0c3622609d).

government. Kim Jong-un appears to be following his grandfather's lead. Since coming to power, Kim Jong-un's statements regarding reunification have stressed the common racial identity of Koreans and referenced American imperialism as the root cause behind Seoul's unwillingness to improve relations.<sup>17</sup>

The assessment above is based more on logic than empirical evidence. As such, it represents poor strategic intelligence. Nonetheless, it provides insight from which a general understanding of the motives of North Korea may be constructed.

The defensive nature of the first three possible political objectives and the defensive approach of Pyongyang in regard to the fourth, suggests a strategic context in which the Kim Jong-un regime is motivated by the desire to achieve one or both of two plausible political objectives: (1) the conservation of the regime; and, (2) a reduction in the efficacy of American power in the region. Assuming one or both of these objectives represents the ends being sought provides a basis for understanding the strategic context. That, however, leaves open questions regarding the means and ways through which North Korea might pursue these objectives.

Regardless of the ends being sought, given North Korea's lack of economic or diplomatic instruments, it is logical to assume North Korean strategy would be predicated on military instruments. North Korea's military capabilities, therefore, represent the next element of the strategic context.

### **North Korea's Military Capabilities**

The conventional military forces, and burgeoning nuclear capabilities, of North Korea endow the regime of Kim Jong-un with an ability to influence regional and international events. Whether or not this influence is strategic — whether or not it delivers one or both of the plausible political objectives identified above — depends on the nature of each political objective and its acceptability to regional neighbors and the United States (more on that shortly). Whether or not North Korea's influence rises to the level of strategic also depends on the potential, realized, and perceived relative military capabilities of North Korea, its neighbors, the United States, and other interested nation-states. Understandings on the part of any potential originator and respondents of the relative effectiveness (and legitimacy) of military instruments will shape choices regarding strategy. The question is: can North Korea's military deliver the regime's political objectives?

The opaque nature of the regime makes it difficult to assess how well North Korean forces would actually fight in combat — an ability that results from a combination of equipment, personnel, training, and doctrine. Nonetheless, enough information exists to provide a rough description of North Korea's military capabilities. From that, wisdom regarding the degree to which the regime's armed forces have the potential for strategic effect may be generated.

Based on available data, North Korea possesses a large — but increasingly obsolete — conventional military force. North Korea's conventional military is in no condition to carry out successful offensive land operations beyond its own borders. It cannot invade, seize, and hold the territory of South Korea or any other neighboring nation-state. It cannot take, then trade, land to conserve the regime or reduce the efficacy of American policies in the region. The conventional capabilities of South Korea are too great. When the strength of American forces

---

<sup>17</sup> Yong Ho Park, "South and North Korea's Views on the Unification of the Korean Peninsula and Inter-Korean Relations," Brookings.edu, April 01, 2014, accessed November 7, 2017, <https://www.brookings.edu/wp-content/uploads/2014/04/Park-Young-Ho-paper.pdf>.

stationed in the region is included<sup>18</sup> and China's signaled unwillingness to support North Korea in any conflict originated by Pyongyang is factored in, the strategic limits of North Korea's conventional forces become clear.<sup>19</sup> The strategic weakness of North Korea's conventional forces results from the following factors.

### *The Strategic Balance in Manpower*

The North Korean army includes some 1,020,000 personnel, 3,500 main battle tanks, and 21,100 pieces of artillery.<sup>20</sup> In comparison, the South Korean army has approximately 495,000 individuals, 2,434 main battle tanks, and 11,038 pieces of artillery.<sup>21</sup> Although a comparison of raw numbers suggests a North Korean advantage, such a quantitative assessment is misleading.<sup>22</sup> The personnel and equipment, including tanks and artillery, of the North Korean army are at a qualitative disadvantage relative to those of the South Koreans.

Consider the relative state of North Korean personnel. The regime keeps an estimated 70 percent of its manpower forward deployed within seventy miles of the demilitarized zone between North Korea and South Korea.<sup>23</sup> The North Korean army is a conscription force. Military service in one of four branches (army, navy, air force, or the civil security force) is compulsory at age seventeen. Men must serve ten years; women must serve until age twenty-three.<sup>24</sup> Regular soldiers (as opposed to special forces personnel) are poorly fed and equipped.<sup>25</sup> The bulk of their training is focused on political indoctrination and rudimentary combat training.<sup>26</sup>

---

<sup>18</sup> Among American forces in the region the US has 28,500 personnel stationed in South Korea (including the 8th Army and 7th Air Force) and 47,050 personnel stationed in Japan (including the 7th Fleet and 3rd Marine Division); "Chapter Six: Asia." *The Military Balance* 117, no. 1 (2017): 237-350. doi:10.1080/04597222.2017.1271212.

<sup>19</sup> Denyer and Erickson, "Beijing warns Pyongyang: You're on your own if you go after the United States.," "China Signals It Won't Support North Korean Attack," *Fortune*, accessed November 02, 2017, <http://fortune.com/2017/08/11/china-north-korea-missile/>.

<sup>20</sup> North Korea's army, like all armies, contains additional weapons systems and equipment (air defense systems, anti-tank weapons, fuel trucks, etc.). These three measures, however, provide a rough — but sound — measure of the North Korean army's conventional combat power.

<sup>21</sup> "Chapter Six: Asia." *The Military Balance*

<sup>22</sup> For comparison, the US Army is comprised of approximately 475,350 soldiers, 2,384 main battle tanks, and 5,312 pieces of artillery.; "Chapter Three: North America." *The Military Balance* 117, no. 1 (2017): 27-62. doi:10.1080/04597222.2017.1271209.

<sup>23</sup> *Korea Handbook: The Complex Operating Environment and Asymmetric Threats*. Fort Meade, MD: US Army Asymmetric Warfare Group, 2017, accessed October 31, 2017, <http://8tharmy.korea.army.mil/501mi/content/reading-list/Korea-Tactical-Handbook.pdf>; "Military and Security Developments Involving the Democratic People's Republic of Korea" (Report to Congress, Office of the Secretary of Defense, 2015)

<sup>24</sup> "The World Factbook: KOREA, NORTH," Central Intelligence Agency, last modified October 26, 2017, accessed November 01, 2017, <https://www.cia.gov/library/publications/the-world-factbook/geos/kn.html>.

<sup>25</sup> Eleanor Ross, "What life is like as a soldier in the North Korean army," *Newsweek*, June 21, 2017, accessed November 02, 2017, <http://www.newsweek.com/soldiers-life-north-korean-army-marked-hunger-and-defections-are-rising-627596>; "Former soldier says 60% of North Korean military training is ideological 'brainwashing'," *DailyNK.com*, September 03, 2017, accessed November 02, 2017, <http://www.dailynk.com/english/read.php?num=14403&catald=nk00100>.

<sup>26</sup> *Opposing Force Training Module: North Korean Military Forces*. Field Manual No. 34-71, Washington, DC: Headquarters, Department of the Army, 1982, accessed October 30, 2017, <http://nautilus.org/wp-content/uploads/2011/12/OpposingForceTrainingModule.pdf>; Aletha Adu, "They are dumb! North Korea BELITTLED after official training video films INEPT soldier," *Express.co.uk*, April 19, 2017, accessed November

Although the South Korean army also maintains a significant number of forces along the demilitarized zone — as part of the Capital Defense Command responsible for protecting Seoul — relative to North Korean army, it is deployed in greater depth throughout the country. This increased dispersion, a product of the history of the Korean War, protects South Korea against incursion by North Korean special forces.<sup>27</sup> The increased dispersion also protects the South Korean army from North Korean artillery. Like North Korea, South Korea maintains a compulsory military obligation for its citizens. Depending on the branch of service selected (army, navy, or air force), citizens between the ages of twenty and thirty must serve twenty-one, twenty-three, or twenty-four months (respectively) in South Korea's armed services.<sup>28</sup> South Korean soldiers are generally fed, housed, and equipped on par with American and other Western forces. Furthermore, Seoul is making major investments in military infrastructure to improve the living conditions and quality of life of those serving. These improvements are designed to enhance the military capabilities of South Korean forces and strengthen civil-military relations.<sup>29</sup> South Korean soldiers are trained in combined arms (the simultaneous use of infantry, armor, artillery, and other units to achieve combat objectives). They also receive training and acquire experience in joint operations (integrated effort with South Korean naval and air force units, and with foreign, normally American, military units). In its 2016 Defense White Paper, the South Korean Ministry of Defense outlined its plans to improve the manner in which it trains its soldiers. The Ministry intends to continuously adapt the army's ability to act in an increasingly complex environment against a range of possible North Korean threats.<sup>30</sup>

Soviet and Chinese military doctrine, modified by the realities of North Korean terrain and the regime's penchant for the use of unconventional warfare, provide the model for North Korean force employment.<sup>31</sup> Although the North Korean army may have adapted its military doctrine in response to changes in the capabilities of its forces (and those of South Korea and the United States), there is no evidence suggestive of significant changes in force employment. Given this, it is expected that should North Korea initiate hostilities, the regime would begin with a blitzkrieg attack, using artillery and armor forces in an attempt to smash through the demilitarized zone and overwhelm South Korean defenses.<sup>32</sup> Tanks would be used to try and exploit initial breakthrough points to destroy South Korean forces, capture or eliminate key

---

02, 2017, <http://www.express.co.uk/news/world/794073/North-Korea-belittled-official-training-video-films-inept-soldier-Kim-Jong-un-Donald-Trump>.

<sup>27</sup> T. R. Fehrenbach, *This kind of war: the classic Korean War history* (Dulles, VA: Potomac Books, 2008); *2016 Defense White Paper* (Report by Ministry of National Defense, Republic of Korea, 2016) accessed October 29, 2017, [http://www.mnd.go.kr/user/mndEN/upload/pblicitn/PBLICTNEBOOK\\_201705180357180050.pdf](http://www.mnd.go.kr/user/mndEN/upload/pblicitn/PBLICTNEBOOK_201705180357180050.pdf).

<sup>28</sup> "The World Factbook: KOREA, SOUTH," Central Intelligence Agency, last modified October 26, 2017, accessed November 02, 2017, <https://www.cia.gov/library/publications/the-world-factbook/geos/ks.html>.

<sup>29</sup> Report by Ministry of National Defense, Republic of Korea, *2016 Defense White Paper*

<sup>30</sup> Ibid.

<sup>31</sup> *Opposing Force Training Module: North Korean Military Forces*. Field Manual No. 34-71; *The Korean Military Balance and Prospects for Hostilities on the Peninsula*, National Intelligence Estimate 42/14.2-87 (Langley, VA: CIA, 1987) accessed November 01, 2017, [https://www.cia.gov/library/readingroom/docs/DOC\\_0005569324.pdf](https://www.cia.gov/library/readingroom/docs/DOC_0005569324.pdf); Andrew Scobell and John M. Sanford, *North Korea's Military Threat: Pyongyang's Conventional Forces, Weapons of Mass Destruction, and Ballistic Missiles* (Carlisle, PA: Strategic Studies Institute, 2007)

<sup>32</sup> Franz-Stefan Gady, "Military Stalemate: How North Korea Could Win a War With the US," *The Diplomat*, October 10, 2017, accessed November 02, 2017, <https://thediplomat.com/2017/10/military-stalemate-how-north-korea-could-win-a-war-with-the-us/>; Edward C. O'Dowd, "The 1979 campaign," in *Chinese Military Strategy in the Third Indochina War: The last Maoist war*, (New York, NY: Routledge, 2007), 45-73; Edward C. O'Dowd, "The Battle of Lang Son, February—March 1979," in *Chinese Military Strategy in the Third Indochina War: The last Maoist war*, (New York, NY: Routledge, 2007), 74-88.

communications and transportation nodes, and seize territory.<sup>33</sup> Mechanized infantry units would follow the armor assault. These units would be tasked with securing targets and fortifying seized territory.<sup>34</sup> Based on what is known of North Korean military doctrine, the bulk of the regime's troops are expected to fight in a relatively unsophisticated manner that emphasizes firepower, speed, and simple tactics over the use of cover and concealment to protect individual troops and units.<sup>35</sup>

In contrast, South Korea is prepared to field a modern combined arms force modeled on American military doctrine and tailored to South Korean society, arms, equipment, and terrain. South Korean force employment emphasizes dispersed defense, in-depth maneuvers, interlocking massed fields of fire, counter-measures, counter-attack, and the sustainability of the army.<sup>36</sup> The South Korean military is prepared to absorb an initial attack by conventional North Korean forces and quickly synchronize counter-force operations to target and destroy invading units. After halting a North Korean invasion, the South Korean army would itself seek to break through the demilitarized zone to destroy those North Korean forces and fortifications responsible for the attack.<sup>37</sup> Given differences in training and force employment, it is reasonable to expect — even before taking into consideration differences in weaponry — that the North Korean army would be defeated in this type of invasion-counter-invasion scenario. Considering the respective weaponry of the two armies generates additional support for this assessment, as a quick examination of their respective weaponry highlights why it would be difficult for North Korea to achieve strategic results with conventional military forces.

### *The Strategic Balance in Conventional Weaponry*

North Korea possesses a large number of artillery pieces. The vast majority of them are placed along the demilitarized zone in hardened shelters.<sup>38</sup> They are positioned so that they can emerge and fire into the South — and into the northern sections of Seoul — if so ordered. Their potential is terrifying. News accounts describe a Pentagon report estimating the possibility of

---

<sup>33</sup> *The Soviet Army: Operations and Tactics*. Field Manual No. 100-2-1. Washington, DC: Headquarters, Department of the Army, 1984; Todd South and Jeff Schogol, "War with North Korea: An inside look at how US troops would respond worldwide," *Military Times*, August 08, 2017, accessed November 02, 2017,

<https://www.militarytimes.com/news/your-military/2017/05/21/war-with-north-korea-an-inside-look-at-how-us-troops-would-respond-worldwide/>; Chetan Peddada, "A Sneak Peek at America's War Plans for North Korea," *Foreign Policy*, October 12, 2017, accessed November 02, 2017, <http://foreignpolicy.com/2017/09/07/a-sneak-peek-at-americas-war-plans-for-north-korea/>.

<sup>34</sup> Dennis J. Blasko, "PLA Force Structure: A 20-Year Retrospective," in *Seeking Truth from Facts: A Retrospective on Chinese Military Studies in the Post-Mao Era*, (Santa Monica, CA: RAND, 2001), 51-86; King C. Chen, "China's War Against Vietnam, 1979: A Military Analysis," *The Journal of East Asian Affairs* 3, no. 1 (1983): 233-63, <http://www.jstor.org/stable/23253977>.

<sup>35</sup> Department of the Army, *Opposing Force Training Module: North Korean Military Forces*; US Army Asymmetric Warfare Group, *Korea Handbook: The Complex Operating Environment and Asymmetric Threats*.  
<sup>36</sup> Stephen Biddle, "The Modern System," in *Military Power: Explaining Victory and Defeat in Modern Battle*, (Princeton, NJ: Princeton University Press, 2004), 28-51; 2016 *Defense White Paper*.

<sup>37</sup> Thomas H. Henriksen, "Tale of the Tape: North Korea vs. joint US-ROK force," *The Hill*, August 24, 2017, accessed November 02, 2017, <http://thehill.com/blogs/pundits-blog/the-military/347782-tale-of-the-tape-north-korea-vs-a-us-rok-joint-force>.

<sup>38</sup> "Here's A Closer Look At North Korea's Artillery Capabilities," *MauldinEconomics.com*, accessed November 03, 2017, <http://www.mauldineconomics.com/editorial/heres-a-closer-look-at-north-koreas-artillery-capabilities#>; John Pike, "Seoul, South Korea," *GlobalSecurity.org - Reliable Security Information*, accessed November 03, 2017, <https://www.globalsecurity.org/military/world/rok/seoul-imagery-artillery.htm>.

20,000 casualties per day. Such stories often portray the city as a hostage to North Korean artillery, a condition that many expect deters South Korean and American action against the regime of Kim Jong-un.<sup>39</sup> Although North Korea's artillery poses a significant threat, there are reasons to believe North Korean artillery may not be as dangerous or dominant as portrayed in public discourse.

First, in deciding what to target with its artillery, North Korea will make a tactical choice with strategic implications. If the regime chooses to fire at Seoul, it will leave South Korean and American forces free to quickly move against North Korean forces — including artillery positions. If the regime chooses to fire at South Korean forces, the regime forgoes coercive threats against Seoul by allowing the city's residents time to seek hardened shelters (which can house approximately twenty-million people) or evacuate.<sup>40</sup> Pyongyang may split the targeting between civilian and military targets — opting to try and inflict chaos and fear on the city while slowing the response of the South Korea military. Although such a choice would kill civilians and reduce the South Korean army's freedom of movement, it is unlikely to have strategic effect. Furthermore, those South Korean forces capable of moving would prioritize strikes against the North Korean artillery targeting Seoul. Once those weapons were destroyed, South Korean forces would target the remaining North Korean artillery positions.

Second, to fire, North Korean artillery pieces must emerge from their hardened shelters or be placed close enough to the opening of the shelter that they can fire without damaging their own fortifications.<sup>41</sup> In either case, this exposes the weapon to counter-battery fire from South Korean artillery and precision guided weapons. Although this condition does not present North Korea with a problem in regard to the first volley of artillery, which may strike with surprise, it quickly presents a challenge to the North. North Korean artillery is based on mid-twentieth century Soviet and Chinese designs.<sup>42</sup> Although Pyongyang has updated and modified some of its artillery, including the (indigenous) development of the M-1978 Koksán, the time it takes to load, aim, and fire these weapons is relatively slow compared to South Korean weapons systems. South Korean forces will be able to more quickly load, aim, and fire their newer artillery and precision guided weapons to destroy North Korean artillery.<sup>43</sup> Furthermore, South Korean

---

<sup>39</sup> Barbara Demick, "Escalating tension has experts simulating a new Korean War, and the scenarios are sobering," *Los Angeles Times*, September 25, 2017, accessed November 03, 2017, <http://www.latimes.com/world/la-fg-korean-war-20170925-story.html>; David Wood, "North Korea's Simple But Deadly Artillery Holds Seoul And U.S. Hostage," *The Huffington Post*, April 18, 2017, accessed November 03, 2017, [https://www.huffingtonpost.com/entry/north-korea-artillery\\_us\\_58f631a4e4b0b9e9848eb990](https://www.huffingtonpost.com/entry/north-korea-artillery_us_58f631a4e4b0b9e9848eb990); Mark Bowden, "How to Deal With North Korea," *The Atlantic*, August 09, 2017, accessed November 03, 2017, <https://www.theatlantic.com/magazine/archive/2017/07/the-worst-problem-on-earth/528717/>.

<sup>40</sup> "Mind the Gap Between Rhetoric and Reality," Nautilus Institute for Security and Sustainability, March 12, 2013, accessed November 01, 2017, <https://nautilus.org/napsnet/napsnet-special-reports/mind-the-gap-between-rhetoric-and-reality/>.

<sup>41</sup> "DPRK Briefing Book: HARTS in North Korea," Nautilus Institute for Security and Sustainability, December 19, 2011, accessed November 06, 2017, <https://nautilus.org/publications/books/dprkbb/military/dprk-briefing-book-harts-in-north-korea/>.

<sup>42</sup> "Modern North Korean Army Combat Vehicles and Artillery (2017)," Military Weapons, accessed November 06, 2017, <https://www.militaryfactory.com/modern-armor/north-korean-army.asp>; "North Korea Land Systems List (Current and Former Types)," Military Weapons, accessed November 06, 2017, [https://www.militaryfactory.com/armor/by-country.asp?Nation=North Korea](https://www.militaryfactory.com/armor/by-country.asp?Nation=North%20Korea).

<sup>43</sup> Sebastien Roblin, "Meet the Koksán, North Korea's Giant Artillery," War Is Boring, October 23, 2017, accessed November 04, 2017, <http://warisboring.com/meet-the-koksán-north-koreas-super-big-artillery-gun/>; Joseph S. Bermudez, "The Yŏnp'yŏng-do Incident," 38 North, January 11, 2011, accessed November 6, 2017, [http://38north.org/wp-content/uploads/2011/01/38North\\_SR11-1\\_Bermudez\\_Yeonpyeong-do.pdf](http://38north.org/wp-content/uploads/2011/01/38North_SR11-1_Bermudez_Yeonpyeong-do.pdf); Christopher F

intelligence has spent decades identifying the locations of the hardened shelters and calculating from where each piece of North Korean artillery will emerge and fire. Each second North Korean artillery exposes itself in order to attack the South increases the likelihood said artillery is destroyed. After examining this dynamic, the Nautilus Institute for Security and Sustainability came to the conclusion that once a conflict begins, South Korean forces can be expected to destroy 1 percent of the North Korean artillery per hour.<sup>44</sup>

Third, North Korean artillery is only dangerous when it has a supply of reliable shells and rockets with which to shoot. Based on intelligence and past artillery attacks by North Korea, including the 2010 shelling of Yeonpyeong Island, estimates suggest that 25 percent of North Korean shells and rockets will fail to detonate on impact.<sup>45</sup> Even without South Korean counter-attacks, the poor quality of North Korean manufacturing reduces the potential of their artillery. Furthermore, although North Korea has reportedly developed a system of weapons caches to resupply its artillery, those caches themselves will be a priority target for South Korean forces — as will any convoy attempting resupply.<sup>46</sup>

It is unlikely that North Korean artillery alone will produce strategic influence by forcing Seoul to capitulate. Even if Pyongyang were to use its artillery to fire chemical weapons into the South, this condition would likely persist. Not only would North Korea face all of the challenges outlined above, the use of chemical weapons would trigger unlimited warfare on the part of South Korea. It would also catalyze wholesale intervention on the part of the United States and likely close off Chinese attempts to save the regime. In short, the use of artillery to launch chemical weapons would foreclose rather than facilitate the possibility of strategic success by denying the North the ability to achieve either conservation of the regime or a reduction in American power in the region.

Like force employment and artillery, North Korean armor is unlikely to produce strategic effect — and thus unlikely to generate strategic influence. North Korea's main battle tanks were designed by the Soviet Union. The oldest, the T-34, was designed in 1937. The newest, the T-62, was designed in 1957 and manufactured through 1975. The T-62 has a 115mm smooth bore main gun.<sup>47</sup> A well trained T-62 crew hits its target 90 percent of the time when the target is at a distance of 250 meters. Well trained T-62 crews demonstrate a 50 percent accuracy rate when their target is at a distance of 1,500 meters.<sup>48</sup> South Korea's oldest main battle tank, the K-1, was designed in 1983 by Hyundai Rotem based on the design of the American M-1 Abrams tank. The K-1, and its newer K-1A1 and K-1A2 variants, have been continuously updated with

---

Foss, "South Korea boosts artillery capabilities," *Jane's* 360, June 30, 2017, accessed November 06, 2017, <http://www.janes.com/article/71938/south-korea-boosts-artillery-capabilities>.

<sup>44</sup> Nautilus Institute for Security and Sustainability, "Mind the Gap Between Rhetoric and Reality."

<sup>45</sup> "Satellite Imagery: Tactical Details of the Korean Artillery Exchange," *Stratfor Worldview*, November 29, 2010, accessed November 06, 2017, <https://www.stratfor.com/analysis/satellite-imagery-tactical-details-korean-artillery-exchange>; "How North Korea Would Retaliate," *Stratfor Worldview*, January 05, 2017, accessed November 03, 2017, <https://worldview.stratfor.com/article/how-north-korea-would-retaliate>.

<sup>46</sup> Nautilus Institute for Security and Sustainability, "Mind the Gap Between Rhetoric and Reality."

<sup>47</sup> "T62 Series Tanks," *Federation of American Scientists*, accessed October 28, 2017, <https://fas.org/man/dod-101/sys/land/row/t62tank.htm>; "T-62 main battle tank technical data sheet specifications information description pictures video," *Army Recognition*, May 21, 2017, accessed October 28, 2017, [https://www.armyrecognition.com/russia\\_russian\\_army\\_tank\\_heavy\\_armoured\\_vehicles\\_u/t-62\\_main\\_battle\\_tank\\_technical\\_data\\_sheet\\_specifications\\_information\\_description\\_pictures\\_video.html](https://www.armyrecognition.com/russia_russian_army_tank_heavy_armoured_vehicles_u/t-62_main_battle_tank_technical_data_sheet_specifications_information_description_pictures_video.html).

<sup>48</sup> *The Soviet Main Battle Tank: Capabilities and Limitations*. Fort Monroe, VA: United States Army Training and Doctrine Command, 1979, accessed October 27, 2017, <http://www.dtic.mil/dtic/tr/fulltext/u2/a392790.pdf>.

hardware improvements and with advanced electronics from Samsung Thales.<sup>49</sup> The K-1 has a 105mm rifled main gun. With it, a well trained K-1 crew exhibits a 90 percent accuracy rate against a target at a distance of 1,200 meters.<sup>50</sup> The K-1A1 and K-1A2 tank variants have a 120mm smooth bore main gun, with which a well trained crews exhibit a 90 percent accuracy rate against targets 3,500 meters away<sup>51</sup>. The range and accuracy advantage of South Korean armor compensates for North Korea's roughly 1.5-to-1 numerical advantage. It is logical to expect that South Korea would prevail in a tank fight.

### *The Strategic Limits of Nuclear Weapons and Ballistic Missiles*

The conventional military capabilities of the Kim Jong-un regime are unlikely to provide the means or ways by which North Korea may conserve the regime or reduce the efficacy of American power in the region. In short, the regime's conventional military forces are unlikely to produce strategic influence. Based on North Korea's observed pursuit of nuclear weapons and ballistic missile technology, it is reasonable to assume that Kim Jong-un shares this assessment. If North Korea's military is to serve as an instrument of strategic influence, it most likely would have to be through the nation's increasing capacity to field nuclear armed ballistic missiles.

According to media reports, the US intelligence community estimates Pyongyang's nuclear arsenal to be between thirty and sixty warheads with a current growth rate of twelve per year.<sup>52</sup> Other assessments have produced smaller estimated arsenals. The Stockholm International Peace Research Institute believes Pyongyang has between ten and twenty nuclear warheads.<sup>53</sup> In 2010, Stanford University's Siegfried Hecker, the former director of the Los Alamos National Laboratory, was the last American scientist to visit North Korea's nuclear weapons complex. Hecker estimates North Korea possesses between twelve and twenty warheads.<sup>54</sup> The Arms Control Association, a non-partisan arms control group in Washington, DC, generally agrees with the Stockholm International Peace Research Institute and Hecker. The Arms Control Association believes North Korea has between ten and sixteen warheads.

---

<sup>49</sup> "K1," Military-Today.com, accessed October 28, 2017, <http://www.military-today.com/tanks/k1.htm>; "K1A1 Main Battle Tank," Army Technology, accessed October 28, 2017, <http://www.army-technology.com/projects/k1/>.

<sup>50</sup> "K1 88 MBT (1987)," Tank Encyclopedia, September 21, 2017, accessed October 28, 2017, [http://www.tanks-encyclopedia.com/coldwar/South\\_Korea/K1\\_88\\_MBT.php](http://www.tanks-encyclopedia.com/coldwar/South_Korea/K1_88_MBT.php); John Pike, "K1A1 Main Battle Tank," Global Security, accessed October 28, 2017, <https://www.globalsecurity.org/military/world/rok/k1a1.htm>.

<sup>51</sup> "K1 88-Tank," Revolvly, accessed October 28, 2017, [https://www.revolvly.com/main/index.php?s=K1\\_88-Tank;](https://www.revolvly.com/main/index.php?s=K1_88-Tank;) "120mm HE Projectile (Rheinmetall)," Defense Update, accessed October 31, 2017, <http://defense-update.com/products/digits/120he-mp.htm>.

<sup>52</sup> Joby Warrick, Ellen Nakashima, and Anna Fifield, "North Korea now making missile-ready nuclear weapons, U.S. analysts say," *The Washington Post*, August 08, 2017, accessed November 09, 2017, [https://www.washingtonpost.com/world/national-security/north-korea-now-making-missile-ready-nuclear-weapons-us-analysts-say/2017/08/08/e14b882a-7b6b-11e7-9d08-b79f191668ed\\_story.html?utm\\_term=.f2df7df71c81](https://www.washingtonpost.com/world/national-security/north-korea-now-making-missile-ready-nuclear-weapons-us-analysts-say/2017/08/08/e14b882a-7b6b-11e7-9d08-b79f191668ed_story.html?utm_term=.f2df7df71c81); Greg Price, "How many nuclear weapons and missiles does North Korea have?," *Newsweek*, August 16, 2017, accessed November 09, 2017, <http://www.newsweek.com/north-korea-nuclear-missile-number-651034>; Ankit Panda, "US Intelligence: North Korea May Already Be Annually Accruing Enough Fissile Material for 12 Nuclear Weapons," *The Diplomat*, August 09, 2017, accessed November 09, 2017, <https://thediplomat.com/2017/08/us-intelligence-north-korea-may-already-be-annually-accruing-enough-fissile-material-for-12-nuclear-weapons/>.

<sup>53</sup> "Global nuclear weapons: Modernization remains the priority," SIPRI, July 03, 2017, accessed November 12, 2017, <https://www.sipri.org/media/press-release/2017/global-nuclear-weapons-modernization-remains-priority>.

<sup>54</sup> Jonathan D. Pollack, "What do intelligence leaks about North Korea tell us?," Brookings, August 09, 2017, accessed November 09, 2017, <https://www.brookings.edu/blog/order-from-chaos/2017/08/09/what-do-intelligence-leaks-about-north-korea-tell-us/>.

However, it projects the Kim Jong-un regime will have as many as one hundred warheads by 2020.<sup>55</sup> In regard to the strategic context, however, the size of the arsenal is less important than its destructive ability, which is a product of the weapons' explosive force and the regime's ability to deliver them against a given target.

Evidence suggests that North Korea can produce thermonuclear hydrogen bombs capable of being mounted on an inter-continental ballistic missile (ICBM) and weighing less than 700 kilograms.<sup>56</sup> On 03 September 2017, the Comprehensive Test Ban Treaty Organization and the US Geological Survey recorded a 6.1-to-6.3 magnitude seismic event. The event originated from the area of North Korea's nuclear test site.<sup>57</sup> That same day, North Korean state television announced that the regime had carried out the successful test of a two-stage thermonuclear weapon — a hydrogen bomb.<sup>58</sup> The severity of the seismic event, and North Korean claims, suggest the explosive power of the bomb was approximately 120-140 kilotons (about eight times the strength of the atomic bomb dropped on Hiroshima in 1945).<sup>59</sup> On September 13th 2017, South Korea's Nuclear Safety and Security Commission announced its detection of the radioactive xenon-133 isotope, a form of xenon gas that does not occur naturally. The detection of xenon-133 is accepted by nuclear weapons experts as confirmation of a nuclear explosion.<sup>60</sup> Photographs released by the regime of Kim Jong-un — and analyzed by international nuclear weapons experts — indicate North Korean success in designing an ICBM-mountable thermonuclear warhead.<sup>61</sup>

---

<sup>55</sup> "Fact Sheets & Briefs — Arms Control and Proliferation Profile: North Korea," Arms Control Association, September 03, 2017, accessed November 09, 2017, <https://www.armscontrol.org/factsheets/northkoreaprofile>.

<sup>56</sup> Joe Cirincione, "North Korea's New Missile Is a Game-Changer," Defense One, December 05, 2017, accessed December 29, 2017, <http://www.defenseone.com/ideas/2017/12/north-koreas-new-missile-game-changer/144304/>.

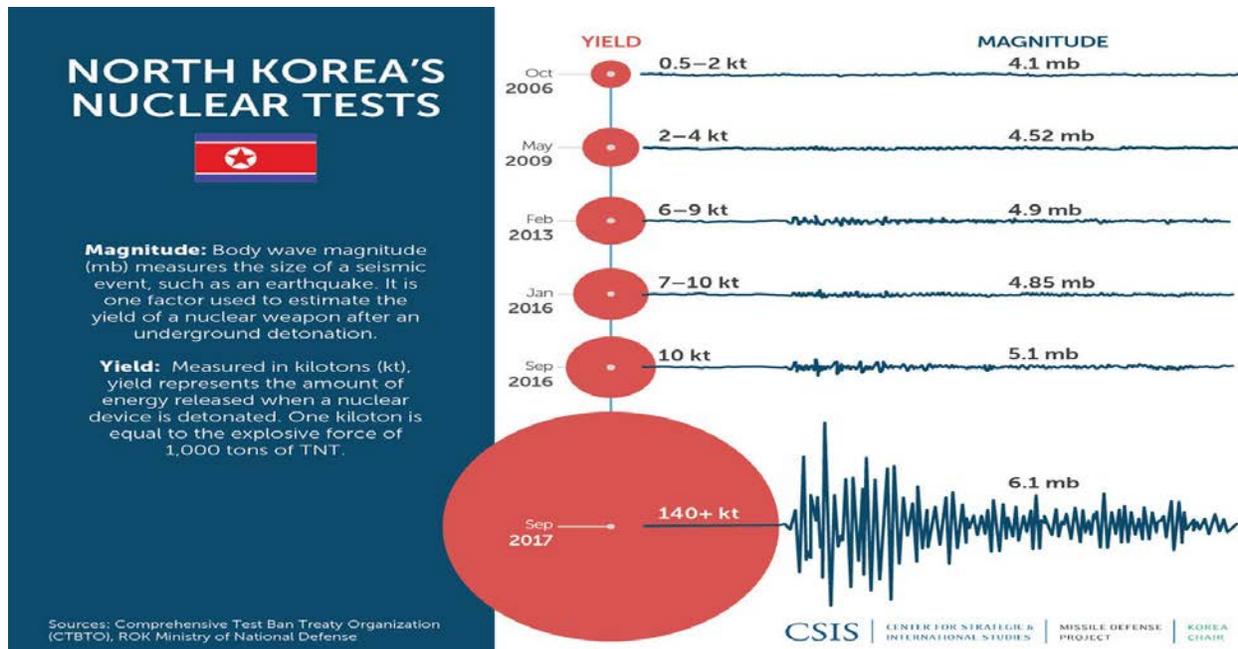
<sup>57</sup> "Comparison of seismic signals (to scale) of all six declared DPRK nuclear tests," CTBTO Preparatory Commission, accessed October 26, 2017, <https://www.ctbto.org/the-treaty/developments-after-1996/2017-sept-dprk/>; "M 6.3 Explosion - 21km ENE of Sungjibaegam, North Korea," U.S. Geological Survey, accessed October 26, 2017, <https://earthquake.usgs.gov/earthquakes/eventpage/us2000aert#executive>.

<sup>58</sup> Justin McCurry, "North Korean nuclear test confirmed in major escalation by Kim Jong-un," *The Guardian*, September 03, 2017, accessed October 26, 2017, <https://www.theguardian.com/world/2017/sep/03/north-korean-nuclear-test-confirmed-in-major-escalation-by-kim-jong-un>.

<sup>59</sup> Andy Dinville, "North Korea's Sixth Nuclear Test: A First Look," 38 North, September 05, 2017, accessed October 26, 2017, <https://www.38north.org/2017/09/punggye090517/>; "Missiles of North Korea — CSIS Missile Defense Project: Missile Threat," CSIS, accessed October 26, 2017, <https://missilethreat.csis.org/country/dprk/>.

<sup>60</sup> "South Korea detects radioactive gas from North Korea bomb test," CNBC, September 13, 2017, accessed October 26, 2017, <https://www.cnbc.com/2017/09/13/south-korea-detects-radioactive-xenon-gas-from-north-korea-nuclear-bomb-test.html>.

<sup>61</sup> Max Fisher and Jugal K. Patel, "What One Photo Tells Us About North Korea's Nuclear Program." *The New York Times*, February 24, 2017, accessed October 27, 2017, <https://www.nytimes.com/interactive/2017/02/24/world/asia/north-korea-propaganda-photo.html?smid=pl-share>.



62

Based on observations of recent tests, North Korea possesses three ballistic missiles capable of striking the continental United States — Taepodong-2, Hwasong-14, and the newly tested Hwasong-15. Each has a range in excess of 10,000 kilometers.<sup>63</sup> The Taepodong-2 is a three-stage liquid fuel missile capable of carrying a 1,000 kilogram payload. It is based on the design of North Korea's Unha-3 missile, which was built to launch satellites. The Taepodong was first tested in 2006. Because liquid fuel cannot be stored in the missile, the Taepodong must be moved to its launch pad, then fueled. According to experts from the Center for Strategic and International Studies and from Johns Hopkins' US-Korea Institute, this process takes a couple of days.<sup>64</sup> The same is true of the two stage liquid-fueled Hwasong-14. It is believed that the Hwasong-14 was designed and built as an intercontinental ballistic missile. The Hwasong-14, newer than the Taepodong, was first observed in July 2017. Its payload capacity is estimated to be 600 kilograms.<sup>65</sup> The Hwasong-15 was test fired for the first time in late November 2017. The flight trajectory suggests a range of more than 13,000 kilometers. If this estimate is accurate, the east coast of the United States is within Hwasong-15's range. Photographic evidence suggests a significant improvement over the Hwasong-14. Johns Hopkins' Michael Elleman estimates that the Hwasong-15 has the potential to carry a 1,000 kilogram payload — enough for at least one nuclear warhead and counter-measures to potentially overcome American

<sup>62</sup> CSIS. "Missiles of North Korea — CSIS Missile Defense Project: Missile Threat." Accessed October-December 2017, <https://missilethreat.csis.org/country/dprk/>.

<sup>63</sup> CSIS, "Missiles of North Korea — CSIS Missile Defense Project: Missile Threat."

<sup>64</sup> "Taepodong-2 (Unha-3) — CSIS Missile Defense Project: Missile Threat," CSIS, August 08, 2016, accessed November 09, 2017, <https://missilethreat.csis.org/missile/taepodong-2/>.

<sup>65</sup> "Hwasong-14 (KN-20) — CSIS Missile Defense Project: Missile Threat," CSIS, July 27, 2017, accessed November 09, 2017, <https://missilethreat.csis.org/missile/hwasong-14/>; Michael Elleman, "A Quick Technical Analysis of the Hwasong-12," 38 North, June 05, 2017, accessed December 01, 2017, <http://www.38north.org/2017/05/hwasong051917/>; John Schilling, "What is True and Not True About North Korea's Hwasong-14 ICBM: A Technical Evaluation," 38 North, July 10, 2017, accessed December 01, 2017, <http://www.38north.org/2017/07/jschilling071017/>.

missile defense systems.<sup>66</sup> Photos released by the Kim Jong-un regime show the Hwasong-15 loaded on a new, larger, and more sophisticated transport truck, raising questions about the speed with which the weapon could be placed on a mobile platform, fueled, and readied for launch.<sup>67</sup>

Evidence suggests North Korea also possesses several medium-range ballistic missiles capable of carrying nuclear warheads. These missiles — the No-Dong, Musudan BM-25, and Hwasong-12, could strike targets in South Korea, Japan, the Philippines, Guam, and other American allies and interests in the Western Pacific.<sup>68</sup> Each of these missiles uses liquid fuel and each is transportable by truck.<sup>69</sup> Yet, like the Taepodong-2 and Hwasong-14, each of these missiles requires substantial preparation time before they can be fired.

Intelligence reports and media accounts indicate Pyongyang is developing solid fuel ballistic missiles. Unlike liquid fuel missiles, solid fuel missiles store their fuel onboard and can be readied for launch quickly — in minutes or hours, rather than days. Thus far, North Korea has been most successful with its KN-02 short range missile. The KN-02 can deliver conventional weapons up to a range of 170 kilometers.<sup>70</sup> In addition, the regime continues to develop its submarine-launched KN-11 and land-based mobile KN-15 missiles. When fully operational, it is expected that the KN-11 and KN-15 will be capable of carrying either conventional or nuclear warheads. Their range is expected to be between 1,200 and 1,500 kilometers.<sup>71</sup> At present, the chief threat posed by these solid fuel missiles is the speed with which they may be fired — giving Seoul little warning and effectively no time to interdict or prepare. Long-term, the technology present in these missiles poses a grave threat to South

---

<sup>66</sup> Michael Elleman, “The New Hwasong-15 ICBM: A Significant Improvement That May be Ready as Early as 2018,” 38 North, November 30, 2017, accessed December 01, 2017, <http://www.38north.org/2017/11/melleman113017/>.

<sup>67</sup> Julian Borger and Justin McCurry, “North Korea fires missile towards Japan – possibly its most powerful yet,” *The Guardian*, November 28, 2017, accessed November 28, 2017, <https://www.theguardian.com/world/2017/nov/28/north-korea-has-fired-ballistic-missile-say-reports-in-south-korea>; Josh Smith, “How North Korea's latest ICBM test stacks up,” Reuters, November 29, 2017, accessed November 30, 2017, <https://www.reuters.com/article/us-northkorea-missiles-technology-factbo/how-north-koreas-latest-icbm-test-stacks-up-idUSKBN1DT0IF>; “Consistency in North Korea's Missile Testing,” CSIS, September 15, 2017, accessed November 30, 2017, <https://www.csis.org/analysis/consistency-north-koreas-missile-testing>; Choe Sang-hun, “North Korea's New Missile Is Bigger and More Powerful, Photos Suggest,” *The New York Times*, November 30, 2017, accessed November 30, 2017, <https://www.nytimes.com/2017/11/30/world/asia/north-korea-missile-test.html?rref=collection%2Fsectioncollection%2Fworld&action=click&contentCollection=world@ion=rank&module=package&version=highlights&contentPlacement=1&pgtype=sectionfront>; Anna Fifield, “North Korea has shown us its new missile, and it's scarier than we thought,” *The Washington Post*, November 30, 2017, accessed November 30, 2017, <https://www.washingtonpost.com/news/worldviews/wp/2017/11/30/north-korea-has-show>.

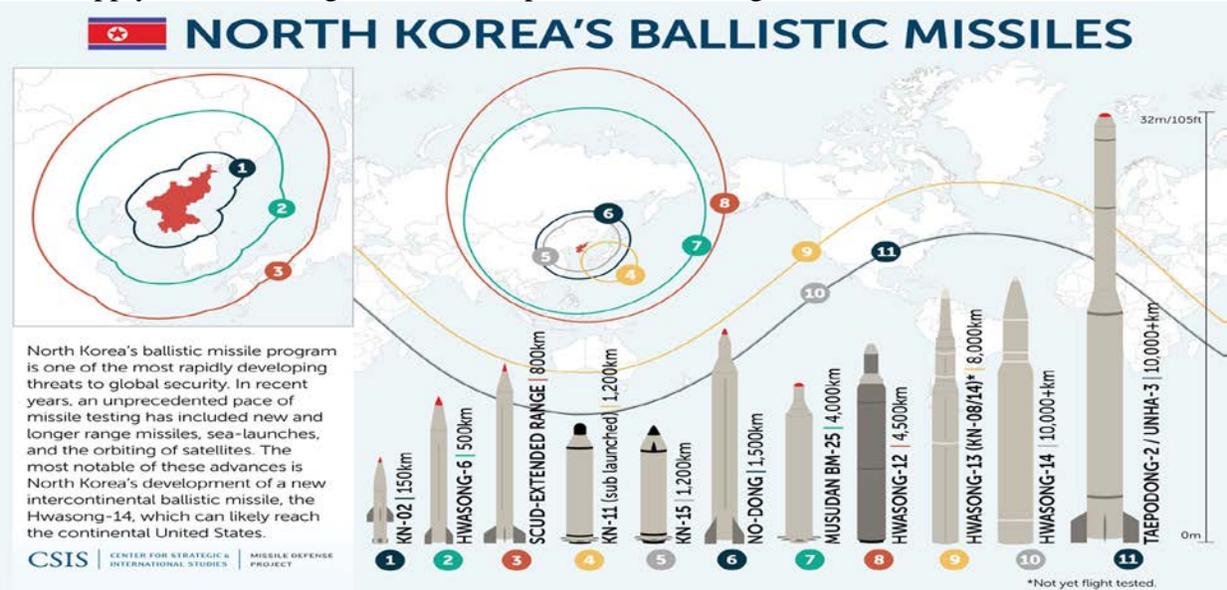
<sup>68</sup> CSIS, “Missiles of North Korea — CSIS Missile Defense Project: Missile Threat.”; Alex Wellerstein, “MISSILEMAP by Alex Wellerstein,” Restricted Data: The Nuclear Secrecy Blog, accessed November 12, 2017, <http://nuclearsecrecy.com/missilemap/>.

<sup>69</sup> “No Dong 1 — CSIS Missile Defense Project: Missile Threat,” CSIS, August 09, 2016, accessed November 12, 2017, <https://missilethreat.csis.org/missile/no-dong/>; “Hwasong-12 — CSIS Missile Defense Project: Missile Threat,” CSIS, May 16, 2017, accessed November 12, 2017, <https://missilethreat.csis.org/missile/hwasong-12/>; “Musudan (BM-25) — CSIS Missile Defense Project: Missile Threat,” CSIS, August 08, 2016, accessed November 12, 2017, <https://missilethreat.csis.org/missile/musudan/>.

<sup>70</sup> “KN-02 ‘Toksa’ — CSIS Missile Defense Project: Missile Threat,” CSIS, April 12, 2016, accessed November 12, 2017, <https://missilethreat.csis.org/missile/kn-02/>.

<sup>71</sup> “KN-11 (Pukkuksong-1) — CSIS Missile Defense Project: Missile Threat,” CSIS, August 29, 2016, accessed November 12, 2017, <https://missilethreat.csis.org/missile/kn-11/>; “KN-15 (Pukkuksong-2) — CSIS Missile Defense Project: Missile Threat,” CSIS, March 5, 2017, accessed November 12, 2017, <https://missilethreat.csis.org/missile/pukkuksong-2/>.

Korea, Japan, and the United States. As the Kim Jong-un regime masters solid fuel technologies, it will apply that knowledge to ICBMs capable of delivering a thermonuclear warhead.



72

Given Pyongyang's development of a thermonuclear warhead and ICBM, the Kim Jong-un regime possesses substantial destructive capability. A single 120 kiloton warhead detonated approximately one mile above downtown Los Angeles on a weekday morning would kill an estimated 265,000 individuals and injure another 596,000. It would create a fireball with a radius of about two-tenths of a mile in any direction from ground zero and cause a crater some 100 feet deep. The concussive air blast would destroy or severely damage even heavily reinforced concrete buildings and structures within eight-tenths of a mile from ground zero; fatalities would be near 100 percent. Most residential buildings within two miles would collapse, causing widespread injury. Severe radiation — a dose of more than 500 rems — would extend for more than a mile from ground zero, killing between 50 and 90 percent of those exposed within hours to weeks. Any individual within three miles of ground zero would experience third-degree burns causing scarring, disablement, amputation, and potentially death. Were North Korea to fire two warheads (a logical assumption in order to ensure a successful attack), the effects would be magnified — likely causing 500,000 deaths and more than 1 million injuries.<sup>73</sup> A similar strike against Tokyo would result in some 900,000 dead and more than 3.4 million injured.<sup>74</sup>

Despite their catastrophic potential, North Korea's nuclear weapons and ICBMs presently yield little strategic influence. To produce a strategic effect, these weapons would have to successfully deter the United States from taking desired action against the Kim Jong-un regime and/or in support of South Korean forces. As instruments, they would have to reduce the efficacy of US power in the region. At present, this cannot be achieved.

<sup>72</sup> CSIS. "Missiles of North Korea — CSIS Missile Defense Project: Missile Threat." Accessed October-December 2017, <https://missilethreat.csis.org/country/dprk/>.

<sup>73</sup> Restricted Data: The Nuclear Secrecy Blog, "NUKEMAP by Alex Wellerstein."

<sup>74</sup> Ibid.

As a strategy, deterrence works by presenting a credible threat to cause intolerable pain and suffering if the target of the threat takes a specified action (or set of actions).<sup>75</sup> In this case, the deterrent effect would presumably result from the potential deaths of hundreds of thousands of American or Japanese citizens, and the injury of millions more, as a result of a nuclear strike. Because Pyongyang is likely unable to successfully carry it out, the threat is not credible (at least, not yet). For North Korea to successfully launch the type of attack outlined above would require a Taepodong-2, Hwasong-14, or Hwasong-15 missile be exposed for days on a launch pad while being armed with a nuclear warhead and prepared for a strike against the United States or Japan. While there, the missile would be exposed to US observation — and attack — thereby neutralizing any potential strategic effect.

Although North Korea could use a shorter range solid fuel missile, a KN-11 or KN-15, to attack Tokyo, such an attack would be unlikely to produce the desired strategic effect. Rather than reduce US power in the region through deterrence, such an attack would catalyze a full scale response on the part of Washington — jeopardizing Kim Jong-un's attempts to conserve the regime and increasing, rather than decreasing, the projection of American power into the region.

As Pyongyang masters the ability to produce solid fuel ICBMs, the strategic potential of the regime's nuclear weapons may increase. As instruments, these weapons may give North Korea the ability to leverage the threat of coercive violence against the United States to achieve political objectives. Whether North Korea's nuclear forces grant the regime strategic influence ultimately depends the technical capabilities of these instruments, the technical capabilities of other nations' instruments, and the political objectives of any potential originator, potential respondent, and other strategically important audiences.

### **Probable United States Political Objectives**

In general, US political objectives are based on a desire to preserve the *de jure* — if not *de facto* — status quo. Beginning with efforts on the part of President Ronald Reagan, the United States has sought four key political objectives in regard to the Korean peninsula and Western Pacific:

- *Enhance regional stability.*
- *Prevent the proliferation of nuclear weapons and ballistic missiles.*
- *Encourage dialogue between Pyongyang and Seoul.*
- *Maintain the close relationship and alliance between South Korea and the US.*<sup>76</sup>

Despite the rhetoric of President Donald Trump, and his Twitter exchanges with Kim Jong-un, there exists no evidence that the Trump administration intends to alter these objectives.

The president's National Security Strategy (NSS), released in December 2017, articulates the first, second, and fourth objectives listed above. Each of these objectives are repeatedly

---

<sup>75</sup> Bernard Brodie, *The Anatomy of Deterrence* (Santa Monica, CA: RAND Corporation, 1958), [https://www.rand.org/pubs/research\\_memoranda/RM2218.html](https://www.rand.org/pubs/research_memoranda/RM2218.html); Thomas Schelling, "Chapter 1: The Diplomacy of Violence," in *Arms and Influence* (New Haven, CT: Yale University Press, 1966), 1-34.

<sup>76</sup> Joel Wit, "The United States and North Korea," Brookings, July 28, 2016, accessed November 13, 2017, <https://www.brookings.edu/research/the-united-states-and-north-korea/>.

mentioned in the NSS.<sup>77</sup> Toward the end of the document, however, the NSS identifies an additional objective in regard to Pyongyang — “the complete, verifiable, and irreversible denuclearization of the Korean Peninsula.”<sup>78</sup> No specific causal mechanisms for achieving this objective are presented. In addition, the NSS gives considerable attention to the development of ballistic missile defense to protect the US from North Korean weapons.<sup>79</sup> This suggests that the Trump administration does not believe denuclearization is an achievable political objective — and does not have a specific strategy for pursuing it.

Taken as a whole, the NSS and statements from administration officials suggest that the Trump administration is emphasizing the second and fourth objectives — the prevention of further proliferation and the protection of the US-South Korean alliance.

Following North Korea’s September 2017 nuclear test, Secretary of State Rex Tillerson, whose remarks emphasized the need for stability, publicly stated that diplomatic efforts between Pyongyang and Washington were continuing and would continue. The secretary suggested that tensions were ‘overheated’ beyond what was warranted by the actual situation. Furthermore, while stressing the unacceptability of a nuclear armed North Korea, Tillerson commented that progress on denuclearization would be “incremental.”<sup>80</sup> The secretary’s behavior could be interpreted as an attempt to calm the region (the first objective) and signal the administration’s continuing commitment to stopping proliferation (the second objective).

For his part, Secretary of Defense James Mattis has emphasized the importance of the US-South Korea relationship. The Secretary of Defense’s February 2017 visit to Seoul was the first foreign trip by a senior member of the Trump administration.<sup>81</sup> In Seoul, Mattis stressed the US’s commitment to the military alliance between South Korea and the US. In a more recent visit, after the North’s September 2017 nuclear test, Mattis met with his South Korean counterpart, Song Young-moo, and publicly reiterated the Trump administration’s commitment to the defense of South Korea.<sup>82</sup>

Washington’s emphasis on the prevention of proliferation and the protection of the alliance is also evidenced by recent policy choices. The Trump administration has repeatedly implored Beijing to use its sway to slow North Korean nuclear weapons and ICBM development.<sup>83</sup> By increasing the costs of proliferation, the Trump administration appears to hope that it can convince Kim Jong-un that further efforts will not yield political payoffs and are

---

<sup>77</sup> *National Security Strategy of the United States of America*. Washington, DC: Executive Office of the President, December 18, 2017, accessed December 29, 2017, <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>.

<sup>78</sup> *Ibid.*, p. 47.

<sup>79</sup> *Ibid.*

<sup>80</sup> David E. Sanger, “U.S. in Direct Communication With North Korea, Says Tillerson,” *The New York Times*, September 30, 2017, accessed November 13, 2017, <https://www.nytimes.com/2017/09/30/world/asia/us-north-korea-tillerson.html>; Conor Finnegan and Quinn Owen, “US talking to North Korea ‘directly,’ Rex Tillerson says,” ABC News, September 30, 2017, accessed November 13, 2017. <http://abcnews.go.com/Politics/us-talking-north-korea-directly-rex-tillerson/story?id=50197907>.

<sup>81</sup> “US defence chief Mattis says South Korea alliance is ‘strong,’” BBC News, February 02, 2017, accessed November 13, 2017, <http://www.bbc.com/news/world-asia-38824008>.

<sup>82</sup> “Mattis: threat of North Korea nuclear attack ‘is accelerating,’” *The Guardian*, October 28, 2017, accessed November 13, 2017, <https://www.theguardian.com/world/2017/oct/28/james-mattis-threat-of-north-korea-nuclear-attack-is-accelerating>.

<sup>83</sup> “Trump asks China to work ‘hard’ and fast on N Korea,” *The Manila Times Online*, November 09, 2017, accessed November 13, 2017, <http://www.manilatimes.net/trump-asks-china-work-hard-fast-nkorea/361770/>; Brooke Seipel, “Trump: China ‘upping the sanctions against’ North Korea,” *The Hill*, November 12, 2017, accessed November 13, 2017, <http://thehill.com/homenews/administration/359954-trump-china-upping-the-sanctions-against-north-korea>.

not worth the consequences. At the same time, the Trump administration's high visibility military deployments — including the deployment of three aircraft carriers and theater ballistic missile defense systems — with their associated costs and inherent risks, not only increase the direct projection of American power into the region, but serve as indicators of the relative importance the US assigns to the prevention of proliferation and the protection of the US-South Korean alliance.<sup>84</sup>

As was the case with North Korean political objectives, the assessment of American objectives is based primarily on history and logic, rather than clear empirical evidence. The Trump administration simply has not articulated a set of political objectives in regard to Asia. Nonetheless, given the events noted above, it is safe to assume that the US seeks the protection of the status quo, primarily the prevention of proliferation and the protection of the US-South Korean alliance. Because of this, and as a result of the instruments available to North Korea, the question is: what instruments does the US have that might provide it with strategic influence and effect?

### United States Military Capabilities

To achieve the political objectives outlined above, American policymakers must make choices, take actions, and employ instruments to nullify the emerging and potential strategic effects of North Korean choices, actions, or instruments. Given Pyongyang's present relative lack of strategic influence, the US is predominantly employing non-military instruments — diplomacy and economic sanctions — to block North Korean attempts to acquire such influence. US military capabilities are, however, implicitly and explicitly part of these processes.

Kinetic military instruments — the weapons and supporting systems that can be used to destroy targets and kill individuals — backstop diplomatic and economic instruments, a point articulated by Thomas Schelling fifty years ago.<sup>85</sup> The potential unilateral use of force acts as an implicit threat that, ideally, and perhaps hopefully, motivates others to participate with American diplomatic efforts. Military instruments serve an additional function. Instruments for reconnaissance and intelligence collection provide information to policymakers in support of diplomatic and economic efforts — for example, to challenge Pyongyang's narrative of events or to evaluate the effects of sanctions.

If the use of non-military instruments fails *and* if American policymakers judge the political objectives to be worth the costs and risks of a strategy predicated on the use of military instruments, US officials have options. Should the above condition occur within this strategic context — meaning without a change in the choices, actions, or instruments of key participants (actual or potential) — the American objective likely collapses to the nullification of any potential strategic influence produced by Pyongyang's nuclear warheads and ballistic missiles. It can be expected that the logic of American strategy would be based on two tasks. The first task

---

<sup>84</sup> Brad Lendon, "US puts on 3-carrier show of force for first time in decade," CNN, November 13, 2017, accessed November 13, 2017, <http://www.cnn.com/2017/11/12/politics/us-navy-three-carrier-exercise-pacific/index.html>; Dan Lamothe, "In standoff with North Korea, the U.S. keeps deployment of 'strategic assets' mysterious," *The Washington Post*, October 29, 2017, accessed November 13, 2017, [https://www.washingtonpost.com/news/checkpoint/wp/2017/10/29/in-standoff-with-north-korea-the-u-s-keeps-deployment-of-strategic-assets-mysterious/?utm\\_term=.dc90eb5fed86](https://www.washingtonpost.com/news/checkpoint/wp/2017/10/29/in-standoff-with-north-korea-the-u-s-keeps-deployment-of-strategic-assets-mysterious/?utm_term=.dc90eb5fed86); Sofia Lotto Persio, "U.S. missile defense shield THAAD ready for North Korea," *Newsweek*, October 23, 2017, accessed November 13, 2017, <http://www.newsweek.com/us-missile-defense-shield-thaad-ready-north-korea-690426>.

<sup>85</sup> Thomas Schelling, "Chapter 1: The Diplomacy of Violence."

would be to locate North Korean warheads and missiles. The second task would be to destroy them. These are the instruments available for the implementation of such a strategy.

To find North Korea's nuclear weapons and ballistic missiles, the US military could use the following reconnaissance and intelligence collection capabilities. Based on unclassified information presented by Keir Lieber and Daryl Press, the US military has the ability to observe 97 percent of North Korean roads in real-time using twelve RQ-4 Global Hawk unmanned aerial vehicles (UAVs). This would require the violation of North Korean airspace by at least four of the UAVs.<sup>86</sup> This raises an important point that goes unaddressed by Lieber and Press. To defend those four penetrating UAVs and their surveillance capabilities, the US would have to either use electronic countermeasures to conceal them to reduce the effectiveness of North Korean anti-aircraft weapons systems, and/or carry out airstrikes to neutralize such weapons systems (with the high probability of preemptively killing North Korean troops). As a result, the use of these specific capabilities introduces the risk of escalation. Before choosing to use UAVs in this manner, American policymakers would need to balance the risks of escalation with the risks generated by a lack of warning in regard to Pyongyang's preparations for the launch of ballistic missiles.

A less provocative and somewhat less effective alternative set of instruments for locating North Korean warheads and missiles exists. Using American and allied satellites, the US is capable of watching 90 percent of North Korean roads with as little as twenty-four minutes between passes.<sup>87</sup> This leaves North Korea very little time within which to move a nuclear armed ballistic missile from its hardened shelter to suitable location for launch. In the case of the Taepodong-2, Hwasong-14, and Hwasong-15 missiles, it would be extremely difficult for the missile to be moved, prepared for launch, and fired without the US being able to observe such preparations for hours if not days. Even in the case of the solid fueled KN-15, North Korea would have little time before the US would know the missiles were being moved to a firing position. The use of satellite capabilities avoids the risk of escalation. There are, however, questions of endurance and opportunity costs. Focusing a sizable amount of satellite capabilities on one target risks leaving the US blind to strategically relevant developments in other locations (for example, the Middle East). Worse yet, as a result of North Korean terrain, reliance on these instruments expands the amount of unobserved roadways by 7 percent — potentially increasingly Pyongyang's ability to transport and prepare an ICBM and warhead without being seen by the US.

Regardless of the reconnaissance and intelligence collection instruments used, once launch preparations are detected, the US would have a range of counter-force options with which it could destroy a nuclear armed missile.

The US could use conventional airstrikes or special forces teams to destroy North Korean missiles on a launch pad. In regard to airstrikes, the US could use strike fighters and bombers, and/or Tomahawk missiles, to attack observable North Korean missiles. Special forces teams could be inserted into areas unobservable by US satellites and/or UAVs. These teams could gather targeting information for an airstrike and/or strike North Korea's mobile missile teams and facilities themselves. Manned airstrikes using fighters and bombers would presumably

---

<sup>86</sup> 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 (2017): 9-49, doi:10.1162/isec\_a\_00273.

<sup>87</sup> *Ibid.*

necessitate attacks against North Korean air defense units.<sup>88</sup> As before, any action that inflicts North Korean casualties heightens the risk of escalation. Tomahawk strikes and the use of special forces reduces — but does not eliminate — the likelihood, and number, of North Korean deaths. Given the threat posed by a nuclear armed ICBM being prepared for launch, logically this would be an acceptable risk for American policymakers.

There are, however, additional risks posed by the use of conventional airstrikes and/or the use of special forces that must be considered. These instruments are likely to trigger a game of cat and mouse. North Korea prepares a missile, the US destroys it. In response, the undeterred regime tries again — perhaps preparing multiple missiles at multiple locations. With each iteration, this dynamic increases the likelihood of escalation. As the number of missiles and locations increases, so too do the odds that either Pyongyang will successfully launch a weaponized ballistic missile that sparks war — or Washington will launch a counter-force strike of such magnitude that it sparks war. Because of this, conventional airstrikes produce little in the way of strategic value. They risk the US's political objective — the protection of the status quo.

The US military has the ability to use nuclear weapons as part of a counter-force strike against North Korea. Logically, the use of this instrument would be predicated on the decision to seek complete denuclearization of the regime and the crippling of its ballistic missile program. No political objective short of this would justify the inherent costs and associated risks.

To destroy Pyongyang's hardened nuclear and ballistic missile facilities, the US could choose to use high-yield nuclear weapons. These weapons, set to detonate low enough to the target to create a pressure shock wave, would destroy their targets by crushing them. Keir Lieber and Daryl Press argue that such a strike could be carried out using ten W88 nuclear warheads (with a yield of 455 kilotons) launched from American submarines.<sup>89</sup>

The use of these instruments presents two fundamental challenges. First, it violates the taboo against the use of nuclear weapons. This taboo emerged in the wake of World War II. It is considered a pillar of the nuclear non-proliferation treaty and has been cited by several nuclear powers in their renouncement of the right of nuclear first use.<sup>90</sup> Second, to create the necessary shock wave, the W88 warheads must be detonated close to the surface. As Lieber and Press note, this condition would result in the release of radioactive fallout throughout North Korea and into South Korea. It would also — depending on prevailing winds — result in the release of

---

<sup>88</sup> Uri Friedman, "North Korea: The Military Options," *The Atlantic*, May 17, 2017, accessed November 30, 2017, <https://www.theatlantic.com/international/archive/2017/05/war-north-korea-options/524049/>; David E. Sanger, "How the U.S. Could Respond to Another North Korean Missile Test," *The New York Times*, September 07, 2017, accessed November 30, 2017, <https://www.nytimes.com/2017/09/07/world/asia/north-korea-missile-test-us-options.html>; Justin Bronk, "North Korea: What are the military options?," BBC News, September 03, 2017, accessed November 30, 2017, <http://www.bbc.com/news/world-asia-41095772>; "US Commandos Set to Counter North Korean Nuclear Sites," *Washington Free Beacon*, May 03, 2017, accessed November 30, 2017, <http://freebeacon.com/national-security/us-commandos-set-counter-north-korean-nuclear-sites/>; "US Delta Force, SEAL Team 6 Prepare To Take Out Kim Jong-Un, Practice Tactical North Korea 'Infiltration'," ZeroHedge, March 12, 2017, accessed November 30, 2017, <http://www.zerohedge.com/news/2017-03-13/us-delta-force-seal-team-6-prepare-take-out-kim-jong-un-practice-tactical-north-kore>; Paul D. Shinkman, "Trump Has Alternative Military Options for North Korea," *U.S. News & World Report*, August 10, 2017, accessed November 30, 2017, <https://www.usnews.com/news/national-news/articles/2017-08-10/trump-has-alternative-military-options-for-north-korea>.

<sup>89</sup> Lieber and Press, "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence," 20-30.

<sup>90</sup> Nina Tannenwald, "Stigmatizing the Bomb: Origins of the Nuclear Taboo," *International Security* 29, no. 4 (2005): 5-49. doi:10.1162/isec.2005.29.4.5; Joeli Pretorius, "Ban the bomb by... banning the bomb?," *Bulletin of the Atomic Scientists* 73, no. 3 (2017): 201-203, doi: 10.1080/00963402.2017.1315121.

radioactive fallout into China or Japan. Lieber and Press estimated that such an attack would kill between two and three million people across the Korean peninsula.<sup>91</sup>

Even if successful in regard to the immediate threat posed by North Korea, the use of these instruments would be strategically counter-productive. They would undermine the status quo on the peninsula and — as a result of the massive number of casualties — and likely destroy the US-South Korean alliance (and very possibly the US alliance with Japan as well). The use of high-yield nuclear weapons would probably spark nuclear proliferation. It is logical to assume that a number of nation-states observing such events would judge US strategy to be illegitimate. In response to an American high-yield nuclear counter-force strike, and the perceived threat it might represent, it can be expected that said observers would seek a demonstrated deterrent nuclear capability — sparking a nuclear arms race. Because of the associated costs and risks posed by their use, the US's high-yield nuclear weapons have little strategic value in this context.

The US has another nuclear counter-force option. American policymakers could use a low-yield nuclear strike to create the pressure shock wave necessary to destroy North Korea's nuclear weapons and ballistic missile programs. Because of its technical properties, this low-yield nuclear strike option also carries strategic costs and risks. Like the high-yield option above, its consideration only makes sense if the goal is denuclearization and the crippling of the regime's ballistic missile program.

Using a recently developed fuze that compensates for the debris cloud generated by nuclear weapons,<sup>92</sup> it is possible to carry out a nuclear strike against North Korean targets using low-yield (.3 kiloton) B-61 gravity bombs delivered by American B-2 stealth bombers. Lieber and Press argue that by using twenty B-61 bombs, it is possible to destroy North Korea's nuclear weapons and ballistic missile sites while killing fewer than 100 North Koreans (those deaths being limited to the target sites).<sup>93</sup> Like the high-yield nuclear option, even if operationally successful, there are reasons to believe that the use of this instrument would result in strategic failure.

Any use of nuclear weapons, even low-yield weapons, will threaten US political objectives — the regional status quo and American alliances in Asia. Perhaps more damaging is that this capability, once demonstrated, is likely to produce negative strategic effects in regard to China and the other nuclear armed nation-states observing such a strategy. An American ability to forcibly denuclearize other nation-states inherently poses a risk to the deterrence capabilities of said nation-states' nuclear arsenals.<sup>94</sup> In threatening the primary political purpose for which nation-states seek nuclear weapons — deterrence via the threat of counter-strike — the use of these instruments would likely spark arms races and other counter-measures that would

---

<sup>91</sup> Lieber and Press, "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence," 30.

<sup>92</sup> This cloud makes it practically impossible to strike a single target with more than two warheads — the third attempted strike fails as the inbound warhead encounters the debris field and is destroyed before detonation. The compensating fuze allows the detonation point to be adjusted so that third (and potential additional) warheads avoid the field and its effects. Lieber and Press, "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence," 21-22.

<sup>93</sup> Lieber and Press, "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence," 21-32; Tom O'Connor, "The U.S. is building a nuclear bomb that's more accurate than ever," *Newsweek*, April 23, 2017, accessed November 30, 2017, <http://www.newsweek.com/us-build-better-nuclear-missile-585686>.

<sup>94</sup> Lieber and Press, "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence," 16.

destabilize great power relations and increase risks to a range of US political objectives (including the physical security of the American homeland).

The above suggests that every plausible strategy for achieving US political objectives on the Korean peninsula through direct action carries substantial risk. Paradoxically, many of the most effective options available to the president would likely trade a reduction in the immediate — more limited, yet severe — threat posed by North Korea for an exponential increase in the gravity of future threats posed by China, Russia, and other nuclear armed nation-states. Before surrendering to despair or assuming American impotence, however, it is important to remember that the utility of instruments and the soundness of strategy are predicated on relative capabilities and the political objectives of any potential originator, potential respondent, and other strategically important audiences. Strategy is, in part, the art of balancing these elements. How one approaches that balance is critically important.

### **Approaches to Strategy**

There are two general approaches to strategy. Each seeks to create a causal logic for achieving the identified political objective. Each attempts a relative balance of the choices, actions, instruments, and political objectives presented by potential originators, respondents, and audiences. One approach emphasizes outcome-optimization; it seeks to construct a causal logic that produces the best chance of achieving the desired political objective given what is known. The other approach emphasizes robust-satisfaction; it seeks to construct a causal logic most likely to achieve the desired outcome across the widest range of possible scenarios.<sup>95</sup> The difference between the two can be difficult to detect. Outcome-optimization strategies are predicated on what is known. Robust-satisfaction strategies attempt to insure against what is unknown. This distinction is important.

Although strategies are developed in regard to the known strategic context and attempt to account for interaction among the choices, actions, and instruments of potential originators, respondents, and strategically important audiences — their formulation is, in fact, the product of decision making under conditions of uncertainty. As a result of gaps in intelligence, contradictory intelligence, and/or poor intelligence, the degree of uncertainty is often unknown. Strategists can never be certain of the range or efficacy of other actors' potential choices, actions, and instruments. Strategists can never even be certain of other actors' political objectives — for there may be reasons to misrepresent such. Yakov Ben-Haim describes the challenge this way: “It is as though we are rolling dice without knowing how many faces each die has, and whether or not each is balanced for equal probabilities of all outcomes. This is essentially the problem every strategist faces...”<sup>96</sup>

As a result of human psychology, the degree of uncertainty is often unappreciated. Valerie Hudson points out that people demonstrate a proclivity for heuristic fallacies. Individuals discount or overly weight information based on how well it fits pre-existing beliefs. This risks a skewed understanding of the strategic context. Similarly, Hudson argues that humans “...are notoriously bad at the calculation of joint probabilities.” Hudson's point is relevant to, and illustrated by, the strategic context here.

---

<sup>95</sup> Yakov Ben-Haim, “Thinking Strategically: Dealing with Uncertainty in Strategic Decision-making,” *Parameters* 45, no. 3 (Autumn 2015): 63-73, [http://ssi.armywarcollege.edu/pubs/Parameters/issues/Autumn\\_2015/9\\_Ben-Haim.pdf](http://ssi.armywarcollege.edu/pubs/Parameters/issues/Autumn_2015/9_Ben-Haim.pdf).

<sup>96</sup> *Ibid.*, 63

Consider the number of steps necessary for Pyongyang to launch a successful nuclear strike against the United States — and how the likelihood of success at each step affects the likelihood of overall success. North Korea must prepare the missile for launch and do so without the missile being observed and destroyed by the US. Based on the American observation capabilities listed above, be generous and set the probability of an unobserved (and un-interdicted) launch at 25%. Then the missile must fly to its target, the warhead must survive reentry, and then the warhead must explode. Based on what is known about the success rate of North Korean tests and the success rates of the US and Soviet Union as they developed these technologies in the 1960s, set the probability of each of these stages at 50%.<sup>97</sup> How likely is it that North Korea would be able to successfully launch a strike against the US? Most people would probably answer — a little less than 50% — and use such as the basis for making decisions about what to do. The answer is actually 3.125% (.25 x .50 x .50 x .50). This is closer to the likelihood that should be used when deciding how to approach strategy making in regard to North Korea, and when evaluating the risks and costs of any particular strategy.

Given what is known and unknown about the strategic context in regard to North Korea, the strategic limits of North Korean and American instruments, and the assumptions about the political objectives of Pyongyang and Washington, how might American policymakers approach strategy? What would an outcome-optimization strategy look like? What would a robust satisfaction strategy look like? What courses of action and strategic choices would each approach entail? These are the last major elements that must be considered when thinking strategically about North Korea.

### **Courses of Action and Strategic Choices**

To achieve its political objectives, preventing proliferation and protecting the US-South Korean alliance, US policymakers may approach strategy either on the basis of outcome-optimization or robust-satisfaction. The two approaches change how the political objectives are framed and identify different measures of success. They do not alter the political objectives. Those remain constant regardless of the approach.

An outcome-optimization approach would likely stress denuclearization and a dismantling of Pyongyang's ballistic missile programs. At the very least, it would seek to freeze their technological development and size. At its core would be a causal logic designed to compel the Kim Jong-un regime to stop, if not destroy, its nuclear weapons development and ballistic missile programs. An outcome-optimization approach would be predicated on an assumption that to secure American political objectives, the US must stop an ongoing behavior on the part of North Korea. Such an approach assumes that this behavior, if unchecked, poses the greatest threat to US objectives. It also assumes that if these weapons are allowed to exist, they will eventually be used against the United States. Thus, they must be destroyed. If American policymakers work from this approach, the strategy most likely to bring about the elimination of these programs should be sought.

A robust-satisfaction approach would likely stress the prevention of a nuclear strike. At the core of this approach would be a causal logic designed to deter the Kim regime from using

---

<sup>97</sup> John D. Steinbruner and Thomas M. Garwin, "Strategic Vulnerability: The Balance between Prudence and Paranoia," *International Security* 1, no. 1 (1976): 138-81, doi:10.2307/2538581; William C. Potter, "Coping with MIRV in a MAD World," *The Journal of Conflict Resolution* 22, no. 4 (1978): 599-626, <http://www.jstor.org/stable/173693>.

nuclear weapons and prevent a nuclear arms race (based on the assumption that the more actors who have nuclear weapons, the more likely one or more of them will use such weapons). A robust-satisfaction approach would be predicated on an assumption that to secure American political objectives, the US must prevent a new behavior on the part of North Korea (or other potential actors) — in this case, the actual use of nuclear weapons. It assumes that under the existing strategic context, absent the use of nuclear weapons, US political objectives are likely to be met. If American policy-makers work from this approach, the strategy that maximizes the prevention of the use of nuclear weapons over the widest possible scenarios should be sought.

Each approach carries costs, benefits, and risks. An outcome-optimization approach is likely to produce some form of conflict and a relatively small number of people will almost certainly be killed. Yet, it is more likely to reduce, if not eliminate, the threat posed by Pyongyang's nuclear weapons and ballistic missiles. The risks associated with a strategy based on such an approach are hard to know and likely unlimited. A strategy based on outcome-optimization and employing some of the choices, actions, and instruments outlined above could set in motion events that lead to thermonuclear war. A robust-satisfaction approach cannot guarantee the avoidance of conflict and it cannot promise that any conflict that comes about will be limited to conventional munitions. A strategy based on the type of robust-satisfaction described above will cost the US (and the world) — it will weaken, to some degree, the non-proliferation norm. It may embolden others to pursue nuclear weapons and ballistic missiles. It will truncate Washington and Seoul's ability to respond to Pyongyang's conventional provocations. But, it is more likely to forestall conflict, use of nuclear weapons, and a nuclear arms race. The risks associated with a strategy based on such an approach are more quantifiable — such a strategy risks the deaths of potentially millions of Japanese and American citizens, should Kim Jong-un be undeterrable in the preemptive use of his new weapons.

North Korea's nuclear weapons and ballistic missile programs present American foreign policymakers with an intractable set of policy choices. This situation is the result of lack of intelligence about the motives driving the regime of Kim Jong-un and knowledge as to whether or not he is deterrable — directly or via pressure placed through or on his regime. This situation is also a product of the constraints of the international system. At the close of the 20th century American policy-makers came to believe that the US's position of primacy left it free to act, secure in the virtue of its own motives, without consideration of the strategic context within which all foreign policy occurs. The events of the 21st century — the rise of China, a revisionist Russia, the wars in Iraq and Afghanistan, the situation on the Korean peninsula, and every other American foreign policy goal — demonstrate the eternal truth that the achievement of any given set of political objectives requires careful consideration of the *strategic* context.

## Bibliography

- Adu, Aletha. “‘They are dumb!’ North Korea BELITTLED after official training video films INEPT soldier.” *Express.co.uk*, April 19, 2017, <http://www.express.co.uk/news/world/794073/North-Korea-belittled-official-training-video-films-inept-soldier-Kim-Jong-un-Donald-Trump>.
- Arms Control Association. “Fact Sheets & Briefs — Arms Control and Proliferation Profile: North Korea.” September 03, 2017, accessed November 09, 2017, <https://www.armscontrol.org/factsheets/northkoreaprofile>.
- Army Recognition. “T-62 main battle tank technical data sheet specifications information description pictures video.” May 21, 2017, [https://www.armyrecognition.com/russia\\_russian\\_army\\_tank\\_heavy\\_armoured\\_vehicles\\_u/t-62\\_main\\_battle\\_tank\\_technical\\_data\\_sheet\\_specifications\\_information\\_description\\_pictures\\_video.html](https://www.armyrecognition.com/russia_russian_army_tank_heavy_armoured_vehicles_u/t-62_main_battle_tank_technical_data_sheet_specifications_information_description_pictures_video.html).
- Army Technology. “K1A1 Main Battle Tank.” Accessed October 28, 2017, <http://www.army-technology.com/projects/k1/>.
- BBC News. “US defence chief Mattis says South Korea alliance is ‘strong’.” February 02, 2017, accessed November 13, 2017, <http://www.bbc.com/news/world-asia-38824008>.
- Ben-Haim, Yakov. “Thinking Strategically: Dealing with Uncertainty in Strategic Decision-making.” *Parameters* 45, no. 3 (Autumn 2015): 63-73, [http://ssi.armywarcollege.edu/pubs/Parameters/issues/Autumn\\_2015/9\\_Ben-Haim.pdf](http://ssi.armywarcollege.edu/pubs/Parameters/issues/Autumn_2015/9_Ben-Haim.pdf).
- Bermudez, Joseph S. “The Yŏnp’yŏng-do Incident,” 38 North, January 11, 2011, [http://38north.org/wp-content/uploads/2011/01/38North\\_SR11-1\\_Bermudez\\_Yeonpyeong-do.pdf](http://38north.org/wp-content/uploads/2011/01/38North_SR11-1_Bermudez_Yeonpyeong-do.pdf).
- Biddle, Stephen. *Military Power: Explaining Victory and Defeat in Modern Battle*. Princeton, NJ: Princeton University Press, 2004.
- Blasko, Dennis J. *Seeking Truth from Facts: A Retrospective on Chinese Military Studies in the Post-Mao Era*. Santa Monica, CA: RAND, 2001.
- Borger, Julian and Justin McCurry. “North Korea fires missile towards Japan – possibly its most powerful yet.” *The Guardian*, November 28, 2017, accessed November 28, 2017, <https://www.theguardian.com/world/2017/nov/28/north-korea-has-fired-ballistic-missile-say-reports-in-south-korea>.
- Bowden, Mark. “How to Deal With North Korea.” *The Atlantic*, August 09, 2017, <https://www.theatlantic.com/magazine/archive/2017/07/the-worst-problem-on-earth/528717/>.

- Brodie, Bernard, ed. *The Absolute Weapon: Atomic Power and World Order*. New Haven, CT: Yale Institute of International Studies, 1946.
- Brodie, Bernard. *The Anatomy of Deterrence*. Santa Monica, CA: RAND Corporation, 1958, [https://www.rand.org/pubs/research\\_memoranda/RM2218.html](https://www.rand.org/pubs/research_memoranda/RM2218.html).
- Bronk, Justin. "North Korea: What are the military options?" BBC News, September 03, 2017, accessed November 30, 2017, <http://www.bbc.com/news/world-asia-41095772>.
- Chen, King C. "China's War Against Vietnam, 1979: A Military Analysis." *The Journal of East Asian Affairs* 3, no. 1 (1983): 233-263.
- Cirincione, Joe. "North Korea's New Missile Is a Game-Changer." Defense One, December 05, 2017, accessed December 29, 2017, <http://www.defenseone.com/ideas/2017/12/north-koreas-new-missile-game-changer/144304/>.
- Clausewitz, Carl von. *On War*. Translated by Michael Howard and Peter Paret. Princeton, NJ: Princeton University Press, 1976.
- CNBC. "South Korea detects radioactive gas from North Korea bomb test." September 13, 2017, accessed October 26, 2017, <https://www.cnbc.com/2017/09/13/south-korea-detects-radioactive-xenon-gas-from-north-korea-nuclear-bomb-test.html>.
- CSIS. "Consistency in North Korea's Missile Testing." September 15, 2017, accessed November 30, 2017, <https://www.csis.org/analysis/consistency-north-koreas-missile-testing>.
- CSIS. "Missiles of North Korea — CSIS Missile Defense Project: Missile Threat." Accessed October-December 2017, <https://missilethreat.csis.org/country/dprk/>.
- CTBTO Preparatory Commission. "Comparison of seismic signals (to scale) of all six declared DPRK nuclear tests." Accessed October 26, 2017, <https://www.ctbto.org/the-treaty/developments-after-1996/2017-sept-dprk/>.
- DailyNK.com*. "Former soldier says 60% of North Korean military training is ideological 'brainwashing'," September 03, 2017, <http://www.dailynk.com/english/read.php?num=14403&cataId=nk00100>.
- Defense Update. "120mm HE Projectile (Rheinmetall)." Accessed October 31, 2017, <http://defense-update.com/products/digits/120he-mp.htm>.
- Demick, Barbara. "Escalating tension has experts simulating a new Korean War, and the scenarios are sobering." *Los Angeles Times*, September 25, 2017, <http://www.latimes.com/world/la-fg-korean-war-20170925-story.html>.

- Denyer, Simon and Amanda Erickson. "Beijing warns Pyongyang: You're on your own if you go after the United States." *The Washington Post*, August 11, 2017, [https://www.washingtonpost.com/world/china-warns-north-korea-youre-on-your-own-if-you-go-after-the-us/2017/08/11/a01a4396-7e68-11e7-9026-4a0a64977c92\\_story.html?utm\\_term=.de0c3622609d](https://www.washingtonpost.com/world/china-warns-north-korea-youre-on-your-own-if-you-go-after-the-us/2017/08/11/a01a4396-7e68-11e7-9026-4a0a64977c92_story.html?utm_term=.de0c3622609d).
- Deutsch, Karl W. "The Impact of Science and Technology on International Politics." *Daedalus* 88, no. 4 (1959): 669-685.
- Dinville, Andy. "North Korea's Sixth Nuclear Test: A First Look." 38 North, September 05, 2017, accessed October 26, 2017, <https://www.38north.org/2017/09/punggye090517/>.
- Douhet, Giulio. *The Command of The Air*. Translated by Dino Ferrari. Washington, DC: Air Force History and Museums Program, 1998.
- Elleman, Michael. "A Quick Technical Analysis of the Hwasong-12." 38 North, June 05, 2017, accessed December 01, 2017, <http://www.38north.org/2017/05/hwasong051917/>.
- Elleman, Michael. "The New Hwasong-15 ICBM: A Significant Improvement That May be Ready as Early as 2018." 38 North, November 30, 2017, accessed December 01, 2017, <http://www.38north.org/2017/11/melleman113017/>.
- Federation of American Scientists. "T62 Series Tanks." Accessed October 28, 2017, <https://fas.org/man/dod-101/sys/land/row/t62tank.htm>.
- Fehrenbach, T. R. *This kind of war: the classic Korean War history*. Dulles, VA: Potomac Books, 2008.
- Fifield, Anna. "North Korea has shown us its new missile, and it's scarier than we thought." *The Washington Post*, November 30, 2017, accessed November 30, 2017, <https://www.washingtonpost.com/news/worldviews/wp/2017/11/30/north-korea-has-show>.
- Finnegan, Connor and Quinn Owen. "US talking to North Korea 'directly,' Rex Tillerson says." ABC News, September 30, 2017, accessed November 13, 2017, <http://abcnews.go.com/Politics/us-talking-north-korea-directly-rex-tillerson/story?id=50197907>.
- Fisher, Max and Jugal K. Patel. "What One Photo Tells Us About North Korea's Nuclear Program." *The New York Times*, February 24, 2017, accessed October 27, 2017, <https://www.nytimes.com/interactive/2017/02/24/world/asia/north-korea-propaganda-photo.html?smid=pl-share>.
- Fortune*. "China Signals It Won't Support North Korean Attack." Accessed November 02, 2017, <http://fortune.com/2017/08/11/china-north-korea-missile/>.

Foss, Christopher F. "South Korea boosts artillery capabilities." *Jane's 360*, June 30, 2017, <http://www.janes.com/article/71938/south-korea-boosts-artillery-capabilities>.

Freedman, Lawrence. *Strategy: A History*. New York, NY: Oxford University Press, 2013.

Friedman, Uri. "North Korea: The Military Options." *The Atlantic*, May 17, 2017, accessed November 30, 2017, <https://www.theatlantic.com/international/archive/2017/05/war-north-korea-options/524049/>.

Gady, Franz-Stefan Gady. "Military Stalemate: How North Korea Could Win a War With the US." *The Diplomat*, October 10, 2017, <https://thediplomat.com/2017/10/military-stalemate-how-north-korea-could-win-a-war-with-the-us/>

*Global Times*. "Reckless game over the Korean Peninsula runs risk of real war." August 10, 2017, <http://www.globaltimes.cn/content/1060791.shtml>.

Gray, Colin S. *The Future of Strategy*. Cambridge: Polity, 2015.

Henriksen, Thomas H. "Tale of the tape: North Korea vs. joint US-ROK force." *The Hill*, August 24, 2017, <http://thehill.com/blogs/pundits-blog/the-military/347782-tale-of-the-tape-north-korea-vs-a-us-rok-joint-force>.

Kim, Christine and Kaori Kaneko. "South Korea says Trump's warning to North Korea 'firm and specific'." *Reuters*, September 20, 2017, <https://www.reuters.com/article/us-northkorea-missiles-trump-reaction/south-korea-says-trumps-warning-to-north-korea-firm-and-specific-idUSKCN1BV0DQ>.

Kent, Sherman. *Strategic Intelligence for American World Policy*. Princeton, NJ: Princeton University Press, 2015.

*Korea Handbook: The Complex Operating Environment and Asymmetric Threats*. Fort Meade, MD: US Army Asymmetric Warfare Group, 2017, <http://8tharmy.korea.army.mil/501mi/content/reading-list/Korea-Tactical-Handbook.pdf>;

Lamothe, Dan. "In standoff with North Korea, the U.S. keeps deployment of 'strategic assets' mysterious." *The Washington Post*, October 29, 2017, accessed November 13, 2017, [https://www.washingtonpost.com/news/checkpoint/wp/2017/10/29/in-standoff-with-north-korea-the-u-s-keeps-deployment-of-strategic-assets-mysterious/?utm\\_term=.dc90eb5fed86](https://www.washingtonpost.com/news/checkpoint/wp/2017/10/29/in-standoff-with-north-korea-the-u-s-keeps-deployment-of-strategic-assets-mysterious/?utm_term=.dc90eb5fed86).

Lendon, Brad. "US puts on 3-carrier show of force for first time in decade." CNN. November 13, 2017, accessed November 13, 2017, <http://www.cnn.com/2017/11/12/politics/us-navy-three-carrier-exercise-pacific/index.html>.

Liddell Hart, B. H. *Strategy*. London, England: Faber & Faber Ltd., 1967.

- Lieber, Keir A. and Daryl G. Press. "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence." *International Security* 41, no. 4 (2017): 9-49, doi:10.1162/isec\_a\_00273.
- Lotto Persio, Sofia. "U.S. missile defense shield THAAD ready for North Korea." *Newsweek*, October 23, 2017, accessed November 13, 2017. <http://www.newsweek.com/us-missile-defense-shield-thaad-ready-north-korea-690426>.
- MauldinEconomics.com*. "Here's A Closer Look At North Korea's Artillery Capabilities." Accessed November 03, 2017. <http://www.mauldineconomics.com/editorial/heres-a-closer-look-at-north-koreas-artillery-capabilities#>.
- McCurry, Justin. "North Korean nuclear test confirmed in major escalation by Kim Jong-un." *The Guardian*, September 03, 2017, accessed October 26, 2017, <https://www.theguardian.com/world/2017/sep/03/north-korean-nuclear-test-confirmed-in-major-escalation-by-kim-jong-un>.
- Military-Today.com. "K1." Accessed October 28, 2017, <http://www.military-today.com/tanks/k1.htm>.
- Military Weapons. "Modern North Korean Army Combat Vehicles and Artillery (2017)." Accessed November 06, 2017. <https://www.militaryfactory.com/modern-armor/north-korean-army.asp>.
- Military Weapons. "North Korea Land Systems List (Current and Former Types)." Accessed November 06, 2017. [https://www.militaryfactory.com/armor/by-country.asp?Nation=North Korea](https://www.militaryfactory.com/armor/by-country.asp?Nation=North%20Korea).
- Nautilus Institute for Security and Sustainability. "DPRK Briefing Book: HARTS in North Korea." Accessed November 06, 2017. <https://nautilus.org/publications/books/dprkbb/military/dprk-briefing-book-harts-in-north-korea/>.
- Nautilus Institute for Security and Sustainability. "Mind the Gap Between Rhetoric and Reality." Accessed November 01, 2017. <https://nautilus.org/napsnet/napsnet-special-reports/mind-the-gap-between-rhetoric-and-reality/>.
- Nussbaum, Matthew, Bryan Bender, and Brent D. Griffiths. "Mattis warns of 'massive military response' if North Korea threatens attack." *POLITICO*, September 03, 2017, <https://www.politico.com/story/2017/09/03/trump-north-korea-nuclear-242289>.
- O'Connor, Tom. "The U.S. is building a nuclear bomb that's more accurate than ever." *Newsweek*, April 23, 2017, accessed November 30, 2017, <http://www.newsweek.com/us-build-better-nuclear-missile-585686>.

O'Dowd, Edward C. *Chinese Military Strategy in the Third Indochina War: The last Maoist war*. New York, NY: Routledge, 2007.

*Opposing Force Training Module: North Korean Military Forces*. Field Manual No. 34-71. Washington, DC: Headquarters, Department of the Army, 1982, <http://nautilus.org/wp-content/uploads/2011/12/OpposingForceTrainingModule.pdf>.

Panda, Ankit. "US Intelligence: North Korea May Already Be Annually Accruing Enough Fissile Material for 12 Nuclear Weapons." *The Diplomat*, August 09, 2017, <https://thediplomat.com/2017/08/us-intelligence-north-korea-may-already-be-annually-accruing-enough-fissile-material-for-12-nuclear-weapons/>.

Park, Yong Ho. "South and North Korea's Views on the Unification of the Korean Peninsula and Inter-Korean Relations." Brookings.edu, April 01, 2014, <https://www.brookings.edu/wp-content/uploads/2014/04/Park-Young-Ho-paper.pdf>.

Parker, Chad. "American Bombing Strategy and Teaching the Vietnam War." *OAH Magazine of History* 18, no. 5 (2004): 59-62.

Peddada, Chetan. "A Sneak Peek at America's War Plans for North Korea." *Foreign Policy*, October 12, 2017, <http://foreignpolicy.com/2017/09/07/a-sneak-peek-at-americas-war-plans-for-north-korea/>.

Pike, John. "K1A1 Main Battle Tank." GlobalSecurity.org - Reliable Security Information. Accessed October 28, 2017, <https://www.globalsecurity.org/military/world/rok/k1a1.htm>.

Pike, John. "Seoul, South Korea." GlobalSecurity.org - Reliable Security Information. Accessed November 03, 2017, <https://www.globalsecurity.org/military/world/rok/seoul-imagery-artillery.htm>.

Pollack, Jonathan D. "What do intelligence leaks about North Korea tell us?" Brookings, August 09, 2017, accessed November 09, 2017, <https://www.brookings.edu/blog/order-from-chaos/2017/08/09/what-do-intelligence-leaks-about-north-korea-tell-us/>.

Pretorius, Joelian. "Ban the bomb by... banning the bomb?" *Bulletin of the Atomic Scientists* 73, no. 3 (2017): 201-203, doi: 10.1080/00963402.2017.1315121.

Price, Greg. "How many nuclear weapons and missiles does North Korea have?" *Newsweek*, August 16, 2017, <http://www.newsweek.com/north-korea-nuclear-missile-number-651034>.

Potter, William C. "Coping with MIRV in a MAD World." *The Journal of Conflict Resolution* 22, no. 4 (1978): 599-626, <http://www.jstor.org/stable/173693>.

- Republic of Korea Ministry of National Defense. *2016 Defense White Paper*. Accessed October 29, 2017, [http://www.mnd.go.kr/user/mndEN/upload/pblicitn/PBLICTNEBOOK\\_201705180357180050.pdf](http://www.mnd.go.kr/user/mndEN/upload/pblicitn/PBLICTNEBOOK_201705180357180050.pdf).
- Revolvy. "K1 88-Tank." Accessed October 28, 2017, [https://www.revolvy.com/main/index.php?s=K1 88-Tank](https://www.revolvy.com/main/index.php?s=K1%2088-Tank).
- Roblin, Sebastien. "Meet the Koksan, North Korea's Giant Artillery." *War Is Boring*, October 23, 2017, <http://warisboring.com/meet-the-koksan-north-koreas-super-big-artillery-gun/>.
- Rosenzweig, Paul. *Cyber Warfare*. Santa Barbara, CA: Praeger Security International, 2013.
- Ross, Eleanor. "What life is like as a soldier in the North Korean army." *Newsweek*, June 21, 2017, <http://www.newsweek.com/soldiers-life-north-korean-army-marked-hunger-and-defections-are-rising-627596>.
- Sang-hun, Choe. "North Korea's New Missile Is Bigger and More Powerful, Photos Suggest." *The New York Times*, November 30, 2017, accessed November 30, 2017, <https://www.nytimes.com/2017/11/30/world/asia/north-korea-missile-test.html?rref=collection%2Fsectioncollection%2Fworld&action=click&contentCollection=world@ion=rank&module=package&version=highlights&contentPlacement=1&pgtype=sectionfront>.
- Sanger, David. E. "How the U.S. Could Respond to Another North Korean Missile Test." *The New York Times*, September 07, 2017, accessed November 30, 2017, <https://www.nytimes.com/2017/09/07/world/asia/north-korea-missile-test-us-options.html>.
- Sanger, David E. "U.S. in Direct Communication With North Korea, Says Tillerson." *The New York Times*, September 30, 2017, accessed November 13, 2017, <https://www.nytimes.com/2017/09/30/world/asia/us-north-korea-tillerson.html>.
- Scobell, Andrew and John M. Sanford. *North Korea's Military Threat: Pyongyang's Conventional Forces, Weapons of Mass Destruction, and Ballistic Missiles*. Carlisle, PA: Strategic Studies Institute, 2007.
- Schelling, Thomas. *Arms and Influence*. New Haven, CT: Yale University Press, 1966.
- Schilling, John. "What is True and Not True About North Korea's Hwasong-14 ICBM: A Technical Evaluation." *38 North*, July 10, 2017, accessed December 01, 2017, <http://www.38north.org/2017/07/jschilling071017/>.
- Seipel, Brooke. "Trump: China 'upping the sanctions against' North Korea." *The Hill*. November 12, 2017, accessed November 13, 2017,

<http://thehill.com/homenews/administration/359954-trump-china-upping-the-sanctions-against-north-korea>.

Shinkman, Paul D. "Trump Has Alternative Military Options for North Korea." *U.S. News & World Report*, August 10, 2017, accessed November 30, 2017, <https://www.usnews.com/news/national-news/articles/2017-08-10/trump-has-alternative-military-options-for-north-korea>.

Simpson, Emile. *War from the Ground Up*. Oxford: Oxford University Press, 2013.

SIPRI. "Global nuclear weapons: Modernization remains the priority." July 03, 2017. Accessed November 12, 2017, <https://www.sipri.org/media/press-release/2017/global-nuclear-weapons-modernization-remains-priority>.

Smith, Josh. "How North Korea's latest ICBM test stacks up." *Reuters*, November 29, 2017, accessed November 30, 2017, <https://www.reuters.com/article/us-northkorea-missiles-technology-factbo/how-north-koreas-latest-icbm-test-stacks-up-idUSKBN1DT0IF>.

South, Todd and Jeff Schogol. "War with North Korea: An inside look at how US troops would respond worldwide." *Military Times*, August 08, 2017, <https://www.militarytimes.com/news/your-military/2017/05/21/war-with-north-korea-an-inside-look-at-how-us-troops-would-respond-worldwide/>

Steinbruner, John D. and Thomas M. Garwin. "Strategic Vulnerability: The Balance between Prudence and Paranoia." *International Security* 1, no. 1 (1976): 138-81, doi:10.2307/2538581.

Stratfor Worldview. "How North Korea Would Retaliate." January 05, 2017, <https://worldview.stratfor.com/article/how-north-korea-would-retaliate>.

Stratfor Worldview. "Satellite Imagery: Tactical Details of the Korean Artillery Exchange." November 29, 2010, <https://www.stratfor.com/analysis/satellite-imagery-tactical-details-korean-artillery-exchange>.

Tank Encyclopedia. "K1 88 MBT (1987)." September 21, 2017, [http://www.tanks-encyclopedia.com/coldwar/South\\_Korea/K1\\_88\\_MBT.php](http://www.tanks-encyclopedia.com/coldwar/South_Korea/K1_88_MBT.php).

Tannenwald, Nina. "Stigmatizing the Bomb: Origins of the Nuclear Taboo." *International Security* 29, no. 4 (2005): 5-49. doi:10.1162/isec.2005.29.4.5.

*The Guardian*. "M Mattis: threat of North Korea nuclear attack 'is accelerating'." October 28, 2017, accessed November 13, 2017, <https://www.theguardian.com/world/2017/oct/28/james-mattis-threat-of-north-korea-nuclear-attack-is-accelerating>.

The Manila Times Online. "Trump asks China to work 'hard' and fast on N Korea." November 09, 2017, accessed November 13, 2017, <http://www.manilatimes.net/trump-asks-china-work-hard-fast-nkorea/361770/>.

*The Military Balance* 117, no. 1 (2017).

*The Soviet Army: Operations and Tactics*. Field Manual No. 100-2-1. Washington, DC: Headquarters, U.S. Department of the Army, 1984.

*The Soviet Main Battle Tank: Capabilities and Limitations*. Fort Monroe, VA: U.S. Army Training and Doctrine Command, 1979.

Ucko, David H. *The New Counterinsurgency Era*. Washington, DC: Georgetown University Press, 2009.

U.S. Central Intelligence Agency. *The Korean Military Balance and Prospects for Hostilities on the Peninsula*, National Intelligence Estimate 42/14.2-87. Langley, VA: CIA, 1987, [https://www.cia.gov/library/readingroom/docs/DOC\\_0005569324.pdf](https://www.cia.gov/library/readingroom/docs/DOC_0005569324.pdf);

U.S. Central Intelligence Agency. "The World Factbook: KOREA, NORTH." Accessed November 01, 2017, <https://www.cia.gov/library/publications/the-world-factbook/geos/kn.html>.

U.S. Central Intelligence Agency. "The World Factbook: KOREA, SOUTH." Accessed November 02, 2017, <https://www.cia.gov/library/publications/the-world-factbook/geos/ks.html>.

U.S. Executive Office of the President. *National Security Strategy of the United States of America*. Washington, DC. December 18, 2017, accessed December 29, 2017, <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>.

U.S. Geological Survey. "M 6.3 Explosion - 21km ENE of Sungjibaegam, North Korea." Accessed October 26, 2017, <https://earthquake.usgs.gov/earthquakes/eventpage/us2000aert#executive>.

U.S. Office of the Secretary of Defense. "Military and Security Developments Involving the Democratic People's Republic of Korea." Report to Congress. Washington, DC: GPO, 2015.

Warrick, Joby, Ellen Nakashima, and Anna Fifield. "North Korea now making missile-ready nuclear weapons, U.S. analysts say." *The Washington Post*, August 08, 2017, [https://www.washingtonpost.com/world/national-security/north-korea-now-making-missile-ready-nuclear-weapons-us-analysts-say/2017/08/08/e14b882a-7b6b-11e7-9d08-b79f191668ed\\_story.html?utm\\_term=.f2df7df71c81](https://www.washingtonpost.com/world/national-security/north-korea-now-making-missile-ready-nuclear-weapons-us-analysts-say/2017/08/08/e14b882a-7b6b-11e7-9d08-b79f191668ed_story.html?utm_term=.f2df7df71c81).

*Washington Free Beacon*. "US Commandos Set to Counter North Korean Nuclear Sites." May 03, 2017, accessed November 30, 2017, <http://freebeacon.com/national-security/us-commandos-set-counter-north-korean-nuclear-sites/>.

Wellerstein, Alex. "MISSILEMAP by Alex Wellerstein." *Restricted Data: The Nuclear Secrecy Blog*, accessed November 12, 2017, <http://nuclearsecrecy.com/missilemap/>.

Wit, Joel. "The United States and North Korea." *Brookings*, July 28, 2016, accessed November 13, 2017, <https://www.brookings.edu/research/the-united-states-and-north-korea/>.

Wood, David. "North Korea's Simple But Deadly Artillery Holds Seoul And U.S. Hostage." *The Huffington Post*, April 18, 2017, accessed November 03, 2017, [https://www.huffingtonpost.com/entry/north-korea-artillery\\_us\\_58f631a4e4b0b9e9848eb990](https://www.huffingtonpost.com/entry/north-korea-artillery_us_58f631a4e4b0b9e9848eb990).

ZeroHedge. "US Delta Force, SEAL Team 6 Prepare To Take Out Kim Jong-Un, Practice Tactical North Korea 'Infiltration'." March 12, 2017, accessed November 30, 2017, <http://www.zerohedge.com/news/2017-03-13/us-delta-force-seal-team-6-prepare-take-out-kim-jong-un-practice-tactical-north-kore>.