

# AMERICAN INTELLIGENCE JOURNAL

*THE MAGAZINE FOR INTELLIGENCE PROFESSIONALS*



*Artificial Intelligence:  
Ramifications for Collection and Analysis*

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# Tackling a Nuclear-Armed North Korea: Getting It Right a Priori (Deterrence, Technology, Geopolitics)

by Hristijan Ivanovski

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## OVERVIEW

North Korea's strategic assertiveness driven by its enduring aspirations to own a more sophisticated and survivable nuclear ICBM capability has recently generated a great deal of concern, particularly in civilian circles. However, despite Pyongyang's presumed desire to possess a less theoretical capability to strike strategic targets as appealing as the District of Columbia, Yellowstone National Park, and the San Andreas Fault, for now the possibility of a surprise North Korean nuclear attack remains extremely remote, not to say unimaginable. The reason is fairly evident: a mix of defensive rationality, technological constraints, and regional geopolitics. Based on these three cardinal and largely verifiable factors, the Pentagon and its U.S. interagency counterparts should come up with a well-tailored, case-adaptive deterrence and containment strategy against the North, founded on indispensable hard-power countermeasures.

[Author's Note: I wholeheartedly thank Dr. James Fergusson, Canada's preeminent ballistic missile defense expert, for his support and indispensable advice in the course of preparing this article. My express gratitude also goes to Mr. William (Bill) Begley, a former U.S. Air Force intelligence officer and State Department official, Dr. Joseph S. Gordon of the National Intelligence University, and Dr. Lasha Tchamouridzé of Norwich University, for their selfless assistance in the pre-publication phase.]

**If you know the enemy...you need not fear the result  
of a hundred battles.**

-Sun Tzu<sup>1</sup>

## INTRODUCTION

North Korea's military-technological achievements have been well past the U.S. national security "red line" ever since May 14, 2017, and the test launch of a *Hwasong-12/KN-17* intermediate-range ballistic missile (IRBM).<sup>2</sup> Indeed, the line may have technically been crossed even earlier, on June 21-22, 2016, when during a series of mostly unsuccessful test

flights of the *Musudan/BM-25/Mirim/No Dong-B/Hwasong-10* IRBM Pyongyang demonstrated its potential ability to hold Guam and U.S. forces in the Pacific theater at risk.<sup>3</sup> On the other hand, the U.S. strategic approach to a nuclear-armed Pyongyang is still in gestation, with some proposing "a strategy of comprehensive coercion...build[-ing] on the strengths of the maximum-pressure campaign," a complementary plan for "Maximum Pressure 2.0," a revived Cold War linkage policy centered on China in order to fully effectuate coercive measures, "a grey-zone [counter-] strategy" designed specifically to tackle Pyongyang's frequent ambiguous moves and multidimensional provocations, or just "stricter [multilaterally coordinated] export controls" alongside regular deterrence and sanctions.<sup>4</sup> Others have expressed plausible doubts in the effectiveness of basically any solution relying on solely external pressure, whether it be "imposing pain" through sanctions or "a surgical [military] strike," only to suggest another defective—at least in the short run—alternative: "to go after North Korean internal politics...[which] are very vulnerable."<sup>5</sup> The problem with most, if not all, *divide-et-impera* proposals in the context of North Korea is that they are in principle based on dubious projections and defector claims about the country's implosive potential ("a regime collapse could happen in the coming years"<sup>6</sup>) and do not really seem to grasp the wholeness, resilience, and fortitude of the surreal communist regime.<sup>7</sup>

Mindful of this consonant cacophony—wherein many continued to insist inertly on regional nonproliferation via a wide-ranging coercive action as the top U.S.-Korea priority—and the breezy consideration of military options by some in the Pentagon and the White House,<sup>8</sup> in late 2017 Scott D. Sagan published a dedicated piece in *Foreign Affairs* urging "the U.S. government to admit that it has failed to prevent North Korea from acquiring nuclear weapons and intercontinental ballistic missiles that can reach the United States" and to prepare for a vigilant, proactive, and long-term Kennanian approach because the North "no longer poses a nonproliferation problem [but]...a nuclear deterrence problem."<sup>9</sup> While few, if any, could plausibly contest this prudent orthodox position, at this point the exact content of the proposed and historically

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proven deterrence and containment strategy nonetheless remains unclear. Namely, what would/should this old/new concept eventually look like, besides having to be crystal clear in delivering a resolute message to Pyongyang, as well as inherently cautious, by putting “an end to U.S. threats of first-strike regime change”?<sup>10</sup> To what extent ought the U.S. overall strategic approach to North Korea be stretched, hybridized, and enhanced with additional constraining and coercive elements (e.g., nonproliferation statements, joint collective defense declarations, more sanctions and export controls), including active intelligence measures? Or, George Kennan’s instrumental legacy aside, how else could America “learn to live with a nuclear North Korea”<sup>11</sup> drawing from its past Sino-Russian experiences in the nuclear realm?

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*...the author suggests a dynamic and case-adaptive hardpower approach—deterrence—rather than counterforce-minded, at a basic doctrinal level...*

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To find adequate and actionable answers to these key questions, Washington and its closest allies must first internalize well Pyongyang’s actual standing in terms of deterrence, technology, and geopolitics. Even though each of these domains, even if superficially surveyed, reveals a major reason “Not to Fear a North Korea Nuclear [First] Strike,”<sup>12</sup> one must have and sustain a profound understanding of Pyongyang’s strategic position, intentions, and capabilities if one is to handle the Kim regime successfully in the long run. The following is a subtle realist attempt to promote such nuanced and thoroughly regional knowledge that could potentially help the Pentagon and its U.S. interagency partners devise and implement an effective deterrence and containment strategy on the Korean Peninsula. Cognizant, *inter alia*, of the importance of domestic and ideational variables, as well as the inherent limitations of (the predominant) Western (conception of) rationality,<sup>13</sup> the author suggests a dynamic and case-adaptive hard-power approach—deterrence—rather than counterforce-minded at a basic doctrinal level, by expounding and emphasizing:

- the Democratic People’s Republic of Korea’s (DPRK) culture-based **inclination toward self-defense** rather than strategic offense;
- the existing **technological gap** plaguing the country’s top strategic programs; and
- the increasingly favorable, as far as the Kim regime is concerned, **geopolitical context** in the Asia-Pacific.

## DETERRENCE AND (DEFENSIVE)RATIONALITY

In strategic-military terms, 2017 will be mainly remembered for the severe degradation of the Islamic State’s presence and capabilities in Iraq and Syria, and of course the sinister culmination of the decennial U.S./West-North Korea row over Pyongyang’s nuclear and ballistic missile programs. Rightfully or not, the latter has generated a great deal of fear, not just among North Americans but across much of the globe.<sup>14</sup> This media-driven and increasingly civilian concern, which has come to be so conspicuous as of late, while understandable, can hardly be deemed substantiated from a realist and intelligence perspective. Namely, even though the DPRK has, by its own admission, learned much from Milosevic’s, Saddam’s, and Gaddafi’s “mistakes,”<sup>15</sup> and is therefore set to remain essentially intransigent when it comes to developing and implementing its top strategic programs, notwithstanding any palliative diplomatic solution that could be reached in the coming period,<sup>16</sup> a sudden nuclear attack on any of its perceived adversaries (South Korea, Japan), let alone the farthest ones (U.S., Canada), appears quite improbable in the foreseeable future.

Common sense is the primary factor. Thanks to a relatively simple strategic calculation (i.e., a clear-cut cost/benefit analysis), no nuclear power has ever attacked another nuclear-armed state however favorable the respective nuclear weapons ratio may have been. North Korea is all but an exception in this sense, having been stuck on the inferior side of the nuclear relationship, with only 15 (to 60) estimated nuclear warheads versus nearly 5,000 sophisticated in-service nuclear weapons owned by the West,<sup>17</sup> and also lagging decades behind technologically. To realize how remote and, perhaps, beyond imagination is a surprise nuclear attack by Pyongyang at present, suffice it to say that even a rising China, which is a senior member of the “preemption club,”<sup>18</sup> and far more superior in nuclear and technological terms, has had a hard time contemplating a nuclear first-strike doctrine, a realm traditionally and chiefly reserved for the United States and Russia.

In other words, unlike its conventional counterpart, nuclear deterrence, however imperfect,<sup>19</sup> has never truly, in existential terms, failed in practice. This is in spite of the continuing academic debate over (1) the flaws of deterrence as a conflict management strategy that works only 59 percent of the time and (2) the descriptive and prognostic limitations of the so-called rational deterrence theory (RDT).<sup>20</sup> Nuclear retaliation, no matter the scale, remains profoundly unacceptable, at least to state actors. Even the roughest notion of it is so appalling to the normal mind that the “irrationality” argument which is nowadays generously invoked against both the North Korean leadership and President Donald Trump,<sup>21</sup> and which apparently dominates

the amateurish segment of the debate on the subject, simply holds no water having been for the most part emotionally and/or ideologically driven with no practical value whatsoever. Indeed, while academic thinkers and military strategists may legitimately assail RDT for being parsimonious, simplistic, and thus less predictive<sup>22</sup>—despite the theory’s explicit recognition of the key limits of deterrence, such as misperception and miscalculation—as well as for failing to move beyond the standard utilitarian and consequentialist concept of rationality, the bottom line is this: no theoretical model ought to be confounded with the practice of deterrence in general and nuclear deterrence in particular.<sup>23</sup>

As a strategy and tactic of escalating the cost of armed aggression by perceived adversaries, deterrence has always been at the core of Pyongyang’s nuclear weapons and missile development efforts.<sup>24</sup> This is basically no different than the core function assigned to nuclear arms by any nuclear power, including the U.S. itself whose “strategic triad of nuclear forces serves a primary purpose of deterring...attack on the US homeland and our allies and partners.”<sup>25</sup> From this state-centric (and official DPRK) perspective, all other elements (i.e., blackmail for food and easing of economic sanctions; preserving internal legitimacy and thus regime security; larger, regional ambitions beyond minimal deterrence/Korean reunification;<sup>26</sup> international respect and prestige<sup>27</sup>) of the rationale as to why North Korea keeps pursuing a status of nuclear and missile power so relentlessly are of secondary character. This is true even for the current widely exploited concept of (Kim) regime security,<sup>28</sup> which pinpoints “North Korea’s primary” and “overriding strategic goal”: a “perpetual Kim family rule.”<sup>29</sup> The said goal comes after deterrence (tool) at least by order of implementation, if not teleologically. At the same time, the targeted application—not least by (neo-)liberal proponents, constructivists, and human security experts—of the political science concept of regime security to the DPRK case remains problematic in two aspects:

- the concept’s inherently Western and normative nature, which makes it ideologically alien and perfidiously offensive as far as the North and its benefactors are concerned; and
- the continuing lack of incoherence in the DPRK’s hermetic society despite the populace being “decreasingly reliant” on the state.<sup>30</sup>

For the sake of truth, however, some of the above-mentioned complementary drivers, such as eliciting foreign aid and preserving domestic legitimacy, have always played a parallel and significant role in the DPRK’s vexatious “see-saw” (escalation/de-escalation) policy toward the West.<sup>31</sup> This role has been so prominent at times that it has made it really difficult, even for dedicated observers, to distinguish clearly between the DPRK’s primary and secondary nuclear

motives, which ultimately and ironically plays against Pyongyang’s interests. A good example is the widespread logical interpretation of the latest post-summit series (mid-2019 to present) of North Korean ballistic missile tests as being aimed at “gaining bargaining power against the United States during the upcoming denuclearization talks.”<sup>32</sup> While this cannot be said to be an outright misperception, it surely is but a partial truth focusing, tactfully or not, on a less important, though very practical, element of Pyongyang’s broader nuclear rationale.

It is critical to note here that the existing degree of ambiguity and confusion about what truly propels North Korea’s nuclear weapons and ballistic missile programs (deterrence or something else?) has inevitably reflected in academia and national security circles stirring up debate on nuclear blackmail vs. nuclear deterrence.<sup>33</sup> This emerging debate is basically an expanded version of the “deterrence/self-defense vs. regional ambitions” dilemma troubling Washington for years.<sup>34</sup> The question is no longer as simple as: “[A]re [the North Koreans] pursuing [nuclear] weapons in order to maintain the status quo on the Peninsula, or...to fundamentally alter the status quo” by compelling the U.S. to stay away from the region and concede to their whims and long-standing demands?<sup>35</sup> There is also a second, mostly domestic and humanitarian, aspect suggesting that nuclear Pyongyang is concurrently trying to intimidate the international community so as to extort aid and material benefits as needed. Combining both aspects (regional/strategic-military and internal/socio-economic), and highlighting the latter in particular, the nuclear blackmail thesis defies the traditional and largely realist deterrence argument. To provide comprehensive and transferable insights into this theoretical clash, it is good to start off with an instant flashback of North Korea’s unenviable domestic situation (isolation, drought, major floods, and famine) in the 1990s.

Given the daunting post-Cold War socio-economic challenges faced by the North, as well as other, typically Occidental concerns, some defense academics and practitioners nowadays feel increasingly compelled to ignore the multifaceted political utility of nuclear weapon and missile possession in favor of emphasizing the “blackmail/bargaining” component of Pyongyang’s otherwise delicate nuclear rationale. For instance, during a recent presentation, Canada’s foremost ballistic missile defense (BMD) expert James Fergusson described Pyongyang’s original pursuit of nuclear weapons as “a strategy of nuclear blackmail” where “the warheads and ICBMs were unintended consequences...this was originally the strategy, once they started they couldn’t stop.”<sup>36</sup> Professor Fergusson then went on to enumerate other notable drivers behind the DPRK’s controversial conduct, such as “attention, prestige and status,” while also inferring that “no one’s gonna pay

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attention to Kim Jong Un otherwise [since] there are no great benefits for the capitalist world with penetrating [the North].”<sup>37</sup> While this deterrence discounting position might sound surprising coming from a realist and a proven “Cold Warrior,” it is nonetheless meritorious in its own right. Not only does it undermine the traditional deterrence argument in the context of North Korea (and thereby Pyongyang’s own, coinciding narrative), but it is moreover consistent with the recently revived analytical tendency pressing for U.S. counterforce policy.<sup>38</sup> As such, it deserves a brief scrutiny for objective shortfalls.

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***The nuclear blackmail/bargaining thesis benefits from, and is being mainly perpetuated by, the Kim regime’s proven affinity for nuclear extortion and dictating terms during every de-escalation phase of the West-DPRK relations.***

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In the author’s modest opinion, the nuclear blackmail/bargaining thesis benefits from, and is being mainly perpetuated by, the Kim regime’s proven affinity for nuclear extortion and dictating terms during every de-escalation phase of the West-DPRK relations. We can safely take this as an axiom, which would then leave us with the key question: Is that “affinity” rooted in a long-adopted strategy, or is it rather more spontaneous and contingent on circumstances? North Korea experts, regardless of whether or not they deem themselves proponents of the nuclear blackmail thesis, seem to make a strong case for the existence of a blackmail strategy in Pyongyang whenever they touch upon or zoom in on the regional, strategic-military aspect of the thesis itself. Consider for instance the argument made by current and former members of President Trump’s national security team: “[B]y threatening Los Angeles or Chicago... [Kim Jong Un] may be hoping to... cast doubt in South Korea and Japan that the United States would come to their aid if a regional war broke out.”<sup>39</sup> The same line of thinking is espoused by Bruce Bennett and others at RAND: “If North Korea can threaten mainland America, then it can raise the stakes for any American intervention on behalf of South Korea... ‘Are we prepared to trade San Francisco for Seoul?’”<sup>40</sup> This uneasy dilemma (American lives vs. Korean and American lives) imposed on Washington by the DPRK’s nuclear capability per se reveals two different but mutually reinforcing elements of strategy: first, an implicit and ever-present nuclear blackmail on the part of Pyongyang (“If you do or fail to do this or that, we could/will attack U.S. assets or target the U.S. itself), and second, according to Bennett, a systematic effort at decoupling South Korea from the U.S.”<sup>41</sup> This now begs a clarification: Is the DPRK’s nuclear strategy a more recent and blackmail strategy by origin as purported by Ferguson, or a Cold War-like decoupling concept as claimed

by Bennett and others? The reasonable answer would be: It is an evolving blend of both, as well as of other motives and concepts (deterrence/self-defense in the first place), and parsing it requires understanding of the differences and subtleties between the overlapping components. Thus, while Pyongyang may not have a specific codified strategy to blackmail Washington into a favorable political (in-)action (e.g., aid, force withdrawal, non-interference), it cannot deny its adherence to a long-term plan to help Korea get rid of the Americans, a plan that now appears to be backed permanently by an implicit nuclear threat.

Still, the real question here is not whether the DPRK’s nuclear conduct can somehow qualify for a blackmail strategy. It certainly can, just as it can be described in many other ways. Rather, it is about the order and primacy of Pyongyang’s nuclear motives (which one comes first and why?), and this is where the nuclear blackmail thesis really falls short in providing a convincing explanation. The Kim factor (“affinity”) aside, the thesis is flawed in at least three major respects.<sup>42</sup> First, by concentrating almost exclusively on the post-Cold War constraints on (and the resulting conduct of) the DPRK, the analysis underpinning the thesis is plagued by a huge temporal gap (1950-53 and 1960s-1991). Few if any could dispute the fact that “[w]ith the end of the Cold War, North Korea was largely politically isolated and vulnerable” due to the collapse of the Soviet Union and the “questionable... support” from China, and that “the first decade of [its] nuclear programme... strongly suggests that the programme was driven by an attempt to extract economic benefits from the West/the US via nuclear blackmail.”<sup>43</sup> Yet, this historical segment tells us little about the true origins and primordial driver of Pyongyang’s nuclear quest. Detailed chronology is crucial for explanation here. According to a register of relevant DPRK events prepared by the James Martin Centre for Nonproliferation Studies (CNS, Monterey Institute of International Studies), the North Korean leadership embarked on its pursuit for the A-bomb as early as 1966-67, with Kim Il Sung “issu[ing] a directive to develop nuclear warheads for missiles.”<sup>44</sup> Based on defector information, this ostensible fact could of course be technically inaccurate, but then again it is hard to ignore the rational assumption that the North Koreans have been contemplating ways how to deter a potential U.S. attack ever since the Truman administration (which is thought to have considered even the nuclear option against the North). Attesting to this assumption is, for instance, Chairman Kim Jong Un’s seminal 2018 New Year’s speech celebrating the DPRK’s historic accomplishment in the nuclear and missile domains:

We have realized the wish of the great leaders who devoted their lives to building the strongest national defense capability for reliably safeguarding our country’s sovereignty, and we have created a mighty sword for defending peace...<sup>45</sup>



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Accordingly, it would not suffice merely not to discount the North Koreans' "fear that isolation [in the 1990s] threatened their survival,"<sup>46</sup> but to recognize that, in their own eyes, especially following the unipolar moment which was marked by a series of Western military interventions (Kosovo, Afghanistan, Iraq, the Arab Spring, Syria), the perceived existential threat has always been very real.<sup>47</sup> Three years after completing the acquisition of "the strongest" war deterrent embodied in a potentially thermonuclear *Hwasong-15* ICBM, they are still in search of a "promising strategic weapons system" ("planned by the Party one after another [sic]") that they hope would help them "put the objective factors [i.e., the U.S./the West] under... control."<sup>48</sup> For the moment, that promising role is being played by the presumptive *Hwasong-16*, the world's largest (liquid-fuel) (road-)mobile ICBM design revealed on October 10 during a spectacular midnight military parade marking the 75<sup>th</sup> anniversary of the Korean Workers' Party (WPK). Quite frankly, that is just a preliminary solution. It follows without saying that the communist regime in Pyongyang would most likely never have a sufficient level of confidence in U.S. promises—even if they are written security guarantees such as those of 2005-07<sup>49</sup>—to meet Western expectations of full denuclearization.<sup>50</sup>

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***It follows without saying that the communist regime in Pyongyang would most likely never have a sufficient level of confidence in U.S. promises...to meet Western expectations of full denuclearization.***

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Second, giving "blackmail" and other secondary nuclear motives precedence over an ingrained national fear of long-anticipated foreign aggression implicitly questions the primacy of deterrence as a national defense strategy and/or function. The counter-explanation that "deterrence is a western/US preference of interpretation, and applying it to the NK regime is potentially ethnocentric"<sup>51</sup> sounds reasonable, but unfortunately fails to take the full picture into account. This is not simply about nuclear deterrence as an exclusive post-World War Two (WWII) Western invention and, for some time, practice, but rather about military deterrence in general, deterrence as a truly universal defense concept present in virtually all national defense policy and military-strategic documents through the syntagm "to deter and defend." Seen from this broader, international perspective, it is impossible to overlook how salient the concept actually is to all (ex-) communist nations and militaries, let alone the DPRK and its radicalized people's defense (discussed further in this section). Now, even if one

were to assume hypothetically that Pyongyang's nuclear deterrence narrative and practice are no more than a Western import or a quasi-version thereof, recent experience suggests that Asiatic peoples (China in the first place) are very good at eclecticism and reverse engineering and have no issues in adopting and implementing advantageous foreign concepts and technology (see, for example, A2/AD below).

Another counter-argument that is often raised "as an aside" in this very same context contends that in a hi-tech era, which in essence is the fourth industrial revolution, in which the U.S. has developed its counterforce capability to unprecedented heights, the North Koreans "have no real deterrent strategically."<sup>52</sup> This implies that, since Pyongyang is most likely aware of the degree of technological superiority on the part of the U.S./the West ("The NK can't or shouldn't be blind about this reality"),<sup>53</sup> it can use its nuclear weapons and missiles only as a tactical deterrent, mostly for blackmail and local "adventures" as is already the case. This reasoning may be 100 percent accurate from a technocratic viewpoint, yet it is intrinsically dangerous. Not only does it encourage the military option against the North contrary to the largely bipartisan consensus (and the opinion of some of America's finest strategic minds) to avoid costly war on the Korean Peninsula<sup>54</sup> but, in addition, it could eventually lead to a horrific outcome diametrically opposed to the "zero-casualty warfare" doctrine and inconceivable to the Western public.<sup>55</sup> To believe that North Korea is not just vulnerable but also realistically attackable, just because it lacks, in a technical sense, a true strategic deterrent (i.e., a survivable long-range retaliatory force) against the U.S., may not be a gross disregard for the current state of its defense capabilities and what harm they could do, but it surely signals overconfidence in U.S. counterforce capacity, which is far from perfect and indubitable (e.g., the continuing inability of U.S. intelligence to determine the exact number, status, and [underground] location of all North Korean nuclear warheads and missiles is contrasted by a presumably growing DPRK stockpile that may already count well over 80 nuclear weapons!).<sup>56</sup> Moreover, as a rule of thumb, beliefs and arguments of this sort invariably miss factoring in the psychological state of mind of the die-hard opponent who, albeit technologically inferior, tends to behave as if being in possession of hundreds of operational nuclear weapons. Therefore, make no mistake; as far as the DPRK and other rogue regimes are concerned, even a single "nuke," the very first one, let alone 80, should be enough to keep the U.S. at bay—or to make a mess, a real mess, if necessary.

The third and perhaps most acceptable "weakness" of the nuclear blackmail argument may be no weakness at all, for it directly relates to the political and ideological portion of the argument's rationale. In principle, the West and most of its intellectual acs refuse to accept deterrence as a primary driver of Pyongyang's strategic conduct since "it serves to legitimize their [nuclear] programme."<sup>57</sup> Political expedience matters. Besides, accepting the deterrence narrative in the case of North

Korea would basically amount to “a modern version of appeasement,”<sup>58</sup> and appeasement politics, history teaches us, never ends up well. These long-term concerns troubling U.S. and allied strategists (“what if we were to accept North Korea’s nuclear status and its official deterrence narrative?”) make sense, save in two aspects. First, there should be no fear that recognizing, at an academic and purely technical level, the true driver behind the North’s nuclear quest would be politically damaging; quite the contrary, such expertly acknowledgment, which does not necessarily translate into diplomatic action, would be desirable and welcomed in most cases, as it would also help set things straight, both analytically and administratively (e.g., with a view to creating a neutral, longer-range analysis capability), within the respective national defense and intelligence community.<sup>59</sup> Second, the possibility of a 21<sup>st</sup>-century appeasement scenario detrimental to U.S. and broader Western interests is somewhat exaggerated. The Trump administration demonstrates all but a Chamberlainian attitude, despite allusive criticisms,<sup>60</sup> and the Kim regime is nowhere near to rising like Nazi Germany. North Korea is and will most likely remain in an inferior position allowing for diplomatic flexibility on the part of Washington.

Thus, regardless of the nuclear blackmail narrative, seen from a North Korean perspective and on a more fundamental level (statehood), and especially in a post-1990s context, nothing seems to be as critical as having the ability to deter and, if necessary, repel a potential Western military intervention,<sup>61</sup> which, hypothetically at the extreme, might even take the form of a preventive or preemptive nuclear strike.<sup>62</sup> Sagan is right on the money when saying that the DPRK’s nuclear arsenal is, in essence, “a potent deterrent” and “not a bargaining chip.”<sup>63</sup> The same has long been reiterated by North Korean senior officials, primarily the Supreme Leader himself whose address at the unparalleled October 10 rally highlighted the following:

We will continue to strengthen the war deterrent. We clarify that our war deterrent is being developed not for aiming at others. We are developing it in order to defend ourselves.<sup>64</sup>

This is actually more than insisting on deterrence—a clear and rigid state-centrism, however controversial and frustrating that might be. Hence, while one might readily agree with conventional assessments that “conservatism... runs in [all]... authoritarian regimes” and that Kim Jong Un simply wants “to rule for a very long time and die peacefully in his own bed,”<sup>65</sup> focusing excessively on the Kim regime’s self-centric behavior, legitimacy, and survival, in a more or less (neo-)liberal and postmodernist fashion, can be largely misleading for it downplays North Korea’s elementary Westphalian truths: state security, obsession with sovereignty, and “self-defensive” deterrence.<sup>66</sup>

With regards to the DPRK’s conduct—rational or out of bounds—in implementing its nuclear deterrence strategy, there has been a vigorous debate, primarily in non-expert circles. Although the rationality argument prevails where it matters most—namely, among leading academics, strategists, and high-level decision-makers<sup>67</sup>—one critical property remains largely unspecified in open literature: What is the exact type of rational calculation underlying Pyongyang’s strategic decision-making, aside from its expected “instrumental” dimension?<sup>68</sup> How plausible and politically expedient is it for journalists and pundits alike to propagate an oxymoron by calling such reasoning “rational madness” or a madman’s rationality?<sup>69</sup> After all, is there a true irrational component to North Korea’s nuclear thinking and conduct and, if so, what is it? How prominent is it? This work is not designed to provide a precise multi-disciplinary answer to all these demanding questions. That would require a great deal of effort beyond what is strictly political science, in order to delve deeply into relevant aspects of decision-making theory, personal and social psychology, cultural anthropology, ethnology, and economics, as well as other areas of research. Nonetheless, it is quite possible here to identify and delineate the overarching strategic-cultural framework within the confines of which the North Korean leadership has been considering the role of its nuclear and ballistic missile programs. Doing so would importantly lend support to the author’s hypothesis that Pyongyang’s strategic decisions are mainly driven by a sort of defensive rationality: maximizing political and material profits is only as good as it contributes to the defense of our “single-hearted” nation and the preservation of our sovereignty and socialist way of life,<sup>70</sup> and ought to be pursued chiefly by defensive and asymmetric means in the homeland.<sup>71</sup>

First, ever since WWII, North Korea has been cultivating its own authentic way of real socialism based on a distinct, inward-looking, and autarkic political philosophy known as *Juche* (basically *self-reliance*). An official state ideology since 1972,<sup>72</sup> *Juche* edifies the North Korean citizen-soldier that they are the master of their own revolutionary destiny, independent in their (largely collectivist) political thinking and action, and thoroughly self-confident and self-sufficient through “displaying the revolutionary spirit of self-reliance.”<sup>73</sup> This “nuanced” axiological system and North Korean “religion” of life,<sup>74</sup> styled, in broader terms, as Kim-II-Sung-ism or Kim-II-Sung-ism/Kim-Jong-II-ism,<sup>75</sup> and construed by Pyongyang as a “creative” contemporary version of Marxism-Leninism,<sup>76</sup> is a powerful domestic strategic determinant; it is simple, morally well-grounded with stoical and solidarity-oriented values, purified from undue dogmatic content, and thus very effective in practice. Aside from being highly instrumental as a means of general indoctrination, *Juche* has had far-reaching political and strategic-military implications. One of its most prominent derivatives is *byungjin*, Pyongyang’s official two-prong (economic development + nuclear deterrent) policy used as a tool (out of six in total) to preserve the Kim dynasty in power

indefinitely.<sup>77</sup> On the surface, the policy was introduced in 2013 and reportedly supplanted just five years later,<sup>78</sup> when Chairman Kim famously urged his nation to “launch” what he described as “[a] revolutionary general [‘all-people’] offensive...to achieve fresh victory on all fronts of building a powerful socialist country,” and especially “[a] breakthrough...in reenergizing the overall economic front.”<sup>79</sup> However, reality is rather more complex and does not fully support the South Korean defense ministry’s 2018 assessment whereby the Kim regime “is [now] seeking a strategic change [and]...adopting a new strategic line...by focusing all efforts on building a socialist economy.”<sup>80</sup> Historically, the nascence of *byungjin* as a dual-track policy concept can be traced back at least to the mid-1960s. In October 1966, expert sources report, a WPK leadership conference was held at which Kim Il Sung “emphasize[d] the need to develop economic and military capabilities together”<sup>81</sup> and, as already noted, around the same time came the founding father’s inaugural decision concerning the DPRK’s nuclear deterrent. This means that, for North Korean society, the journey down the dual path (military/nuclear capabilities-economy) of *Chollima*, the worshiped mythical horse symbolizing endurance, perseverance, and stoical feats,<sup>82</sup> had been a practical and ideological imperative for almost half a century before being officialized as *byungjin* at the highest level.

Seen from this retrospective angle, it is hard to believe that something that has been transpiring as a strategic policy concept for so long would now abruptly (or even gradually) be terminated and replaced with a strictly economic “offensive,” especially if “we have no direct clues on this North Korean supposed new direction, or of what might be in store for the future of U.S.-North Korea relations.”<sup>83</sup> Consider just a few of the quite opposite indicators in this regard: for instance, how about Kim Jong Un’s highlighting “the validity and *vitality* of the Party’s line of simultaneously conducting economic construction and building up [the DPRK’s] nuclear forces [author’s emphasis].”<sup>84</sup> This somewhat overlooked assertion within his now well-known 2018 annual address was not just an ex-post “justification of...‘byungjin’”;<sup>85</sup> it was followed by a demand that the national defense industry keep “holding fast to the line of simultaneously promoting the two fronts,” and, moreover, by a call to “mass-produce nuclear warheads and ballistic missiles” and stand “ready for immediate nuclear counterattack.”<sup>86</sup> More concretely, how about the newest strategic-military hardware developed at *Mallima* speed and lately marching in glitter and splendor along the Kim Il Sung square?<sup>87</sup> To be clear, for now, there is no strategic shift that would make any special difference to the U.S. Korea strategy. Pyongyang’s so-called “new path/direction” is consistent with *byungjin*, if not *byungjin* itself. Whether conceived/manifested as a focused economic effort to secure a degree of domestic prosperity and deflect outside pressure or as vengeful military hardware hyperproduction, or likely as both, it is nothing really novel or unexpected.

Another strategically remarkable *Juche*an product is no doubt the DPRK’s independent *Songun* (Military First) policy. An official government policy since the mid-1990s, *Songun* is more than just a sheer communist statism/etatism and having high regard for the status and role of the military in society. On the one hand, its *de facto* post-1994 implementation by Kim Jong Il’s National Defense Commission is commonly seen as extorted and pragmatic—that is, as “a concession to an increasingly restless military whose interests were challenged by the economic downturn and general social unease accompanying famine.”<sup>88</sup> On the other hand, putting the (North) Korean People’s Army (KPA) first would arguably never have happened in such form and scope without the socio-historical context provided by the pervasive ideology of self-reliance. Similarly to *byungjin*, the earliest hints of *Songun* can be found in the era of Kim Il Sung. Having been a nationalist, anti-Japanese guerrilla fighter and commander in Northeast China (Manchuria) for most of the 1930s, and also at the helm of a Soviet-sponsored Korean communist resistance clique during WWII, the elder Kim is said to have had “blind belief in the Korean military.”<sup>89</sup> His “Military First” concept first started taking shape in 1960, with a father-and-son visit (joined by Kim Jong Il) to the Pyongyang-based Seoul 105<sup>th</sup> Guards Armored Division Headquarters, and continued two years later when the DPRK, in line with its deeply *Juche*an principle of “self-reliant defense,” adopted its famous “Four-Point Military Guidelines”: “turn...the whole nation into a fortress,” “arm the entire people,” “instill...cadre potential in every soldier,” and “modernize the army.”<sup>90</sup> Embedded in *Juche* and enshrined by Article 60 of the North Korean Constitution, this Spartan vision of collective survival has been the alpha and omega of Pyongyang’s military policy and strategy ever since. The last point/guideline (military modernization) thereof, in conjunction with the others, is nothing but *Songun* unveiled. As a distant prelude to the policy’s official promulgation in 1997, during a 1992 parade the generally introverted Kim Jong Il “allowed his voice to be heard in public” (albeit not for the first time) exclaiming: “Glory be to the heroic soldiers of the Korean People’s Army!”<sup>91</sup> (The latter is sometimes translated/paraphrased simply as “Long live the Korean People’s Army!”<sup>92</sup>) According to Choe Su Hon, North Korea’s vice foreign minister until 2005, *Songun* has been an integral element of his country’s deterrence strategy, which “is not to attack anyone, but to serve as a self-defensive means to safeguard our sovereignty.”<sup>93</sup>

Thinking of North Korea’s markedly sovereignist and self-defensive form of defense-mindedness, it is hard to overlook the country’s second most significant source of strategic orientation: its own version of the shared communist concept of people’s defense. Thanks to this adapted concept, the North Koreans are not just theoretically capable during wartime of mobilizing and fielding about one third (7,769,000–8,900,000) of their population of 25 million.<sup>94</sup> A common denominator of all communist nations and militaries, the strategy of people’s

defense is said to have been elevated to a much higher, ultra level by Pyongyang: an all-out people's revenge in case of external aggression, spearheaded by formidable artillery, ballistic missile attacks, and an extremely large ground force (131 brigades and 4,300 tanks!<sup>95</sup>) poised for counter-invasion.<sup>96</sup> This intimidating retaliatory dimension of the North Korean military strategy is yet another emanation of *Juche's* ideological iron fist, which warrants patriotic sacrifice in the sense "we're all going to die for our country, if necessary!"<sup>97</sup> Stressing it is not meant to blur or discount the North's offensive military plans and tactics. Quite the contrary, Pyongyang's strategic resolve, coupled with its long historical record of special operations (i.e., infiltrations, subversions, raids, and [attempted] assassinations) in the Republic of Korea (ROK), with "over 76,000 [committed] transgressions against the armistice treaty" only between 1953 and 1999,<sup>98</sup> serves as a good reminder of the risks associated with its enduring intent to reunify the Korean Peninsula under its own terms.

However, despite all war risks, there is a third major defensive element at play here: the present structure and equipment of the KPA as a whole. Considered *vis-à-vis* the technologically superior Combined (ROK-U.S.) Forces south of the border, the KPA units and their mutual differences in terms of modernization reflect an increasingly growing commitment to asymmetric defense. Due to fiscal constraints, especially in the wake of exorbitant nuclear program costs, over the past two decades the DPRK's conventional forces have been "degraded" and "modernized only selectively."<sup>99</sup> The KPA Navy, for instance, while having in its inventory up to 73 tactical diesel-electric submarines (mainly *Romeo* and *Sang-O* class, although observers are not quite sure about how many of them are truly combat-ready),<sup>100</sup> one of which (*Sinpo/Gorae* class) is an experimental strategic platform (SSB) and potentially carrying, along with its more capable future derivatives,<sup>101</sup> nuclear-tipped *Pukguksong-1/Polaris-1/KN-11*, *-3/Polaris-3/KN-26* and/or *-4/Polaris-4* submarine-launched ballistic missiles (SLBMs),<sup>102</sup> remains inferior to ROK naval forces in terms of larger, blue-water surface combatants and naval aviation.<sup>103</sup> Speaking more broadly, so as to consider all non-nuclear/WMD forces of the North, even the KPA's "robust and diverse" Special Purpose Forces (SPF), which *inter alia* perform important strategic functions, have, according to the IISS's *Military Balance 2019*, dwindled somewhat, from 104,000 (44 battalions + 15 brigades) in 1999<sup>104</sup> to 88,000 (26 battalions + 22 brigades) at present.<sup>105</sup> On the other hand, it is well-known/estimated that the overall strength of these forces in a broader sense—once referred to by the South as "special warfare forces" and nowadays as "special operations forces" (SOF)—currently stands at about 200,000 personnel,<sup>106</sup> having steadily and enormously grown over a 20-year period (e.g., 120,000 in 2006 vice 180,000 in 2008, etc.).<sup>107</sup>

Yet, the most conspicuous example of stagnation and retrograde tendencies within the KPA's broader conventional segment is definitely its Air Force. Given Pyongyang's ambitious "asymmetric" priorities amid resource scarcity, this service branch appears to have been deliberately degraded in terms of equipment, to an extent that even its modest nuclear "arm," consisting of refurbished *H-5/Il-28 Beagle* (light, medium-range) bombers, fails to escape the backwardness assessment. Of the KPA Air Force's 19 fighter/interceptor regiments, as many as 16 are (well) bellow *MiG-21bis* capability, equipped with utter old-timers such as *MiG-15*, *-17*, *-9*, *-21F-13/PFM*, as well as *J-5*, *-6*, and *-7*.<sup>108</sup> In other words, while the DPRK does have "545 [or 810<sup>109</sup>] combat capable aircraft" on paper, barely one-fifth (104+) of them are deemed somewhat contemporary; these are the third- and fourth-generation jet fighters *MiG-21bis* (30), *-23* (56), and *-29* (18+).<sup>110</sup> The harsh reality is that North Korea's air power presently comes to rely on merely 18+ *MiG-29 A/S/UB Fulcrum* and about 34 *Su-25/Su-25 UBK Frogfoot* ground attack aircraft which, for the sake of truth, do mean something (e.g., Syria).<sup>111</sup> The situation is, however, better with the country's air defense. The DPRK's air defense network remains quite solid, although its best bet against a joint air strike are brigades comprised of *S-75 Dvina/SA-2 Guideline*, *S-125 Pechora/SA-3 Goa*,<sup>112</sup> *S-200 Angara/SA-5 Gammon* and the domestic, fourth-generation *KN-06/Pon'gae-5* surface-to-air missile (SAM) system.<sup>113</sup>

At this point, one might argue that the Air Force has never been the KPA's strong suit, which is true. Nonetheless, if until the late 1990s the "DPRK and ROK Air Forces" were considered "roughly equal," with the ROK having just "a slight advantage in numbers of rotary platforms or helicopters" and "an obvious [qualitative] advantage" only when/if U.S. "fixed wing assets and surveillance aircraft" (e.g., *AWACS*) were taken into consideration,<sup>114</sup> today the DPRK's air combat capabilities are nowhere near that comparison. Its 1,640 military aircraft (this includes, by the hundreds, "relic" jets, trainers, and transport planes, including some used by the national airline) are largely a nominal force compared to the ROK's mix of advanced air assets (e.g., 40 F-35, by 2021).<sup>115</sup> A few recent positive developments, such as increasing the number of KPA air divisions from four to five, or manufacturing indigenous unmanned aerial vehicles (UAVs) and lightweight aircraft,<sup>116</sup> are insufficient to change the general impression. No doubt, the intra-military trade-offs in favor of the chosen asymmetric defense strategy, especially since Kim Jong Un's rise to power (September 2010-July 2012), are the product of a conscious and well-calculated strategic decision. Pyongyang appears resolved to continue to invest, despite all political-economic hardships, in its costly nuclear deterrent rather than following, to some extent, the Western trend of prioritizing conventional air power over other types of military force in line with the Revolution in Military Affairs (RMA) concept. The aim is obviously to build, by learning from other countries' countermeasures against U.S. air and

naval predominance (e.g., China’s artificial islands in the South China Sea, road-mobile *DF-17*, *-21D*, and *-26C* anti-ship ballistic missiles [ASBMs] infamously known as “carrier killers,” as well as its air-launched *CH-AS-X-13*), a hybrid multi-domain anti-access/area denial (A2/AD) system. In addition to traditional air and missile defenses, this system should effectively integrate the following offensive and retaliatory capabilities:

- the KPA’s infamous 21,500+ (26,000-27,000, according to some) artillery pieces meticulously layered north of the 38<sup>th</sup> parallel; 5,100 (5,500 according to ROK defense authorities<sup>117</sup>) of which (three times more than China!<sup>118</sup>) are multiple rocket launchers (MRLs, including the 300-mm guided rocket *KN-09/KN-SS-X-9*) with approximate aggregate firepower (based on the average number [19.1] of launch tubes per MRL and excluding the DPRK’s newest, super-large, 600-mm “MRL” system *KN-25*)<sup>119</sup> of 100,000 (i.e., 97,410) artillery rockets that could be fired in a single, relatively short salvo;
- a proper mix of solid- and liquid-fueled, road- and/or sea-mobile, close-range (CRBMs: 24 *Luna/Frog-3*, *-5*, and/or *-7* unguided ballistic rocket launchers kept in reserve along with some *KN-02/OTR-21 Tochka/SS-21B Scarab mod* complexes which can be armed with chemical warheads, as well as the *KN-09*<sup>120</sup>), short-range (SRBMs [200+ {up to approx. 900 msl.} <sup>121</sup>]: various *Scuds*,<sup>122</sup> plus “the [brand new, maneuverable] Son of Scud” [*KN-23*]<sup>123</sup> and the latter’s immediate forerunner [*KN-21*] and shorter version [*KN-24*], as well as *KN-25*), medium-range (MRBMs: [100+ {up to approx. 300+msl.} <sup>124</sup>]: *No Dong-1/A/Hwasong-7*, some *Scuds-ER/Hwasong-9*, the *Pukguksong-1*, *-3*, and *-4* SLBMs and their land-based *Pukguksong-2/Polaris-2/KN-15* variant) and intermediate-range (IRBMs: *Musudan*, *Hwasong-12*,<sup>125</sup> and potentially the *Pukguksong-4* SLBM or its future upgrades<sup>126</sup>) ballistic missiles;<sup>127</sup> and
- different generations of anti-ship missiles (AShMs: *P-15 Termit/SS-N-2 Styx*, *HY-1/CSS-C-2 Silkwarm*), including cruise missiles (ASCMs: *KN-01*, *Kumsong-3*, or *-3 mod/KNSS-N-2 Stormpetrel*).<sup>128</sup>

Evidently, the DPRK’s asymmetric approach to defense, which also relies on ICBMs (*Hwasong-13/No Dong-C/KN-08*, *-13 mod/KN-08 Block 2/KN-14*, *-14/KN-20*, *-15/KN-22*, and *-16*) as its pinnacle, concentrates on three elements: (1) strategic capabilities, primarily nuclear and WMD-related (e.g., Strategic Force of 10,000 personnel [9 brigades] recently organized as an independent KPA branch<sup>129</sup>); (2) creating and exploiting “localized comparative

advantage”; and (3) “a large, forward-positioned force” along the Demilitarized Zone (DMZ) capable of massive counterattack or *blitzkrieg*.<sup>130</sup> Pyongyang arguably deems these elements fitting for modern warfare where the defense is generally disadvantaged *vis-à-vis* the offense. However assertive at first glance, they essentially reveal a defensive, status-quo attitude, at least in the current context. To grasp such an attitude to the fullest, one needs to move beyond utilitarian/Baconian/Benthamian (maximize pleasure/gain, minimize pain/loss)<sup>131</sup> and consequentialist/Machiavellian (the aim justifies the means) reasoning, namely the predominant type of rationality in the West that renders RDT and its prognostic function somewhat unreliable. This largely individualist, profit-oriented way of thinking and decision-making—which in political and social sciences is alternatively referred to as “self-interested,” “self-centric,” “selfish,” “hedonistic,” “instrumental,” “practical,” “same,” “narrow,” “emptied,” or “bottom-line rationality”—albeit psychologically compatible on a key Freudian level (sub-consciousness, natural instincts) and thus truly universal (intrinsic to all humans more or less), is highly reductionist by its nature. First, by definition, it downplays the impact on decision-making of not just powerful emotions (the irrational), but also a highly internalized political and strategic-cultural creed acquired via thorough socialization. Second, operating in stark contrast to broader, Aristotelian, contextualized, collectivist, and less conventional forms of reason, such as Jürgen Habermas’ “communicative rationality” or a green party’s “environmental ethics,”<sup>132</sup> it can hardly offer accurate predictions of the strategic conduct of culturally remote nations with a solid egreore such as North Korea.

Clearly, in anticipating the DPRK’s future strategic moves, intelligence, deterrence, and BMD experts cannot and should not count on RDT alone. Common rational choice concepts (prudent/logical decisions > the greatest benefit/satisfaction), while precise, represent a sort of “bounded” rationality,” not just technically (“man’s limited computational abilities in making decisions”) as stressed by Herbert Simon,<sup>133</sup> but also in terms of substance. Managing to go beyond them, including the more adaptive concept of Muthian rationality (i.e., rational expectations), would also help to better comprehend the irrational component (e.g., interpersonal aversion, collective emotions, sovereignist pride) in Pyongyang’s assertive behavior. This subjective component, driven for instance by patriotic sentiments and national myths, is omnipresent (because each attitude features its own emotional layer), albeit not commonly decisive in high-level policymaking. Occasionally though, such as in the lead-up to World War I, it can become a prominent and deadly factor.<sup>134</sup>

## TECHNOLOGICAL GAP

The second important reason not to take Kim Jong Un’s nuclear threats too seriously lies with the thus far comparatively primitive design and capabilities of the DPRK’s nuclear devices and intermediate- to long-range ballistic missiles. To be fair, in recent years the latter

have undergone a significant process of technological advancement, thereby surprising many. For instance, inspired by the DPRK's latest technological success, a rocket engineer close to the Federation of American Scientists (FAS) has not only called the insular socialist regime a candidate for "the world's fourth missile power" following the West/NATO, Russia, and China, but it has moreover displayed such a level of technological determinism venturing to claim that modern-day politics is actually non-existent, i.e., reduced to developing and owning advanced nuclear and aerospace technology.<sup>135</sup>

Even so, the North's strategic arms are invariably still plagued by outdated components and inferior technical characteristics. This is due to the imperfection and deficiencies of two key processes that have determined the DPRK's current level of nuclear and missile development. The first trend is the post-1948 Sino-Russian economic and military-technical support for Pyongyang. The DPRK received from the former USSR its first missiles (SAMs: 1 battalion of *SA-2*) in late 1962, as well as the first consignment of (unguided) ballistic missiles (*Frog-3*, -5, -7) six years later (1968-70).<sup>136</sup> The first Chinese missiles (SAMs: *HQ-2*; and ASHMs: *HY-1*) arrived in Pyongyang in the late 1960s, and in 1971 Beijing signed a bilateral agreement on military-technical cooperation enabling Kim Il Sung "to acquire, develop, and produce modern weapons systems, including ballistic missiles."<sup>137</sup> Ever since, there have been countless instances of Sino-Russian weapons supplies and technology transfer (whether direct or indirect) to North Korea, ranging—only in the nuclear and missile domains—from specific nuclear components to missile design schematics (e.g., *R-5 Pobeda*, *R-21/SS-N-5 Sark*, *R-27 Zyb/SS-N-6 Serb*, *JL-1*, and -2, or more recently and questionably *Iskander-M/SS-26 Stone*) and know-how on rocket motors and propellants (e.g., *R-27*'s 4D10 engines and vernier thrusters, the famed RD-250 liquid propulsion system, unsymmetrical dimethyl hydrazine [UDMH] and nitric tetroxide), to "cold-launch" technology (e.g., for the *Pukguksongs*, including the aspect of using submersible barges as testing platforms, but also for SAMs as there are indicative similarities between *KN-06* and the Chinese *HQ-16A* SAM), to trucks and truck chassis (e.g., *ZiS-151*, *GAZ-63*, *ZIL-135LM*, *URAL-375D*, the *KN-09*'s reportedly modified 6X6 *HOWO ZZ2257M5857A*/*"Sinotruk"*, *MAZ-543/7310 Uragan*, and the *KAMAZ*-based *Taepaeksan-96* chassis) intended for MRL or transporter-erector-launcher (TEL) vehicles, to entire ballistic missiles (e.g., CRBMs, *R-17E/Scud B* via Egypt, and possibly an *SS-N-6 Serb*) and military-industrial plants. However, one moment in Cold War history stands out as a harbinger and critical enabler of the recent North Korean breakthrough in rocketry: the Kremlin's putative post-INF (Intermediate-Range Nuclear Forces) Treaty (1987) decision, purportedly endorsed by Mikhail Gorbachev himself, to ensure "smart" Soviet compliance with the Treaty, including by selling problematic and outdated missiles and/or missile technology (e.g., *Scud C*, *Scud D/ER/Aerofon* because of its originally huge CEP, *RSD-*

*10 Pioneer/SS-20 Saber*, and *SS-12 Scaleboard*) to highly interested customers like North Korea, Iran, Iraq, Syria, Libya, and others.<sup>138</sup> It was most likely due to this sort of high politics, and not some subsequent private, black market ventures, or particular administrative authorizations or bans issued by relevant ministries of the Russian Federation (e.g., the then-Ministry of General Machine Building and the Ministry of Security), that in the early 1990s the renowned Makeyev Rocket Design Bureau got involved in furnishing Pyongyang with missile know-how, and possibly even an entire *Serb*, which the North Koreans then utilized as a springboard and catalyst for their previously sluggish nuclear and ballistic missile development efforts.<sup>139</sup> Today, there are about 27 types of relatively indigenous North Korean missile systems,<sup>140</sup> including ASCMs, SAMs, and guided artillery rockets, and among them as well as the supporting equipment it is hard to identify a single unit that is not, at least remotely, brought into connection with Russian/Soviet and/or Chinese military-technological legacy.

Despite all this, over the years Moscow and Beijing have shown sufficient strategic precaution and restraint not to provide the Kim regime with technology beyond what is necessary for minimal nuclear deterrence and not to allow it to skip over generations in terms of research and development. As of today, more than half (16) of North Korea's (23) indigenously produced ballistic missiles are either still under development (12, mostly IRBMs and ICBMs) or of unknown/uncertain service status (4 [*KN-21*, -23, -25, and -26]), though most if not all of them are deemed to have been successfully tested and thus operational), whereas one is outright obsolete (*Taepodong-1*).<sup>141</sup> These facts and figures are not meant to discount the country's domestic technical prowess and dedicated national security effort. Indeed, behind the DPRK's recent technological achievements one finds a respectable and continuously improving defense industrial base, as well as solid science and IT education since elementary school level. Moving forward in these domains constitutes the second key trend, one that is perhaps best reflected by the stunning fact that Pyongyang has "a nearly 7,000-strong unit of cyber-warfare specialists, some of whom are deployed overseas."<sup>142</sup> Consequently, rather than imbued with sarcasm, the point here is more essential and delicate: what is nowadays often debatably perceived as an "entirely indigenous"<sup>143</sup> North Korean nuclear and missile production has thus far taken Pyongyang no farther than the realm of first-generation nuclear warheads (with some recent exceptions, as explained further in the text) and, conditionally speaking, advanced third-generation (3+/3++) ICBMs.<sup>144</sup> It is therefore rightfully believed by connoisseurs that the pace and scope of North Korea's progress in nuclear and missile terms, especially when it comes to conquering major technologies (e.g., MIRV, a three-stage solid-fuel ICBM, hypersonics), will continue to depend on foreign assistance.<sup>145</sup>

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***The DPRK is yet to demonstrate its capability of assembling a compact, credible, and missile-mountable nuclear weapon.***

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For one, the DPRK is yet to demonstrate its capability of assembling a compact, credible, and missile-mountable nuclear weapon. At least two (2006, 2016/1) of its hitherto six nuclear tests (2006, 2009, 2013, 2016/2, and 2017) were considered fizzles, and up until its most recent September 2017 trial, which apparently involved a thermonuclear device, experts had seriously questioned its ability to create an operational nuclear warhead within a one-ton (metric) missile payload limit (e.g., for *Hwasong-13* or *-14*) and with a yield greater than 7-10 kt (which is only about half the destructive force of the “Little Boy” gravity bomb dropped on Hiroshima). Doubts of this sort still persist, mainly due to the North’s presumed warhead miniaturization issues and difficulties with integrating the right amount of plutonium needed for higher yield. Moreover, the 2017 hydrogen bomb test—which, according to Pyongyang, was not its first—spurred a huge debate over technical matters such as the bomb’s design and maximum yield. Many have claimed that the bomb was “improvised,” being just a boosted fission device, or at best a single-stage “layer-cake” design, rather than a true Ulam-Teller thermonuclear weapon. Also, relevant institutions worldwide (e.g., German and Chinese institutes, U.S. intelligence/Air Force) initially came up with quite diverging yield assessments, ranging from 70 to a few hundred kt, although eventually a more conservative estimate (100-150 kt maximum) has prevailed. In this sense, while most experts agree that the North has demonstrated the ability domestically to produce tritium, lithium 6, and a solid lithium deuteride,<sup>146</sup> some still harbor doubts as to whether Kim Jong Un has all the necessary chemical ingredients for the tritium-deuterium thermonuclear fuel, suggesting that certain basic elements might have had to be imported from Russia.<sup>147</sup> All this uncertainty and conflicting reports leads to one conclusion: Despite Pyongyang’s boast about possessing an ICBM-mountable hydrogen bomb, “it remains unclear whether NK has mastered warhead miniaturization and married them to missiles.”<sup>148</sup> This is of key importance, especially since the alternative, the airborne leg (obsolete *H-5* bombers) of the North’s defensive triad, is all but a prudent nuclear delivery option given the context.

As for the missile design itself, the DPRK’s ballistic missiles are still tipped with single (unitary), first-generation warheads, meaning a long-surpassed and much less capable and destructive Cold War (1960s) technology. Thus far, there have been only two debatable exceptions in this regard involving at least six individual missiles. First, *Hwasong-15*

and *-16*, the country’s latest ICBMs and most advanced missiles, have created much buzz as of late. Given the officially released photos and footage, which clearly show their sizable, dome-shaped nosecone (i.e., the reentry vehicle protective shroud), both missiles are believed to be intended for prospective use of MIRV (multiple independently targetable reentry vehicle) technology, likely following preliminary application of the simpler and technically less demanding MRV (multiple re-entry vehicle) concept. However, there is one particular and curiously unspoken distinction revolving around *Hwasong-16*’s super-heavy design. The missile’s significantly increased payload capacity compared to its predecessor is a central, eye-catching feature, disclosing perhaps the Kim regime’s vision to concurrently possess a reliable, high-altitude electromagnetic pulse (HEMP) weapon. At this early stage, *Hwasong-16* is tentatively estimated to have a throw-weight somewhere in the range of 1,800-2,000 to 3,300-3,500 kg, which is sufficient to deliver, to anywhere in the U.S., up to “four smaller re-entry vehicles” or, alternatively, a large-to-very large thermonuclear warhead.<sup>149</sup> A *Starfish Prime*-like detonation (megatonic and ionospheric [F layer], at an altitude of 400 km) of just a single North Korean thermonuclear weapon over a well-picked central location in the continental U.S., such as Kansas, would generate a non-violent but technologically devastating EMP shockwave within a 1,340-mile radius (2,205 km),<sup>150</sup> knocking out near instantaneously not just a huge portion of the U.S. power grid, telecommunications, computer networks, and hi-tech military assets, but also much of North America’s critical infrastructure.<sup>151</sup> While it is unlikely that Pyongyang is mulling over HEMP as a first-strike option against the U.S.,<sup>152</sup> the regime is undoubtedly part of the global band of rising and/or rogue actors looking forward to acquiring or already possessing HEMP capability as “an attractive asymmetric option,”<sup>153</sup> both offensively and defensively (in terms of enhancing deterrence). There are two easily identifiable reasons for that: one technological and very practical, and the other one doctrinal. On the one hand, the HEMP concept instantly “solves” Pyongyang’s warhead miniaturization problems as it does not necessarily require sophisticated low-yield nukes. To employ this concept effectively, the DPRK does not necessarily need a super-powerful thermonuclear device (e.g., over one megaton) to fit on its heavy ICBMs, since even a “low-yield nuclear explosion high above the United States, or over a battlefield, can produce a large-scale, high-altitude EMP effect resulting in widespread loss of electronics, but possibly without direct fatalities.”<sup>154</sup> Still, in pursuing its asymmetric military strategy the communist North appears to again follow in the footsteps of its main benefactor China, whose growing EMP capabilities have been worrying the Pentagon greatly.<sup>155</sup>

The second deviation in terms of the DPRK’s hitherto implemented warhead technology relates to *KN-18*, the “new variant of Scud” inaugurated by Pyongyang a few years ago.<sup>156</sup> This MaRV (maneuverable reentry vehicle)-ed missile has arguably been serving as experimental grounds and a

technological springboard for the North's supposedly remote future when it comes to acquiring real MIRV and AMaRV (advanced maneuverable re-entry vehicle) capabilities. The first palpable results from the scientific work surrounding *KN-18* arrived as early as mid-2017 and throughout 2019 with a series of flight tests that introduced a whole new family of North Korean SRBMs: the maneuverable *KN-21*, *-23*, and *-24*. A modernized version of the DPRK's very first homemade ballistic missile (*Scud B/Hwasong-5*), these three "sons of Scud" are best known for traveling along depressed and quasi-ballistic (i.e., irregular, non-parabolic) trajectories, just like Russia's *Iskander-M*. Thanks to their still unknown guidance system, they are capable of performing the so-called "pull-up maneuver" in the terminal phase; however, unlike *KN-18*, which carries a separable re-entry vehicle, these SRBMs are all non-separating, unitary designs.<sup>157</sup>

One does not know for sure what the future might hold but, given Pyongyang's asymmetric strategy and incessant defense technological endeavors, it can be assumed, with a high level of confidence, that the North Koreans would not mind having some of their latest or upcoming *Pukguksong* SLBMs MIRV-ed as well. The bulky shape and breast-like top of both *Pukguksong-3* and its recent upgrade (*Pukguksong-4*) revealed during the October 10 parade lend credence to such thinking. While the payload and warheads to be carried by these SLBMs remain undisclosed for now, the missiles as a whole are no doubt a strategic asset which may one day evolve into a true intercontinental threat.<sup>158</sup> Never mind current claims of them being "only a marginal addition to" North Korea's defensive triad or any related range and vulnerability considerations with regard to their potential delivery platforms (i.e., the *Sinpo*-class submarine and its derivatives).<sup>159</sup> That said, it is important to stress that at present all of the DPRK's missiles associated with MIRV and/or advanced guidance technology remain either under development or of unknown service status.

No less important in this context is the fact that, while awaiting more foreign and particularly Russian know-how, the North's longer-range ballistic missiles continue to rely heavily on old-fashioned, Soviet-era, open-cycle, low(er)-specific-impulse,<sup>160</sup> liquid-propellant rocket engines for stage I and, where applicable, stages II and III,<sup>161</sup> which in turn makes them excessively vulnerable. Reportedly, it takes about 45 minutes to an hour to fill up the fuel and oxidizer tanks of an erected ICBM such as *Hwasong-14*, and almost twice as long to make its cumbersome successor *Hwasong-15* launch-ready after transport, not to mention the DPRK's latest, "monster" ICBM where "[t]he fueling process would require a few [or several] hours unless specialized pumps are available" on site.<sup>162</sup> Conversely, it would take fewer than only 17 to 20 minutes for U.S. military surveillance satellites and forward-deployed assets to identify and eliminate the

threat in preparation, despite anticipated employment of creative camouflage and concealment tactics by Pyongyang. Apart from this, North Korean science, which is thought to be years, if not decades, away from successfully integrating MIRVs, let alone advanced hypersonic gliders and cruise missiles (HGVs and HCMs), is yet to prove it has overcome the traditional warhead miniaturization and re-entry issues it has been facing.<sup>163</sup> All in all, "Engineering reliability?" remains a legitimate question when it comes to the current state of North Korean aerospace technology.<sup>164</sup>

This argument is by no means meant to conform to "claims that the North's WMD programs are a hoax" and thus ignore the fact that the country "has an even greater capability at a more advanced state of development than previously anticipated."<sup>165</sup> Rather, the aim is to emphasize a purely technical point, made from an engineer's perspective, with important policy implications: while Pyongyang's missiles and nukes are certainly capable of doing significant harm, North Korean science and military programs "are not [yet] at that [MIRV/AMaRV] level" required to threaten the West more gravely.<sup>166</sup> According to a 2017 RAND Corporation analysis, "literature reviews of... North Korea [and other countries]... offered little information on what hypersonic research the countries might be conducting, or whether there are any such programs."<sup>167</sup>

Hence, before it could ever come close to hitting North American soil, a North Korean ICBM, even if more sophisticated than the latest *Hwasongs*, has a daunting task to complete. It first needs to survive pre-launch priming as well as boost-phase intercept attempts by avoiding being eliminated early on by the U.S.'s vigilant pre-positioned military assets in the Asia-Pacific.<sup>168</sup> Then, if successful, it has to overcome two strategic layers (see *Figure* on page 94) of the U.S. global anti-ballistic missile shield: the sea-mobile *Aegis* BMD system equipped with latest *SM-3* interceptors and now officially capable of engaging ICBM targets,<sup>169</sup> and the *Ground-Based Midcourse Defense* (GMD) which was likely completed as expected and fully operational by the end of 2019.<sup>170</sup>

## REGIONAL GEOPOLITICS

Finally, there is much in the regional context that serves as an anti-escalation regulator (e.g., the renewed inter-Korean dialogue) on the Korean Peninsula, thus diminishing the prospects of a surprise attack by Pyongyang. As a general and overriding factor, the progressively multipolar geopolitics in the Asia-Pacific favors the survival of the communist North, however ironic this might sound. No major power involved in the region has sufficient interest in an abrupt regime change in Pyongyang, an ominous scenario that could conceivably trigger not just a serious humanitarian and refugee crisis and various post-conflict management problems (China's nightmare in particular)



but, moreover, some form of nuclear retaliation, if not by those targeted to be ousted then by their fanatic followers (i.e., loyalist generals) or exasperated sponsors.<sup>171</sup>

Quite the contrary, resurgent Russia and rising China see the Kim regime as a functional buffer zone against U.S. hegemony and, as it appears, for nothing in this world would they stay on the sidelines in case of a U.S.-led invasion. Accordingly, Moscow and Beijing keep doing what they have traditionally done in a more or less discreet fashion: providing Pyongyang with military-technical and economic backing in contravention, at least, of the spirit of the relevant UN Security Council Resolutions. In addition to this hypocrisy, undermining the Security Council's increasingly debatable credibility are also some rather symbolic acts. The Kremlin, for instance, seems to have deliberately ignored the northeast trajectory of some of the DPRK's recent ballistic missile test flights. This flight path, albeit highly lofted, basically runs along Russia's Far East, some 400 km off the coast, apparently "denying access" to the Sea of Okhotsk where many of the Russian Navy's strategic submarines are based. More importantly, in mid-February 2018 President Vladimir Putin, seemingly emulating U.S./NATO military officials and policymakers, vowed, perhaps for the first time in Russia's recent history, to protect allies from potential nuclear attacks. At least on an implicit declaratory level, this message extended the Russian nuclear and security umbrella over North Korea and like-minded nations (e.g., Syria, Iran, and others). Meanwhile, China openly threatened Washington by standing up militarily for its patronized eastern neighbor in case of a U.S. anticipatory attack.

On the other hand, President Trump's occasionally destabilizing rhetoric and the Pentagon's controversial military planning (e.g., a limited "bloody nose" strike, swift and systematic elimination of the North's missiles, launch sites, nuclear facilities, and command and control posts through a "kill-chain" operation, tactical nuclear options)<sup>172</sup> do not reveal the full picture. For quite understandable and legitimate reasons Washington keeps insisting on a complete and irreversible denuclearization of the DPRK, yet numerous observers see the U.S. as potentially benefiting from a stable and relatively controllable Kim Jong Un rule, even if nuclear-armed, as long as the latter helps perpetuate the idea of "America's Pacific Century" while also enabling key U.S. allies to join the great game.<sup>173</sup> Canada for instance, while advocating for a peaceful and diplomatic solution to the crisis on the Korean Peninsula,<sup>174</sup> has already shifted its naval strategy according to pre-existing "strategic policy prescriptions" and is now gradually concentrating its naval efforts and assets on the Pacific.<sup>175</sup>

The West's Pacific pivot aside, South Korea's ambiguous conduct toward its northern brother is not simply determined by its reasonable fear of being literally annihilated in case of a full-scale regional war. From what could be seen and discerned in the wake of the 2018 Winter Olympics in PyeongChang, the underlying natural trend toward Korean reunification, predicated on relatively strong fundamentals, such as a common ethno-cultural background and mutual affection, and potentially unfavorable to the U.S. strategic interests and military presence in the region, seems to be intensifying steadily over time. This will likely be facilitated further by the "new direction" in U.S.-ROK defense relations

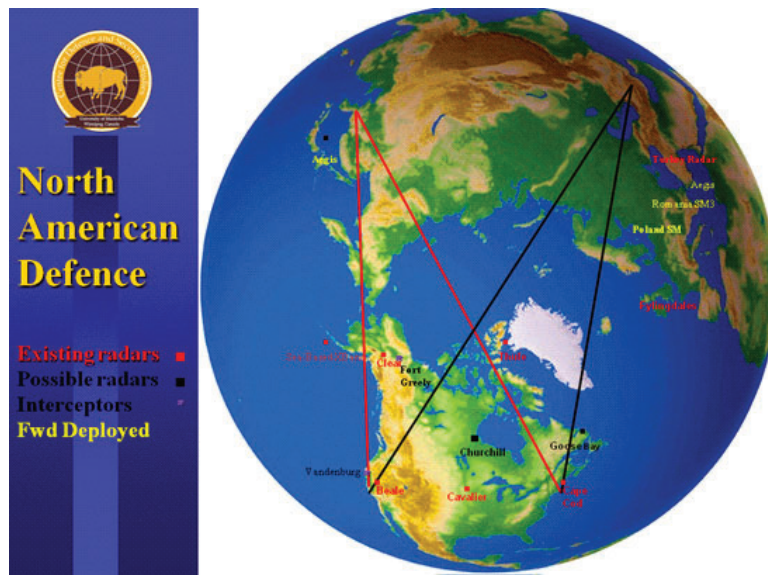


Figure. North American Aerospace Defense (Radars, Interceptors, and Forward Deployed Assets)  
Source: CIC presentation on North Korea by Dr. James Fergusson, University of Manitoba, March 6, 2019

charted since the 50<sup>th</sup> Security Consultative Meeting (SCM) toward “transition of wartime operational control (OPCON) in a timely manner and building an ROK-led combined defense system.”<sup>176</sup> Likewise, Japan, however genuinely wary of the strategic rise of the two Koreas, and especially of China as its historical and archetypal enemy, would hardly miss the opportunity to exploit further the ongoing regional uncertainty in favor of its strategic emancipation from the U.S. and its long-awaited politico-military revival on the global scene. However, make no mistake: none of the major powers actively involved in the Asia-Pacific is interested in a rapid political merger of the Koreas. Just like the West rejects any idea of a united Korea under Pyongyang’s control, Russia and China fear reintegration under U.S. guidance and mentorship whereby the liberal and capitalist South would eventually prevail and absorb the communist North analogous to the 1990 German reunification action. Japan, for its own part, prefers to avoid entirely having a single, powerful Korean state as its closest neighbor, regardless of the unification model and the West’s role in its design and implementation.

With all this in mind, could the strategy of nuclear deterrence finally fail after decades of proven reliability and effectiveness against state actors, and arguably to the detriment of the entire world? The short answer is: highly unlikely, albeit not impossible. Proactive and thoroughly psychological as it is, and raising the stakes enormously high, this game, this nuclear version of deterrence, is likely to hold—for now.

### CONCLUSION: A DYNAMIC AND CASE-ADAPTIVE DETERRENCE

North Korea’s strategic assertiveness, driven by its enduring aspirations to own a more sophisticated and survivable nuclear force, especially when it comes to ICBMs and SLBMs, has lately been generating a great deal of concern. Nevertheless, despite Pyongyang’s presumed desire to possess a more promising capability to strike strategic targets as appealing as the District of Columbia, Yellowstone National Park, and the San Andreas Fault, for the time being the possibility of a surprise North Korean nuclear attack remains extremely remote—not to say unimaginable. Indeed, the Kim regime, however “undeterrable” at a sub-strategic level (e.g., local “adventures,” nuclear blackmail),<sup>177</sup> would hardly dare to challenge its desirable destiny unless provoked in existential terms.<sup>178</sup> The reason is fairly evident: a mix of defensive rationality, technological constraints, and regional geopolitics.

Based on these three cardinal and largely verifiable factors, the Pentagon and its U.S. interagency counterparts should come up with a well-tailored and dynamically adaptive

deterrence and containment strategy against the North. Besides tactical or *bona fide* concessions (e.g., normalization of relations through sanctions alleviation and peace talks, “changes to U.S. and South Korean military exercises,” and even keeping high-readiness strategic bombers at Guam rather than having tactical nuclear weapons on South Korean soil),<sup>179</sup> swift, unpredictable shifts in forward posture,<sup>180</sup> and if/when necessary, direct pressure and reprisals, this overarching civil-military concept would also require a relatively fixed, orthodox approach prioritizing indispensable hard-power countermeasures such as BMD (including “left-of-launch” capabilities, non-kinetic options and boost/ascent-phase interception), active intelligence, joint intelligence, surveillance, and reconnaissance (JISR) platforms, and cyber operations.<sup>181</sup> Why? First, it is hard to believe that the newfound diplomatic enthusiasm (not least by the Trump administration) about solving the Korean conundrum will eventually lead to any substantial level of denuclearization on the part of Pyongyang. This is neither Gaddafi’s Libya nor late-apartheid South Africa. The surreal communist regime, while embracing the diplomatic “tango,” is fully aware of the tactical dimension of Washington’s current insistence on dialogue and “full denuclearization.”<sup>182</sup> Moreover, its recent triumphalist rhetoric, which cannot be said to be for domestic purposes only, bluntly underlines the irreversibility of the process (e.g., “our Republic has at last come to possess a powerful and reliable war deterrent, which no force and nothing can reverse.”).<sup>183</sup> Second, the ongoing second-track diplomacy (NGO activities, North-South reconciliation efforts, democratization workshops, business and investment initiatives),<sup>184</sup> which operates on an idealist premise that international humanitarianism, dialogue, and interaction bring about socio-political change and would thereby help, at some point, open up even the hermetic DPRK society,<sup>185</sup> is unlikely to render concrete results anytime soon.

With this in mind, Washington should be carefully gearing up for the period ahead in which dynamic and forbearing deterrence could prove to be the only workable Korea strategy. Despite the enticement of some recently self-assuring tendencies in U.S. academic and national security circles, the mainly hard-power approach against the North ought to be leaning conceptually toward deterrence (anti-hubris defensive realism), not counterforce (high-risk offensive realism), although the latter capability must be further and maximally developed to contribute to the overall dissuasion effect and to provide for an *ultima ratio* option if necessary. At the same time, in anticipating the DPRK’s future strategic moves, U.S. intelligence and military experts should not rely on RDT/rational choice concepts alone. As a culturally remote nation cherishing patriotism and nurturing a highly collectivist Oriental ethos and pride (e.g., thanks to the post-1991 communist collapse around the globe, the majority of North Koreans nowadays tend to believe that “our way of Socialism” is superior and unmatched<sup>186</sup>), the North is set to

remain an enigmatic source of unpredictability. (This is despite the findings, by some recent neuroscience-laden analytic studies on the Kim regime, of inconsistent psychological evidence of East Asia-West cross-cultural differences in terms of “key aspects of decision-making such as responses to risk, losses or fairness.”<sup>187</sup>) After all, its sovereignist and primarily defensive attitude is context-dependent and does not nullify (offensive military plans and tactics stemming from) its enduring striving for Korean reunification.

In the worst-case scenario short of war, Pyongyang would continue to follow the *Juchean* “Path of the Sun Horse [military] and...the Wind Horse [economy]” (two incarnations of *Chollima*) through the military-technological component of its *Five-Year Plans* (2016-2020, 2021-2025...),<sup>188</sup> seeking brand new *Hwasongs* (-17, -18...?) behind diplomatic curtains at an even faster (*Mallima*) pace. In doing so, the North Koreans surely would be working hard, as they already do, conceivably with Russian and/or Chinese help (e.g., concerning *Yars/RS 24/SS-27 Mod 2*, *Topol-M/SS-27 Sickle B*, or *DF-31* and *-41*), on developing a solid-fuel, high-specific-impulse rocket engine as a true milestone (i.e., “a breakthrough head-on”<sup>189</sup>) for their nuclear and missile programs and their national defense in general.<sup>190</sup> Alternatively, the North Koreans might even decide to stick to their liquid-propellant rocket designs indefinitely, were they to find a way—which is quite unthinkable at the moment—to the secret of the new *Satan*’s (*RS-28 Sarmat/SS-X-30 Satan 2*) PDU-99 propulsion system that is reportedly powered by a newly invented heavy liquid fuel,<sup>191</sup> or to a similar closed-cycle combustion know-how, which would in turn give their respective missiles much more thrust and efficiency.

In this sense, and in the spirit of the latest U.S. *National Defense Strategy* (increased investments in BMD, “strengthening alliances”),<sup>192</sup> it would be beneficial if Washington considered somehow reengaging Ottawa on the subject of a joint continental BMD. While, at this point, the “negotiation” ball is indeed in Canada’s court,<sup>193</sup> U.S. decision-makers could nonetheless make it slightly clearer, at an official level, that the door to a mutually reinforcing continental BMD arrangement, preferably enabled through a modernized and mission-expanded NORAD and based on a prudent 21<sup>st</sup>-century vision of the bilateral defense relationship, is still open and awaiting bold initiative from their closest ally.<sup>194</sup>

## NOTES

<sup>1</sup> Sun Tzu, *The Art of War: The Oldest Military Treatise in the World*, transl. by Lionel Giles (1910; reprint Auckland, N.Z.: The Floating Press, 2009), 16.

<sup>2</sup> See William Broad and David E. Sanger, “North Korea Missile Test Appears to Tiptoe over a U.S. Tripwire,” *The New York Times*, May 15, 2017, [https://www.nytimes.com/2017/05/15/world/asia/north-korea-missiles.html?\\_r=0](https://www.nytimes.com/2017/05/15/world/asia/north-korea-missiles.html?_r=0).

<sup>3</sup> Of course, from a perspective of those charged with defending the U.S. homeland and the NORAD (North American Aerospace Defense

Command) region, it could be argued that Pyongyang had passed the threshold of tolerance much, much earlier, say, in 2012, with the parading of the putatively untested *KN-8* (*Hwasong-13*) and *KN-14* (*Hwasong-13 mod*) intercontinental ballistic missiles (ICBMs). See, for example, U.S. Senate Committee on Armed Services, Hearing to Receive Testimony on United States Strategic Command, United States Northern Command, and United States Southern Command Programs and Budget, transcript, pp. 50, 70-71, Washington D.C., March 10, 2016, [https://www.armed-services.senate.gov/imo/media/doc/16-29\\_3-10-16.pdf](https://www.armed-services.senate.gov/imo/media/doc/16-29_3-10-16.pdf).

<sup>4</sup> Victor Cha and Katrin Frazer Katz, “The Right Way to Coerce North Korea: Ending the Threat Without Going to War,” *Foreign Affairs* 97, no. 3 (May-June 2018): 87-100; Bradley Bowman and David Maxwell, eds., *Maximum Pressure 2.0: A Plan for North Korea*, Report (Washington D.C.: Foundation for Defense of Democracies, 2019), <https://www.fdd.org/wp-content/uploads/2019/11/fdd-report-maximum-pressure-2-a-plan-for-north-korea.pdf>; John Bolton, “China Needs to Answer for Its North Korea Policy,” *The Wall Street Journal*, September 29, 2020, <https://www.wsj.com/articles/china-needs-to-answer-for-its-north-korea-policy-11601418588>; Duyeon Kim, Nicholas D. Wright, and Kristine Lee, “Gray-Zone Strategy against North Korea,” *Foreign Policy*, May 14, 2019, <https://foreignpolicy.com/2019/05/14/the-united-states-needs-a-gray-zone-strategy-against-north-korea-missile-test-nuclear/>; Nicholas D. Wright/Intelligent Biology, *Getting Messages Through: The Cognition of Influence with North Korea and East Asia*, Report for the DoD Joint Staff/J39 Strategic Multilayer Assessment (SMA) Branch (London: Intelligent Biology, 2018), <https://static1.squarespace.com/static/5c646d66815512fdad0ed1d3/t/5c6832a84e17b6274817deea/1550335424181/>

Getting+Messages+Through%3A+The+cognition+of+i nfluence+with+North+Korea+and+East+Asia; and Jayita Sarkar and Or Rabinowitz, “Instead of Sanctions or a Military Strike, the United States Should Embrace a Third Option for Dealing with North Korea,” *The Washington Post*, September 21, 2017, [https://www.washingtonpost.com/news/made-by-history/wp/2017/09/21/instead-of-sanctions-or-a-military-strike-the-united-states-should-embrace-a-third-option-for-dealing-with-north-korea/?noredirect=on&utm\\_term=.13de7f88da11](https://www.washingtonpost.com/news/made-by-history/wp/2017/09/21/instead-of-sanctions-or-a-military-strike-the-united-states-should-embrace-a-third-option-for-dealing-with-north-korea/?noredirect=on&utm_term=.13de7f88da11). Due to their very low likelihood of being seriously pursued in tackling a nuclear-armed Pyongyang, the extreme proposals and arguments (peaceful diplomacy vs. military intervention) that appeared to dominate the North Korea debate at some point in 2017 are intentionally omitted here. See, for example, William Choong, “North Korea: Why It’s Time to Double Down on the Double Freeze,” *The Diplomat*, August 30, 2017, <https://thediplomat.com/2017/08/north-korea-why-its-time-to-double-down-on-the-double-freeze/>; Paul Shinkman, “China’s ‘Freeze for Freeze’ Plan for North Korea Gets Chilly Reception in U.S.,” *U.S. News*, September 5, 2017, <https://www.usnews.com/news/world/articles/2017-09-05/us-rejects-chinas-freeze-for-freeze-plan-for-north-korea>; Evan Osnos, “The Risk of Nuclear War with North Korea,” *The New Yorker*, September 8, 2017, <https://www.newyorker.com/magazine/2017/09/18/the-risk-of-nuclear-war-with-north-korea>; and David E. Sanger, “Talk of ‘Preventive War’ Rises in White House over North Korea,” *The New York Times*, August 20, 2017, <https://www.nytimes.com/2017/08/20/world/asia/north-korea-war-trump.html>.

<sup>5</sup> Bruce Bennett, comments and video presentation in Doug Irving, “Understanding North Korea,” *RAND Review*, August 18, 2017, <https://www.rand.org/blog/rand-review/2017/08/understanding-north-korea.html>.

<sup>6</sup> Irving, “Understanding North Korea”; for a similar mistaken forecast in the past see, for example, Victor Cha, “China’s Newest Province,” *The New York Times*, December 19, 2011, <https://www.nytimes.com/2011/12/20/opinion/will-north-korea-become-chinas-newest-province.html>.

<sup>7</sup> See, for example, Bennett, comments and video presentation. Any thoughts, plans, or tactics of undermining the Kim regime from within by using jettisoned propaganda flyers that offer financial incentives would be futile at best. Not only does such thinking underplay the degree of political maturity and ideological earnestness among the majority of Pyongyang’s elite, but it also totally overlooks the highly complementary collectivist culture underpinning the regime for decades.

<sup>8</sup> See Sanger, “Talk of ‘Preventive War.’”

<sup>9</sup> Scott D. Sagan, “The Korean Missile Crisis: Why Deterrence Is Still the Best Option,” *Foreign Affairs* 96, no. 6 (November-December 2017): 72. This “deterrence-first” position has been shared by many other seasoned strategists, with some of them also emphasizing the parallel need for “coercive diplomacy” as part of a delicate Korea approach aimed at “a gradual rollback of the North Korean threat.” Michael J. Green and Matthew Kroenig, “A New Strategy for Deterrence and Rollback with North Korea,” *WarontheRocks.com*, October 19, 2017, <https://warontherocks.com/2017/10/a-new-strategy-for-deterrence-and-rollback-with-north-korea/>.

<sup>10</sup> Sagan, “Korean Missile Crisis,” 81-82.

<sup>11</sup> *Ibid.*, 72.

<sup>12</sup> Hristijan Ivanovski, “‘The Little Rocket Man’s’ Dream of Reaching Mainland North America: Three Reasons Not to Fear a North Korea Nuclear Strike (Deterrence, Technology, Geopolitics),” *iAffairs Canada* (blog), August 13, 2018, <http://iaffairscanada.com/2018/the-little-rocket-mans-dream-of-reaching-mainland-north-america-three-reasons-not-to-fear-a-north-korea-nuclear-strike-deterrence-technology-geopolitics/>.

<sup>13</sup> The author prefers an inclusive theoretical and methodological framework based, more or less, on a realist ontological substrate; hence, there is no need for labeling this particular work as (neo-)classical realist or “degeneratively” eclectic (realist-constructivist-interpretivist). A partial and indirect clarification of the herein chosen theoretical approach can be found in Brian Rathbun, “A Rose by Any Other Name: Neoclassical Realism as the Logical and Necessary Extension of Structural Realism,” *Security Studies* 17, no. 2 (June 2008): 294-321.

<sup>14</sup> See Jennifer Agiesta, “CNN Poll: Two-Thirds See North Korea as a Very Serious Threat,” CNN, August 9, 2017, <https://www.cnn.com/2017/08/08/politics/cnn-poll-north-korea-threat-grows/index.html>; Shane Savitsky, “82% of Americans Fear Nuclear War with North Korea,” *Axios.com*, August 11, 2017, <https://www.axios.com/82-of-americans-fear-nuclear-war-with-north-korea-1513304771-7850e024-44f4-42fd-a341-f5a305a40a83.html>; Stephanie Perry and Hannah Hartig, “Poll: America’s Fear of North Korea Is on the Rise,” NBC News, October 19, 2017, <https://www.nbcnews.com/politics/white-house/poll-americans-fear-north-korea-rise-n811986>; “Americans Fear North Korean Nuclear Attack: IBD/TIPP Poll,” *Investor’s Business Daily*, November 6, 2017, <https://www.investors.com/politics/editorials/americans-fear-north-korean-nuclear-attack-ibd Tipp-poll/>; Reuters, “U.S. Majority Backs Military Action vs. North Korea: Gallup Poll,” September 15, 2017, <https://www.reuters.com/article/us-northkorea-missiles-usa-poll/u-s-majority-backs-military-action-vs-north-korea-gallup-poll-idUSKCN1BQ1LP>; Maham Abedi, “Canadians Are Getting More Fearful of Nuclear War Threats, Survey Finds,” *Global News*,

October 17, 2017, <https://globalnews.ca/news/3808179/nuclear-war-north-korea-fears-canada-poll/>; Katharine Murphy, “Australians Fear North Korea Standoff Will Lead to War – Guardian Essential Poll,” *The Guardian*, October 9, 2017, <https://www.theguardian.com/australia-news/2017/oct/10/australians-fear-north-korea-standoff-will-lead-to-war-guardian-essential-poll>; Janka Oertel, “Europe’s Options on the Sidelines of the North Korea Crisis,” The German Marshall Fund of the United States, August 28, 2017, <http://www.gmfus.org/publications/europes-options-sidelines-north-korea-crisis>; “Should We Fear North Korea?,” *DebatingEurope.eu*, September 17, 2017, <https://www.debatingeurope.eu/2017/09/07/fear-north-korea/#.Xzy2U8hKjIV>; and Saubhadra Chatterji, “North Korea’s Nuclear Tests a Threat to India’s Security: Sources,” *Hindustan Times*, December 26, 2017, <https://www.hindustantimes.com/india-news/north-korea-s-nuclear-tests-a-threat-to-india-s-security-sources/story-9EJkrf2Osb7nNIFCIn8FiL.html>.

<sup>15</sup> See, for example, Choe Su Hon, Vice-Foreign Minister of the Democratic People’s Republic of Korea, statement, 58<sup>th</sup> Session of the UN General Assembly, New York, September 30, 2003, <https://www.un.org/webcast/ga/58/statements/dprkeng030930.htm>; Sagan, “Korean Missile Crisis,” 81; Osnos, “Risk of Nuclear War,” and U.S. Army, *North Korean Tactics*, ATP 7-100.2 (Washington D.C.: DoD/Department of the Army, 2020), 1-11, <https://assets.documentcloud.org/documents/7038686/US-Army-report-on-North-Korean-military.pdf>.

<sup>16</sup> For a multifocal corroboration of the DPRK’s anticipated long-term intransigence, see Kim Jong Un, New Year’s address, Pyongyang, January 1, 2018, <https://www.ncnk.org/node/1427>; Daniel R. Coats, statement for the record, “Worldwide Threat Assessment of the US Intelligence Community,” Senate Select Committee on Intelligence, Washington, D.C., January 29, 2019, pp. 27-28, <https://www.dni.gov/files/ODNI/documents/2019-ATA-SFR—SSCI.pdf>; International Institute for Strategic Studies (IISS), *The Military Balance 2019*, 119:1 (London: IISS, 2019): 280; SIPRI, “Modernization of Nuclear Weapons Continues; Number of Peacekeepers Declines: New SIPRI Yearbook Out Now,” accessed April 29, 2019, <https://www.sipri.org/media/press-release/2018/modernization-nuclear-weapons-continues-number-peacekeepers-declines-new-sipri-yearbook-out-now>; “World Nuclear Forces,” in *SIPRI Yearbook 2018: Armaments, Disarmament and International Security* (Stockholm: SIPRI, 2018), 235, <https://www.sipri.org/sites/default/files/SIPRIYB18c06.pdf>; Department of Defense, *Military and Security Developments Involving the Democratic People’s Republic of Korea, 2017*, A Report to Congress Pursuant to the National Defense Authorization Act for Fiscal Year 2012 (Washington D.C.: DoD, 2017), 21, <https://fas.org/irp/world/dprk/dod-2017.pdf>; Wendy Sherman and Evans Revere, “Why We’ve Fallen Short and Why That’s No Longer an Option,” How to Stop Kim Jong Un, *Time*, n.d. (2017), <http://time.com/north-korea-opinion/>; Sanger, “Talk of ‘Preventive War,’” and Green and Kroenig, “New Strategy for Deterrence.”

<sup>17</sup> Arms Control Association (ACA), factsheet, “Nuclear Weapons: Who Has What at a Glance,” updated March 8, 2018, <https://www.armscontrol.org/factsheets/Nuclearweaponswhohaswhat>; SIPRI, “Modernization of Nuclear Weapons”; “World Nuclear Forces,” 236, 280-282. See also Sagan, “Korean Missile Crisis,” 73; and James Fergusson, CIC lecture, “North Korea: Threat to the World and Canadian Security,” University of Manitoba, St. John’s College, Winnipeg, March 6, 2019.

<sup>18</sup> See Karl P. Mueller et al., *Striking First: Preemptive and Preventive Attack in U.S. National Security Policy*, RAND Project Air Force

(Santa Monica, CA: RAND, 2006), 2, [https://www.rand.org/content/dam/rand/pubs/monographs/2006/RAND\\_MG403.pdf](https://www.rand.org/content/dam/rand/pubs/monographs/2006/RAND_MG403.pdf).

<sup>19</sup> Speaking in broad terms, nuclear deterrence can be said to have failed many times in its relatively short history, from the immediate post-WWII incidents (in one of which, for instance, the Yugoslavs shot down a couple of U.S. military transport aircraft that had reportedly breached FPR Yugoslavia's airspace en route to Austria) and the most renowned Cold War proxy conflicts (Korea, Vietnam) to the Falklands, 9/11, and present-day challenges. Nevertheless, humanity has not yet seen a national government or a military coalition with the guts to launch an attack, whether conventional, nuclear, or combined, on the mainland territory of a(nother) nuclear power.

<sup>20</sup> See Richard Ned Lebow and Janice Gross Stein, "Beyond Deterrence," special issue, *Journal of Social Issues* 43, no. 4 (Winter 1987): 155-169; "Rational Deterrence Theory: I Think Therefore I Deter," *World Politics* 41, no. 2 (January 1989): 219; Christopher H. Achen and Duncan Snidal, "Rational Deterrence Theory and Comparative Case Studies," *World Politics* 41, no. 2 (January 1989): 143-144; and Brock F. Tesson and Steve Chan, "Power Cycles, Risk Propensity, and Great-Power Deterrence," *Journal of Conflict Resolution* 48, no. 2 (April 2004): 150.

<sup>21</sup> See, for example, John Sharp, "Rep. Bradley Byrne, After Visit to Asia, Calls North Korea 'Most Serious Threat in the World,'" AL.com, April 17, 2017, [https://www.al.com/news/mobile/2017/04/rep\\_bradley\\_byrne\\_after\\_visit.html](https://www.al.com/news/mobile/2017/04/rep_bradley_byrne_after_visit.html); and U.S. Mission to the United Nations, "Remarks by Ambassador Nikki Haley at a Stakeout Following UN Security Council Consultations on DPRK," New York, March 8, 2017, <https://usun.usmission.gov/remarks-by-ambassador-nikki-haley-at-a-stakeout-following-un-security-council-consultations-on-dprk/>, cited in both Andrei Lankov, "Kim Jong Un Is a Survivor, Not a Madman," *Foreign Policy*, April 26, 2017, <https://foreignpolicy.com/2017/04/26/kim-jong-un-is-a-survivor-not-a-madman/>, and Harry Zahn, "Kim Jong Un Is Dangerous and a Risk-Taker, but Not a 'Madman,' Analysts Say," PBS News Hour, October 24, 2017, <https://www.pbs.org/newshour/world/analysis-kim-jong-un-is-dangerous-and-unpredictable-but-not-a-madman>.

<sup>22</sup> Critics often depict RDT as "incomplete," "abstract," "deductivist," "ahistorical and overly abstract," and even "short-sighted," "completely non-predictive" and "inadequate for policy application." For some of these labels, see Achen and Snidal, "Rational Deterrence Theory," 144-146, and Alexander L. George and Richard Smoke, *Deterrence in American Foreign Policy* (New York: Columbia University Press, 1974), 503n1, quoted in Achen and Snidal, "Rational Deterrence Theory," 144.

<sup>23</sup> As Achen and Snidal accurately note in this direction, RDT "critics are [misleadingly] making [historical] failures of [mainly conventional] deterrence equal to failures of deterrence theory." Achen and Snidal, "Rational Deterrence Theory," 143-144. For a good contextual illustration of this "theory-ain't-no-praxis" point see Nicholas L. Miller and Vipin Narang, "How North Korea Shocked the Nuclear Experts," *Politico*, August 26, 2017, <https://www.politico.com/magazine/story/2017/08/26/north-korea-nuclear-tests-shock-experts-215533>.

<sup>24</sup> See Choe Su Hon, statement; Department of Defense, Report to Congress, 9, 21; and Sagan, "Korean Missile Crisis," 81.

<sup>25</sup> U.S. Joint Chiefs of Staff, *Joint Publication 3-72: Nuclear Operations* (Washington, D.C.: JCS, 2019), v, x, I-1, [https://fas.org/irp/doddir/dod/jp3\\_72.pdf](https://fas.org/irp/doddir/dod/jp3_72.pdf).

<sup>26</sup> Department of Defense, Report to Congress, 1, 4-5.

<sup>27</sup> See, for example, Cameron Munter's quote in Motoko Rich and David E. Sanger, "Motives of North Korea's Leader Baffle Americans and Allies," *The New York Times*, September 3, 2017, <https://www.nytimes.com/2017/09/03/world/asia/north-korea-kim-jong-un.html?hp&action=click&pgtype=Homepage&clickSource=story-heading&module=first-column-region&region=top-news&WT.nav=top-news>.

<sup>28</sup> This concept is not referred to solely by those who are doubtful of Pyongyang's rational behavior (e.g. Reihan Salam, "Is Kim Jong Un a Rational Actor?" *National Review*, September 21, 2017, <https://www.nationalreview.com/corner/north-korea-kim-jong-un-rational-actor-or-madman/>); it is more or less relied upon by all North Korea experts, including those who regard the country as a "very rational" actor. See, for example, Lankov, "Kim Jong Un Is a Survivor"; House of Commons, Standing Committee on National Defence, No. 058, 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, Evidence, Ottawa, September 14, 2017, <https://www.ourcommons.ca/DocumentViewer/en/42-1/NDDN/meeting-58/evidence>; Guy Taylor, "CIA Says North Korean Dictator Kim Jong-un Is Not Crazy, but 'Very Rational,'" *The Washington Times*, October 4, 2017, <https://www.washingtontimes.com/news/2017/oct/4/cia-kim-jong-un-north-korea-dictator-not-crazy-ver/>. Regime; and Department of Defense, Report to Congress, 1, 5 (p. 4 singles out deterrence as one of "the primary drivers of North Korea's security strategy").

<sup>29</sup> Department of Defense, Report to Congress, 1, 5.

<sup>30</sup> Ibid.

<sup>31</sup> See Matthew D. Johnson, "North Korea," in *The SAGE Encyclopedia of War: Social Science Perspectives*, Vol. 3, ed. Paul Joseph (Thousand Oaks, CA: SAGE Pub, 2017), 1245, 1247.

<sup>32</sup> Reiji Yoshida, "North Korea Fires Ballistic Missile Built to be Launched from Submarine into Japan's EEZ," *The Japan Times*, October 2, 2019, <https://www.japantimes.co.jp/news/2019/10/02/national/north-korea-launches-apparent-missile-japan-coast-guard/>.

<sup>33</sup> For the recent launch of the "blackmail" thesis (i.e., "Kim's real motive is blackmail") out of Washington's corridors and Situation Room deliberations, see Sanger, "Talk of 'Preventive War.'"

<sup>34</sup> For this strategic dilemma within the U.S. national security community, see Osnos, "Risk of Nuclear War."

<sup>35</sup> An anonymous senior Trump Administration official, quoted in Osnos, "Risk of Nuclear War."

<sup>36</sup> Fergusson, CIC lecture.

<sup>37</sup> Ibid.

<sup>38</sup> See, for example, Stratfor, "How the U.S. Would Destroy North Korea's Nuclear Weapons," MarketWatch.com, May 26, 2016, <https://www.marketwatch.com/story/how-the-us-would-destroy-north-koreas-nuclear-weapons-2016-05-25>; Keir A. Lieber and Daryl G. Press, "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence," *International Security* 41, no. 4 (Spring 2017): 9-49; "The New Era of Nuclear Arsenal Vulnerability," *Physics and Society* 47, no. 1 (January 2018): 2-6; and Alvin M. Saperstein, letter to the editor, *Physics and Society* 47, no. 2 (April 2018): 2.

<sup>39</sup> Sanger, "Talk of 'Preventive War.'"

<sup>40</sup> Irving, "Understanding North Korea."

<sup>41</sup> Ibid.

<sup>42</sup> There also appear to be some minor logical inconsistencies, such as the claim that "the [DPRK's] warheads and ICBMs were unintended consequences" (Fergusson, CIC lecture). These could be "unintended" and even unnecessary only if Pyongyang's alleged blackmail strategy was reduced to its socio-economic component (aid, economic benefits). Otherwise, the claim runs contrary to the first aspect of the

nuclear blackmail thesis concerning the DPRK's broader, regional ambitions. In other words, unlike with typical monetary extortions, Pyongyang cannot pursue its regional agenda without the blackmailing power of real nuclear weapons.

<sup>43</sup> James Fergusson, e-mail communication with author, September 1, 2020.

<sup>44</sup> Monterey Institute of International Studies/James Martin Centre for Nonproliferation Studies (CNS), *North Korea Missile Chronology*, Nuclear Threat Initiative (Monterey, CA: CNS, 2012): 302, [https://media.nti.org/pdfs/north\\_korea\\_missile\\_2.pdf](https://media.nti.org/pdfs/north_korea_missile_2.pdf).

<sup>45</sup> Kim Jong Un, New Year's address, January 1, 2018. For another great attestation see Wendy Sherman's remarks in Osnos, "Risk of Nuclear War." Visiting Pyongyang in 2000 as a U.S. diplomat, Sherman "sensed the single-mindedness that has driven North Korea to acquire nuclear weapons. 'We think in two-year, four-year, six-year time frames. They don't. They've had a long-term vision since Kim Jong Il's father, and they have stuck with it.'"

<sup>46</sup> Fergusson, e-mail, September 1, 2020.

<sup>47</sup> The North actually is frequently reminded of this threat, both directly and in unintended ways. Take for instance the following wording extracted from a recent *Japan Times* article: "North Korea... showing off military technologies [i.e., a submarine-launched *Pukguksong-3* missile] that if successfully developed would make it significantly more difficult for the United States to destroy its nuclear arsenal." Yoshida, "North Korea Fires Ballistic Missile."

<sup>48</sup> Kim Jong Un, New Year's address (formally "Report of the Fifth Plenary Meeting of the Seventh Central Committee of the Worker's Party of Korea"), Pyongyang, January 1, 2020, <https://kcnawatch.org/wp-content/uploads/sites/5/2020/01/DPR-Korea-01-01-2020.pdf> or [https://www.ncnk.org/resources/publications/kju\\_2020\\_new\\_years\\_plenum\\_report.pdf/file\\_view](https://www.ncnk.org/resources/publications/kju_2020_new_years_plenum_report.pdf/file_view).

<sup>49</sup> For more details see Cha and Katz, "Right Way to Coerce North Korea," 96.

<sup>50</sup> There is a strong consensus on this point within the U.S. national security community. See, for example, Osnos, "Risk of Nuclear War"; and Sanger, "Talk of 'Preventive War.'"

<sup>51</sup> Fergusson, e-mail, September 1, 2020.

<sup>52</sup> *Ibid.*

<sup>53</sup> *Ibid.*

<sup>54</sup> See, for example, Sagan, "Korean Missile Crisis," 78-81; and Cha and Katz, "Right Way to Coerce North Korea," 87, 96-99.

<sup>55</sup> A. P. V. Rogers, "Zero-Casualty Warfare," *International Review of the Red Cross* 82, no. 837 (March 2000): 165-181, <https://international-review.icrc.org/sites/default/files/S1560775500075453a.pdf>. According to Sagan, even in a hypothetical case of a "limited" Second Korean War, short of nuclear weapons, "one million people could die on the [very] first day." These gloomy projections sound "optimistic" when compared against claims that there could be up to "ten million" dead "in Seoul [alone]... in the first 30 minutes from conventional weapons." Sagan, "Korean Missile Crisis," 80; and Robert Kuttner, "Steve Bannon, Unrepentant," *The American Prospect*, August 16, 2017, <https://prospect.org/power/steve-bannon-unrepentant/>, quoted in Cha and Katz, "Right Way to Coerce North Korea," 99, as well as in Osnos, "Risk of Nuclear War."

<sup>56</sup> Lee Sang Hyun, cited in Rebecca Perring, "Nuclear War Threat: Kim Jong-Un's Kingdom Will Build 80 Working Nukes by 2020," *Daily Express* online, October 19, 2016, <https://www.express.co.uk/news/world/722831/North-Korea-nuclear-weapons-Kim-Jong-Un-nuke-war-South-Korea>. Speaking of the limits of U.S. intelligence capabilities, it is also highlighted by some that the U.S. military needs

to have in place hundreds of low-Earth-orbit (LOE) satellites if it is to conduct uninterrupted 24/7 surveillance of all potential launch sites in the North.

<sup>57</sup> Fergusson, e-mail, September 1, 2020. For similar "it confers legitimacy" logic see Green and Kroenig, "New Strategy for Deterrence."

<sup>58</sup> Fergusson, e-mail, September 1, 2020.

<sup>59</sup> See Gregory F. Treverton and Jeremy J. Ghez, *Making Strategic Analysis Matter* (Santa Monica, CA: RAND, 2012), [https://www.rand.org/content/dam/rand/pubs/conf/proceedings/2012/RAND\\_CF287.pdf](https://www.rand.org/content/dam/rand/pubs/conf/proceedings/2012/RAND_CF287.pdf).

<sup>60</sup> See, for example, Yoshida, "North Korea Fires Ballistic Missile."

<sup>61</sup> See Department of Defense, Report to Congress, 21.

<sup>62</sup> For this enduring concern in Pyongyang see, for example, Choe Su Hon, statement.

<sup>63</sup> Sagan, "Korean Missile Crisis," 81.

<sup>64</sup> Yonhap News Agency, "N. Korea's Military Parade at Midnight: New ICBM, Kim Jong-un's Tears and Smile," October 11, 2020, <https://koreanow.com/view.html?vid=EHzrim-7duo&section=north-korea>.

<sup>65</sup> Yong Suk Lee, Deputy Assistant Director of the CIA's Korea Mission Centre, quoted in Taylor, "Kim Jong-un Is Not Crazy."

<sup>66</sup> Choe Su Hon, statement; and Kim Jong Un, New Year's address, January 1, 2018.

<sup>67</sup> See, for example, Lankov, "Kim Jong Un Is a Survivor"; Salam, "Is Kim Jong-Un a Rational Actor?"; Taylor, "Kim Jong-un Is Not Crazy"; Fergusson, CIC lecture; Sagan, "Korean Missile Crisis," 74 (although Sagan considers both Trump and Kim "unpredictable," "impulsive," and "prone... to reckless rhetoric and behavior"); Stephen Walt, "Never Call Kim Jong Un Crazy Again," *Foreign Policy*, June 14, 2018, <https://foreignpolicy.com/2018/06/14/never-call-kim-jong-un-crazy-again/>; and Doug Bandow, *Avoiding a Korean Calamity: Why Resolving the Dispute with Pyongyang Requires Keeping the Peace*, CATO Institute Policy Analysis No. 840 (Washington D.C.: CATO, 2018), 4, <https://www.cato.org/publications/policy-analysis/avoiding-korean-calamity-why-resolving-dispute-pyongyang-requires#full>.

<sup>68</sup> Youngwon Cho, "Method to the Madness of Chairman Kim: The Instrumental Rationality of North Korea's Pursuit of Nuclear Weapons," *International Journal* 69, no. 1 (February 2014): 5-25, <https://doi.org/10.1177/0020702013518489>.

<sup>69</sup> Jim Picht, "The Rational Madness of North Korea," *The Washington Times*, November 27, 2010.

<sup>70</sup> Jong Sun Bok, "Single-Hearted Unity Grows Solider," *The Pyongyang Times*, n.d., <http://www.pyongyangtimes.com.kp/?bbs=19983>.

<sup>71</sup> As for the North's offensive military plans and practices in connection with its reunification dream, that could readily fall into an old national-communist mantra: "what is someone else's we desire not, what is ours we don't give."

<sup>72</sup> Don Oberdorfer, *The Two Koreas* (Reading, MA: Addison-Wesley, 1997), 401, quoted in Grace Lee, "The Political Philosophy of Juche," *Stanford Journal of East Asian Affairs* 3, no. 1 (Spring 2003): 105.

<sup>73</sup> Lee, "The Political Philosophy of Juche," 105; and "Self-Reliance Motive Power of Socialist Economic Construction," *The Pyongyang Times*, n.d., <http://www.pyongyangtimes.com.kp/?bbs=26677>.

<sup>74</sup> Lee, "The Political Philosophy of Juche," 105;

<sup>75</sup> The broader concepts have resulted from the coupling of *Juche* with a set of revolutionary theories and leadership principles exercised by the respective "Great/Dear Leaders" of North Korea.

<sup>76</sup> Yuk-Sa Li, ed. *Juche! The Speeches and Writings of Kim Il Sung* (New York: Grossman Publishers, 1972), 157, cited in Lee, “The Political Philosophy of Juche,” 105; and Benjamin Elisha Sawe, “What Is the Juche Ideology of North Korea,” *World Atlas*, July 9, 2018, <https://www.worldatlas.com/articles/what-is-the-juche-ideology-of-north-korea.html>.

<sup>77</sup> Department of Defense, Report to Congress, 1, 5. The other five instruments are: domestic control, owning “a viable nuclear strike capability,” pursuing international recognition as a nuclear state, eliminating the U.S. military presence on the Peninsula, and eventual Korean reunification.

<sup>78</sup> ROK Ministry of National Defense, *2018 Defense White Paper* (Seoul: MND, 2018), 22, [https://mnd.go.kr/user/mndEN/upload/pblicitn/PBLICTNEBOOK\\_201908070153390840.pdf](https://mnd.go.kr/user/mndEN/upload/pblicitn/PBLICTNEBOOK_201908070153390840.pdf).

<sup>79</sup> Kim Jong Un, New Year’s address, January 1, 2018.

<sup>80</sup> ROK Ministry of National Defense, *2018 Defense White Paper*, 22.

<sup>81</sup> CNS, *North Korea Missile Chronology*, 302.

<sup>82</sup> To gain basic understanding of the ancient Korean myth of *Chollima* and its major significance for the DPRK’s highly militarized *Juchean* society see CuChullaine O’Reilly, “Horses and Religion - The Equine Connection,” *The Long Riders Guild Academic Foundation (The World’s First Global Hippological Study)*, 2018, <http://www.lrgaf.org/articles/religion.htm>; Kim Jong Un, New Year’s address, January 1, 2018; Momcilo Milinovic in “Interview: Momcilo Milinovic - Trump Doesn’t Want to Blackmail Kim Jong Un and North Korea! (1.9.2018),” YouTube video, 1:53:29, posted by Balkan Info, September 1, 2018, [https://www.youtube.com/watch?v=JSQ1piO7\\_ZY](https://www.youtube.com/watch?v=JSQ1piO7_ZY); and Jong Kyo Jin, “‘Mallima Speed’ and ‘Socialist Revolution’ Dominate State Media,” *Daily NK*, July 31, 2018, <https://www.dailynk.com/english/mallima-speed-and-socialist-revolution-dominate-state-media/>.

<sup>83</sup> Cristina Varriale, “What North Korea Is Not Telling Us about Denuclearisation in 2020,” *RUSI Commentary*, March 2, 2020, <https://rusi.org/commentary/what-north-korea-not-telling-us-about-denuclearisation-2020>.

<sup>84</sup> Kim Jong Un, New Year’s address, January 1, 2018.

<sup>85</sup> ROK Ministry of National Defense, *2018 Defense White Paper*, 23.

<sup>86</sup> Kim Jong Un, New Year’s address, January 1, 2018.

<sup>87</sup> “Mallima” is a relatively recent North Korean neologism that has become integral to the political jargon and communication of the *Juchean* society. This coined term is literally derived from “Chollima,” the name of the mythical winged horse that is said to have galloped 1,000 li (approx. 400 km) per day, by replacing the prefix “Cho-” (meaning 1,000) with “Man-” (meaning 10,000). One ancient Chinese li, from 2100 BC to 220 AD, a period spanning the successive rule of the Xia, Zhou, Qin and Han Dynasties, equaled approximately 400 m (e.g., 405 m during the Xia Dynasty). CuChullaine O’Reilly, “Horses and Religion” and Kyo Jin, “‘Mallima Speed’ and ‘Socialist Revolution’” (Kyo Jin’s article makes an error, referring to “1,000 km” instead of 1,000 li).

<sup>88</sup> Johnson, “North Korea,” 1247.

<sup>89</sup> Sawe, “What is the Juche Ideology?”

<sup>90</sup> Socialist Constitution of the Democratic People’s Republic of Korea, Article 60, retrieved from ICL Project, [https://www.servat.unibe.ch/icl/kn00000\\_.html](https://www.servat.unibe.ch/icl/kn00000_.html); ROK Ministry of National Defense, *2018 Defense White Paper*, 27; and *Defense White Paper 2008*, 30.

<sup>91</sup> Osnos, “Risk of Nuclear War”; and Jean Lee, cited in Elise Hu, “This Weekend, Kim Jong Un Will Be Heard, Unlike His More Elusive Father,” *NPR*, May 6, 2016, <https://www.npr.org/sections/>

[parallels/2016/05/06/476986541/this-weekend-kim-jong-un-will-be-heard-unlike-his-more-elusive-father](https://www.npr.org/sections/parallels/2016/05/06/476986541/this-weekend-kim-jong-un-will-be-heard-unlike-his-more-elusive-father).

<sup>92</sup> See Curtis Melvin, quoted in Hu, “Kim Jong Un Will Be Heard.”

<sup>93</sup> Choe Su Hon, statement. See also comments made by Ri Yong Pil, another senior DPRK Foreign Ministry official (Vice President of the Institute for American Studies) in Osnos, “Risk of Nuclear War.”

<sup>94</sup> IISS, *Military Balance 2019*, 281; and ROK Ministry of National Defense, *2018 Defense White Paper*, 332.

<sup>95</sup> ROK Ministry of National Defense, *2018 Defense White Paper*, 30, 332; and *2014 Defense White Paper* (Seoul: MND, 2014), 29, 261, [https://mnd.go.kr/user/mndEN/upload/pblicitn/PBLICTNEBOOK\\_201704260250138940.pdf](https://mnd.go.kr/user/mndEN/upload/pblicitn/PBLICTNEBOOK_201704260250138940.pdf).

<sup>96</sup> Milinovic in “Interview,” September 1, 2018. For a good analysis in this context see Sagan, “Korean Missile Crisis,” 81. In considering the dire ramifications of a few possible war scenarios on the Korean Peninsula, Sagan is able to envision both a pre-planned “all-out” WMD revenge exacted by the DPRK’s loyalist military brass following a successful U.S. decapitation strike and a last-resort counter-value nuclear attack(s) by Pyongyang precipitated by a previously failed retaliation attempt against U.S. and allied forces to the south.

<sup>97</sup> Milinovic in “Interview,” September 1, 2018. See also Kim Jong Un, New Year’s address, January 1, 2020, and quotes by Pak Song Il and Ri Yong Pil in Osnos, “Risk of Nuclear War.”

<sup>98</sup> Troy P. Krause, “Countering North Korean Special Purpose Forces” (Research Report Ref. AU/ACSC/102/1999-04, Air University, Air Command and Staff College, Maxwell Air Force Base, Alabama, June 1999), 3-4, <http://www.au.af.mil/au/awc/awcgate/acsc/99-102.pdf>.

<sup>99</sup> Department of Defense, Report to Congress, 9. See also ROK Ministry of National Defense, *2018 Defense White Paper*, 27.

<sup>100</sup> IISS, *Military Balance 2019*, 282.

<sup>101</sup> See Choe Sang-Hun, “Kim Jong-un Inspects New Submarine That Could Increase Range of Missiles,” *The New York Times*, July 22, 2019, <https://www.nytimes.com/2019/07/22/world/asia/north-korea-kim-jong-un-submarine.html>.

<sup>102</sup> IISS, *Military Balance 2019*, 282; and H. I. Sutton, “North Korea’s Polaris: Gorae Class Ballistic Missile Submarine (Sinpoo Class),” August 27, 2016, <http://www.hisutton.com/Analysis%20-%20Sinpoo%20Class%20Ballistic%20Missile%20Sub.html>.

<sup>103</sup> Statistically, the North has over four times more surface combatants than the South (430 vs. 100). However, with merely two *Najin*-class frigates—the better one of which is reportedly of “unclear” operational status—and five relatively lightly armed corvettes, the KPA Navy is far from being on par with its counterpart to the south. The ROK Navy has as many as 26 principal surface combatants, including cruisers and destroyers, as well as the following: naval aviation, which represents a good mix of maritime-patrol, anti-submarine warfare and transport aircraft (e.g., *P-3C Orion*, *Lynx*, *Black Hawk*), 29,000 marines (including one special forces regiment), and a secretive special naval warfare flotilla. IISS, *Military Balance 2019*, 282, 285; and ROK Ministry of National Defense, *2018 Defense White Paper*, 30-31, 332.

<sup>104</sup> Krause, “Countering North Korean Special Purpose Forces,” viii, 1, 12, 41.

<sup>105</sup> IISS, *Military Balance 2019*, 281. According to this issue of *Military Balance*, of the 88,000 troops under the SPF Command “only” eight Reconnaissance General Bureau (RGB) battalions are considered true Special Forces (SFs). Some SPF units are fully dedicated to strategic missions (e.g., recon., sniper, rear area operations).

<sup>106</sup> ROK Ministry of National Defense, *2018 Defense White Paper*, 28-30; and *2014 Defense White Paper*, 29. Unlike the past, the strategic core of the North's SPF/SOF is now consolidated into a separate military branch, known as the 11<sup>th</sup> Corps or Storm Corps, within the KPA ground force. Around 2015-16, the DPRK military authorities also created a distinct SOF battalion specializing in individual assassinations.

<sup>107</sup> ROK Ministry of National Defense, *Defense White Paper 2006* (Seoul: MND, 2006), 21, [https://www.files.ethz.ch/isn/155726/SouthKorea\\_English2006.pdf](https://www.files.ethz.ch/isn/155726/SouthKorea_English2006.pdf); and *Defense White Paper 2008* (Seoul: MND, 2008), 33, <https://www.ssri-j.com/MediaReport/Document/KoreaDefenceWhitePaper2008.pdf>.

<sup>108</sup> IISS, *Military Balance 2019*, 282.

<sup>109</sup> ROK Ministry of National Defense, *2018 Defense White Paper*, 31-32, 332.

<sup>110</sup> IISS, *Military Balance*, 282-283.

<sup>111</sup> *Ibid.*

<sup>112</sup> Serbia's version of this SAM system, locally known as *Neva*, is officially deemed responsible for shooting down at least one *F-117A Nighthawk* stealth bomber (March 27, 1999) and one *F-16* fighter jet (May 2, 1999). Off the record however, "the Serbian *Pechora*" is said to have also brought down a *B-2 Spirit* strategic bomber (May 20, 1999) while also helping neutralize dozens of other NATO air assets (ground attack aircraft, cruise missiles, drones) during the Kosovo intervention.

<sup>113</sup> IISS, *Military Balance 2019*, 282-283; and Missile Defense Project, "KN-06 (Pon'gae-5)," Missile Threat, Center for Strategic and International Studies, last modified June 15, 2018, <https://missilethreat.csis.org/country/dprk/>.

<sup>114</sup> Krause, "Countering North Korean Special Purpose Forces," 9; and John, M. Collins, "Korean Crisis 1994: Military Geography, Military Balance, Military Options," Congressional Research Service (CRS) Issue Brief No. 94-311S, Washington D.C., April 11, 1994, <http://www.fas.org/spp/starwars/crs/94-311S.htm>, cited in Krause, "Countering North Korean Special Purpose Forces," 9-10.

<sup>115</sup> ROK Ministry of National Defense, *2018 Defense White Paper*, 31, 58-59, 332; and IISS, *Military Balance 2019*, 282-283, 286. The grand total of 1,640 aircraft is based on the total number of DPRK combat jets (810) specified in the ROK's *2018 Defense White Paper*, and not the corresponding number (545) provided in the 2019 issue of *Military Balance*.

<sup>116</sup> ROK Ministry of National Defense, *2018 Defense White Paper*, 31; and *2014 Defense White Paper*, 30.

<sup>117</sup> ROK Ministry of National Defense, *2018 Defense White Paper*, 30, 332; and *2016 Defense White Paper* (Seoul: MND, 2016), 29, 261, [https://mnd.go.kr/user/mndEN/upload/pblicitn/PBLICTNEBOOK\\_201704260250138940.pdf](https://mnd.go.kr/user/mndEN/upload/pblicitn/PBLICTNEBOOK_201704260250138940.pdf). See also Kim Min Seok, "The State of the North Korean Military," in *Korea Net Assessment: Politicized Security and Unchanging Strategic Realities*, ed. Chung Min Lee and Kathryn Botto (Washington D.C.: Carnegie Endowment for International Peace, 2020), 22, 87n65, [https://carnegieendowment.org/files/Korea\\_Net\\_Assesment\\_2020.pdf](https://carnegieendowment.org/files/Korea_Net_Assesment_2020.pdf); and Dave Majumdar, "North Korea's Land Forces Pack a Big Punch (4,300 Tanks, for Starters)," *The National Interest*, April 18, 2017, <https://nationalinterest.org/blog/the-buzz/north-koreas-land-forces-pack-big-punch-4300-tanks-starters-20257>.

<sup>118</sup> IISS, *Military Balance 2019*, 258, 281.

<sup>119</sup> This average has been conservatively calculated by using the baseline number of 5,100 MRLs (and thus disregarding *KN-25*, for instance) and without accounting for possible 16- and 32-tube rocket launchers:  $i(19.1) = (\sum_{i=1}^{19} Xi) / N(9)$ . It is based on data retrieved from the IISS's *Military Balance 2019* (p. 281), Kyle Mizokami's 2017 article published in *The National Interest* ("How North Korea's Rockets [Not Missiles] Could Be a Game Changer in a War," November 18, 2017, <https://nationalinterest.org/blog/the-buzz/how-north-koreas-rockets-not-missiles-could-be-game-changer-23249>), and a few specialized websites.

<sup>120</sup> See Department of Defense, Report to Congress, 1, 11.

<sup>121</sup> Ankit Panda, "Introducing the KN21, North Korea's New Take on Its Oldest Ballistic Missile," *The Diplomat*, September 14, 2017, <https://thediplomat.com/2017/09/introducing-the-kn21-north-koreas-new-take-on-its-oldest-ballistic-missile/>.

<sup>122</sup> This includes *Scud B (Hwasong -5)*, *C (Hwasong-6)* and *D/ER* (extended range)/*KN-04 (Hwasong- 9)*, as well as a MaRV-ed *Scud* variant designated by the U.S. as *KN-18*.

<sup>123</sup> Jon Herskovitz and Youkyung Lee, "Kim Jong Un's 'Son of Scud' Poses New Threat to U.S. Troops," May 10, 2019, Bloomberg.com, <https://www.bloomberg.com/news/articles/2019-05-10/kim-jong-un-son-of-scud-poses-new-threat-to-u-s-troops>. *KN-23*, dubbed "the Son of Scud," is claimed to be the North Korean version of Russia's *Iskander/SS-26 Stone*.

<sup>124</sup> See Missile Defense Project, "No Dong 1," Missile Threat, Center for Strategic and International Studies, last modified June 15, 2018, <https://missilethreat.csis.org/missile/no-dong/>.

<sup>125</sup> *Hwasong-12* could nonetheless be exempted in this context since it requires cautious transport and a launch platform.

<sup>126</sup> While the key technical characteristics of the recently unveiled *Pukguksong-4* SLBM remain unknown, it is believed that the missile's range could be significantly greater than that of its predecessor (1,900 km). This has stoked fears and speculations of the missile potentially evolving into a serious threat to the continental U.S., especially since former national security advisor John Bolton oddly warned against a possible "testing" by Pyongyang of "a submarine-launched intercontinental ballistic missile [author's emphasis]." Bolton, "China Needs to Answer," quoted in Harry Kazianis, "John Bolton Thinks North Korea Has Submarine-Launched ICBMs," 1945.com, October 8, 2020, <https://www.19fortyfive.com/2020/10/john-bolton-thinks-north-korea-has-submarine-launched-icbms/>.

<sup>127</sup> For more details see IISS, *Military Balance 2019*, 281; and Matt Korda and Scott LaFoy, "Hwasong that Never Ends," August 28, 2017, <https://www.armscontrolwonk.com/archive/1203797/the-hwasong-that-never-ends/>. There is one noteworthy discrepancy here: while the DPRK's ballistic missiles are counted in hundreds in the short- to medium-range category alone, the country's total number of surface-to-surface guided missile launchers is estimated at approximately 100. See ROK Ministry of National Defense, *2018 Defense White Paper*, 30, 332; and *2014 Defense White Paper*, 29, 261.

<sup>128</sup> For more details see IISS, *Military Balance 2019*, 258, 281-282; and Missile Defense Project, "Missiles of North Korea," Missile Threat, Center for Strategic and International Studies, last modified June 15, 2018, <https://missilethreat.csis.org/country/dprk/>.

<sup>129</sup> IISS, *Military Balance 2019*, 281; and ROK Ministry of National Defense, *2018 Defense White Paper*, 32, 332.

<sup>130</sup> Department of Defense, Report to Congress, 9.

<sup>131</sup> For a definition of this moral theory see, for example, Keith Hymes, "Political Authority and Obligation," in *Issues in Political Theory*, 2<sup>nd</sup> ed., ed. Catriona McKinnon (Oxford/New York: Oxford University Press, 2012), 18.



<sup>132</sup> Tim Dunne, Milja Kurki and Steve Smith, eds. *International Relations Theories: Discipline and Diversity* (New York: Oxford University Press, 2010), 261; and Jürgen Habermas. *Theory of Communicative Action: Reason and the Rationalization of Society*, Vol. 1, transl. by Thomas A. McCarthy (Boston, MA: Beacon Press, 1984).

<sup>133</sup> Steven M. Scheffrin, *Rational Expectations*, Cambridge Surveys of Economic Literature (Cambridge, UK: Cambridge University Press, 1983), 1.

<sup>134</sup> See, for example, Michael Howard, “Man against Fire: The Doctrine of the Offensive in 1914,” in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, NJ: Princeton University Press, 1986), 510-526.

<sup>135</sup> Momcilo Milinovic in “The World with Sputnik: In Lazanski’s Target Sight,” Radio Sputnik Serbia, August 14, 2017, <https://rs.sputniknews.com/autori/20170814112279837-lazanski-kim-kola-rakete-1/>, and December 25, 2017, <https://rs.sputniknews.com/komentari/201712251113936021-lazanski-amerika-rusija/>; and “Lazanski direktno /// RTRS 7.11.2017.,” YouTube video, 1:04:24, posted by RTRS vijesti, November 7, 2017, [https://www.youtube.com/watch?v=HBsC\\_WDPuB0](https://www.youtube.com/watch?v=HBsC_WDPuB0).

<sup>136</sup> CNS, *North Korea Missile Chronology*, 300-303; and Korda and LaFoy, “Hwasong that Never Ends.”

<sup>137</sup> CNS, *North Korea Missile Chronology*, 299-300.

<sup>138</sup> Milinovic in “In Lazanski’s Target Sight,” August 14, 2017.

<sup>139</sup> For more on the proliferation controversy surrounding the Makeyev Design Bureau (e.g., the 1992 Sheremetyevo incident) see CNS, *North Korea Missile Chronology*, 224, 247, and 253; Milinovic in “In Lazanski’s Target Sight,” August 14, 2017, and December 25, 2017; Missile Defense Project, “KN-08/Hwasong 13,” Missile Threat, Center for Strategic and International Studies, last modified June 15, 2018, <https://missilethreat.csis.org/missile/kn-08/>; and John Schilling, “North Korea’s Large Rocket Engine Test: A Significant Step Forward for Pyongyang’s ICBM Program,” 38 North, April 11, 2016, <http://38north.org/2016/04/schilling041116/>. According to Milinovic, the leading Serbian rocket engineer, Makeyev’s *R-27/SS-N-6 Serb* might not have been the only higher-end ballistic missile involved in Russia’s post-1987 technology transfer to North Korea. Besides the *Serb* and earlier sale of *Scud C/D/ER/Aerofon* technology, there have possibly occurred subsequent Russian deliveries—or North Korean “steals”—of know how regarding *TR-1 Temp/SS-12 Scaleboard* and the *UR-100/SS-11 Sego* (for *Hwasong-12*) and *MR-UR-100 Sotka/SS-17 Spanker* (for *Hwasong-15*) ICBMs. One of these transactions purportedly entailed even an *SS-N-22 Sunburn* AShM, namely its submarine-launched variant (*P-100 Oniks*).

<sup>140</sup> This number includes the two latest strategic weapons systems (*Hwasong-16* and *Pukgukson-4*) unveiled on October 10, 2020, but excludes canisterized missile designs and mock-ups shown at previous DPRK ceremonies.

<sup>141</sup> See Missile Defense Project, “Missiles of North Korea”; and IISS, *Military Balance 2019*, 281-282.

<sup>142</sup> IISS, *Military Balance 2019*, 283. See also ROK Ministry of National Defense, *2018 Defense White Paper*, 27.

<sup>143</sup> Gregory F. Treverton, “The Dangers of a Preemptive Strike,” How to Stop Kim Jong Un, *Time*, n.d. (2017), <http://time.com/north-korea-opinion/>. For another slight misrepresentation concerning the DPRK’s indigenous technological capability see Miller and Narang, “How North Korea Shocked the Nuclear Experts.” Despite acknowledging the fact that over the years Pyongyang has been technologically aided by Pakistan, Russia, China and Iran, Miller and Narang contend that in the process of its nuclearization “North Korea needed neither” “an

advanced economy, [n]or substantial technological help from an existing nuclear power.” The plausibility of this argument ultimately depends on what one perceives and defines as “substantial...help.”

<sup>144</sup> Whereas many experts still doubt North Korea’s possession of a truly operational nuclear ICBM capability, there have been claims and praises that the country’s now second most advanced missile (*Hwasong-15*) is modeled on *SS-17 Spanker*, a Soviet, third-generation, MIRV-capable ICBM, and features “the most contemporaneous liquid-fuel engine.” Moreover, if Chairman Kim Jong Un’s depiction of *Hwasong-15*’s successor as a “state-of-the-art weapons system possessed only by advanced countries” is to be taken as accurate, then it should come as no surprise if the top portion of the DPRK’s nuclear arsenal soon falls into the category of fourth-generation ICBMs. Kim Jong Un, New Year’s address, January 1, 2020.

<sup>145</sup> See, for example, Department of Defense, Report to Congress, 11; and IISS, *Military Balance 2019*, 281.

<sup>146</sup> See Siegfried S. Hecker, “What We Really Know about North Korea’s Nuclear Weapons and What We Don’t Yet Know for Sure,” *Foreign Affairs*, December 4, 2017, <https://www.foreignaffairs.com/articles/north-korea/2017-12-04/what-we-really-know-about-north-koreas-nuclear-weapons>; David Albright et al., “North Korea’s Lithium 6 Production for Nuclear Weapons,” ISIS Report, May 17, 2017, <http://isis-online.org/isis-reports/detail/north-koreas-lithium-6-production-for-nuclear-weapons/10>; and Hugh Chalmers and Andreas Persbo, “Producing Tritium in North Korea,” Arms Control Wonk, May 10, 2016, <https://www.armscontrolwonk.com/archive/1201373/producing-tritium-in-north-korea/>.

<sup>147</sup> Milinovic in “In Lazanski’s Target Sight,” December 25, 2017.

<sup>148</sup> Fergusson, CIC lecture; and e-mail communication with author, May 1, 2019. See also IISS, *Military Balance 2019*, 281; and Moon Jae-in, quoted in Jeff Seldin, “North Korea’s New Missile: What We Know,” December 1, 2017, <https://www.voanews.com/a/north-korea-new-missile-what-we-know/4145056.html>.

<sup>149</sup> Michael Elleman, “Does Size Matter: North Korea’s Newest ICBM,” 38 North, October 21, 2020, <https://www.38north.org/2020/10/melleman102120/>; and Vann H. Van Diepen and Michael Elleman, “North Korea Unveils Two New Strategic Missiles in October 10 Parade,” 38 North, October 10, 2020, <https://www.38north.org/2020/10/vdiepenmelleman101020/>.

<sup>150</sup> The stated radius of the EMP effect in this scenario may not be fully accurate and is provided only for orientation purposes. It was determined mainly by analogy based on a map/model provided by Jack Spencer (“America’s Vulnerability to a Different Nuclear Threat: An Electromagnetic Pulse,” Heritage Foundation Report [Backgrounder, no. 1372], May 26, 2000, <https://www.heritage.org/defense/report/americas-vulnerability-different-nuclear-threat-anelectromagnetic-pulse/#pgfid=1084008>), sourced upon a scientific description by Garry Smith (“Electromagnetic Pulse Threats,” testimony before the U.S. House of Representatives National Security Committee, Subcommittee on Military Research and Development, July 16, 1997), and subsequently cited in a Congressional Research Service (CRS) Report (Clay Wilson, “High-Altitude Electromagnetic Pulse [HEMP] and High-Power Microwave [HPM] Devices: Threat Assessments,” CRS Report for Congress, Washington, DC, updated July 21, 2008, <https://fas.org/sfp/crs/natsec/RL32544.pdf>). The calculation used is as

$$\frac{\text{Altitude difference (300 mi - 120 mi)}}{\text{Radius difference (1,470 mi - 1000 mi)}} = \frac{\text{Altitude difference (300 mi - 250 mi)}}{\text{Radius difference, } x?}$$

$x \approx 130 \text{ mi}; 1,470 \text{ mi} - 130 \text{ mi} = 1,340 \text{ mi}$

<sup>151</sup> An EMP of these properties and magnitude would impact, to a varying degree, most of Canada's populated areas (except for central and northern British Columbia, northwestern Alberta, the northernmost chunk of Manitoba, the territories, the Maritimes, most of Quebec, Newfoundland, and Labrador), as well as central and northern Mexico.

<sup>152</sup> Whatever the theoretical "advantages" of a HEMP attack on the United States (e.g., the objective vulnerability of the country's automated industrial control systems and highly advanced energy, transport and communications networks, the Pentagon's sensitive facilities and micro-circuitry equipment, and the perceived lower risk of nuclear retaliation because of absence of direct casualties; see Wilson, "HEMP and HPM," summary, 1-6, 14-16, 18-19), it would be imprudent and even suicidal for any inferior nuclear-weapons state to be planning for such action in an offensive context.

<sup>153</sup> William Graham et al., Report of the Commission to Assess the Threat to the United States from Electromagnetic Pulse Attack, Volume 1: Executive Report 2004, 47, cited in Wilson, "HEMP and HPM," 3.

<sup>154</sup> Wilson, "HEMP and HPM," 5.

<sup>155</sup> Lately, the Chinese EMP threat to the U.S. has become a "hot" defense topic, culminating just prior to the October 10 parade in Pyongyang. See James Conca, "China Has 'First-Strike' Capability to Melt U.S. Power Grid with Electromagnetic Pulse Weapon," *Forbes*, June 25, 2020, <https://www.forbes.com/sites/jamesconca/2020/06/25/china-develops-first-strike-capability-with-electromagnetic-pulse/?sh=62535972e190>; Peter Vincent Pry et al., *China: EMP Threat* (Washington, DC: EMP Task Force on National and Homeland Security, 2020), <https://apps.dtic.mil/sti/pdfs/AD1102202.pdf>; John Hayward, "China Threatens EMP Attack in South China Sea," *Breitbart*, March 17, 2020, <https://www.breitbart.com/national-security/2020/03/17/china-threatens-emp-attack-south-china-sea/>; and *Investor's Business Daily* (editorial), "China Threat of EMP Is Real—and America Needs to Meet the Challenge," February 4, 2019, <https://www.investors.com/politics/editorials/china-emp-threat-u-s/>.

<sup>156</sup> Missile Defense Project, "KN-18 (MaRV Scud Variant)," Missile Threat, Center for Strategic and International Studies, last modified June 15, 2018, <https://missilethreat.csis.org/missile/kn-18-marv-scud-variant/>.

<sup>157</sup> For more details see Panda, "Introducing the KN21."

<sup>158</sup> In his congressional testimony of March 10, 2016, Admiral Bill Gortney stated, "While I do not believe that North Korea's efforts to develop a submarine-launched ballistic missile represent a near-term threat to the U.S. Homeland, the program underscores the level of effort and resources the regime is willing to devote to developing advanced weapon systems. As the combatant USNORTHCOM and NORAD commander charged with defending the homeland, I take this threat very seriously, particularly in light of North Korea's unpredictable leadership [author's emphasis]." William E. Gortney, statement, U.S. Senate Armed Services Committee, pp. 5-6, Washington D.C., March 10, 2016, [https://www.armed-services.senate.gov/imo/media/doc/Gortney\\_03-10-16.pdf](https://www.armed-services.senate.gov/imo/media/doc/Gortney_03-10-16.pdf).

<sup>159</sup> Van Diepen and Elleman, "North Korea Unveils Two New Strategic Missiles."

<sup>160</sup> Even one of the two outliers in this context, *Hwasong-15*, which has been confirmed to have a tandem of high-output rocket engines, is an example of technological inferiority when compared against last-generation ICBMs. Take, for, instance the Russian *Sarmat*'s (*Satan 2*) PDU-99 propulsion system, rumored to be capable of generating over 300 tonnes of thrust! However, the "monstrous" *Hwasong-16* might be able to compensate somewhat for this gap, given its reported

capacity to accommodate up to four Soviet RD-250-type combustion chambers in its booster stage.

<sup>161</sup> In principle, all North Korean longer-range ballistic missiles feature less efficient liquid-fuel engines. For details see Theodore Postol, "North Korean Ballistic Missiles and US Missile Defense," *Physics and Society* 47, no. 2 (April 2018): 4-27. Some past or prospective three-stage designs (e.g., *Taepodong 1*) could be considered a slight exception in terms of Stage III (solid-fueled). The current list of the DPRK's solid-propellant ballistic missiles is still somewhat modest and includes: outdated Soviet-era CRBMs (*Luna/Frog*, *KN-02/Tochka*), the two-stage, road-mobile, medium-range *Pukguksong-2* along with its SLBM variant[s] (*Polaris-1*, *-3* and *-4*), the *KN-09/KN-SS-X-9* and *KN-25* guided artillery rockets that blur the line between MRLs and ballistic missiles, as well as the latest, maneuverable *KN-21*, *-23*, and *-24* SRBMs.

<sup>162</sup> Elleman, "Does Size Matter." For basic standards and types of pumps required for safe transferring of nitrogen tetroxide from storage tanks to missiles see, for example, Martin Marietta Aerospace Co./Alfred C. Wright, *Nitric Acid/Nitrogen Tetroxide Oxidizers*, USAF Propellant Handbooks Vol. II, AFRPL-TR-76-78 (Denver, CO: Martin Marietta Co., 1977), 2.3-3, 3-5 to 3-12, <https://apps.dtic.mil/sti/pdfs/ADA036741.pdf>.

<sup>163</sup> Following the DPRK's fourth nuclear test of January 2016 many experts believed the regime had accumulated sufficient scientific knowledge "to figure out the basics of miniaturization." In his Senate testimony of March 2016, Admiral Gortney told U.S. lawmakers the following: "It's the prudent decision on my part to assume that [Kim Jong Un] has the capability to miniaturize a nuclear weapon and put it on an ICBM." Admiral Cecil Haney, who was part of the same hearing as the head of the U.S. Strategic Command, had agreed that Washington had to take "miniaturization" and other North Korean "claims" (e.g., regarding the *KN-08* ICBM) "seriously." Two months later, the Korean Central News Agency reported that "signal successes [had] been achieved in the development of Korean-style smaller nuclear warhead, simulated test of atmospheric re-entry of a ballistic missile, test of high-power solid-fuel rocket engine and stage separation, [and] test of high-power engine of inter-continental ballistic missile." Geoff Brumfiel, "Why Analysts Aren't Laughing at These Silly North Korean Photos," NPR, March 21, 2016, <https://www.npr.org/sections/parallels/2016/03/21/470976577/why-analysts-arent-laughing-at-these-silly-north-korean-photos/>; U.S. Senate Committee on Armed Services, transcript, pp. 50, 70-71; and Benjamin Katzeff Silberstein, "North Korean Economic Production and the 70-Day Campaign," North Korean Economy Watch/38 North, May 18, 2016, <https://www.nkeconwatch.com/tag/70-day-campaign/>.

<sup>164</sup> Fergusson, CIC lecture.

<sup>165</sup> Schilling, "North Korea's Large Rocket Engine." For a convergent critique of superficial analyses that question not only "Pyongyang's maximally achievable upper level of yield for its nuclear charges" but also often comment sarcastically on the North's overall scientific and technological capacity in the sense that "they can't make anything stronger than the U.S. first-generation nukes," see Vladimir Hrustalev, "Simple and with Great Power!" [in Russian], North East Asian Military Studies, March 12, 2017, <http://www.neams.ru/ïðñðâüüê-ë-ñ-âíëüôé-îüüñöþ/>.

<sup>166</sup> Milinovic in "In Lazanski's Target Sight," August 14, 2017, as well as other public appearances.

<sup>167</sup> Richard H. Speier et al., *Hypersonic Missile Nonproliferation: Hindering the Spread of a New Class of Weapons* (Santa Monica, CA: RAND, 2017): 29, [https://www.rand.org/content/dam/rand/pubs/research\\_reports/RR2100/RR2137/RAND\\_RR2137.pdf](https://www.rand.org/content/dam/rand/pubs/research_reports/RR2100/RR2137/RAND_RR2137.pdf).

<sup>168</sup> James Fergusson, in-person interview by author, Winnipeg, August 28, 2018. Fergusson subsequently reinforced this point by pinpointing “the US ability to surveil NK nuclear sites and the likelihood of the US ability to pre-empt them” (e-mail, September 1, 2020). In this context, see also Lieber and Press “New Era of Counterforce.”

<sup>169</sup> See Lockheed Martin Corp., news release, “Mission Success: Aegis Combat System Supports Layered Homeland Defense,” USS *John Finn*, November 17, 2020, <https://news.lockheedmartin.com/mission-success-aegis-combat-system-supports-layered-homeland-defense>.

<sup>170</sup> See Boeing Co., news release, “U.S. MDA and Boeing Complete Historic Missile Defense Test,” Huntsville, AL, March 25, 2019, <https://boeing.mediaroom.com/2019-03-25-U-S-MDA-and-Boeing-Complete-Historic-Missile-Defense-Test>.

<sup>171</sup> See, for example, Sagan, “Korean Missile Crisis,” 78; and Sanger, “Talk of ‘Preventive War.’”

<sup>172</sup> Zachary Cohen et al., “Trump Advisers Clash over ‘Bloody Nose’ Strike on North Korea,” CNN Politics, February 1, 2018, <https://edition.cnn.com/2018/02/01/politics/north-korea-trump-bloody-nose-dispute/index.html>; White House, Joint Statement between the United States and the Republic of Korea, June 30, 2017, <https://www.whitehouse.gov/briefings-statements/joint-statement-united-states-republic-korea/>, cited in Sanger, “Talk of ‘Preventive War.’”; U.S. Joint Chiefs of Staff, *Nuclear Operations*, I-2, III-3; and Julian Borger, “Nuclear Weapons: Experts Alarmed by New Pentagon ‘War-Fighting’ Doctrine,” *The Guardian*, June 19, 2019, <https://www.theguardian.com/world/2019/jun/19/nuclear-weapons-pentagon-us-military-doctrine>.  
[https://fas.org/irp/doddir/dod/jp3\\_72.pdf](https://fas.org/irp/doddir/dod/jp3_72.pdf).

<sup>173</sup> Hillary Clinton, “America’s Pacific Century,” *Foreign Policy*, November 11, 2011, [http://www.foreignpolicy.com/articles/2011/10/11/americas\\_pacific\\_century](http://www.foreignpolicy.com/articles/2011/10/11/americas_pacific_century).

<sup>174</sup> Global Affairs Canada, press statement, “Canada Is Encouraged by Reopening of Talks by North Korea and South Korea,” January 9, 2018, [https://www.canada.ca/en/global-affairs/news/2018/01/canada\\_is\\_encouragedbyreopeningoftalksbetweennorthkoreaandsouthk.html](https://www.canada.ca/en/global-affairs/news/2018/01/canada_is_encouragedbyreopeningoftalksbetweennorthkoreaandsouthk.html).

<sup>175</sup> Thomas Adams, “Shift to the Pacific: Canada’s Security Interests and Maritime Strategy in East Asia,” in David S. McDonough, ed. *Canada’s National Security in the Post-9/11 World: Strategy, Interests and Threats* (Toronto: University of Toronto Press, 2012), 160, 168. See also Eric Lerhe, “The Asia-Pacific and the Royal Canadian Navy,” Policy Paper, Canadian Global Affairs Institute, June 2015, [https://www.cgai.ca/the\\_asia\\_pacific\\_and\\_the\\_royal\\_canadian\\_navy](https://www.cgai.ca/the_asia_pacific_and_the_royal_canadian_navy).

<sup>176</sup> Jeong Kyeongdoo, “Message from the Minister of National Defense,” in ROK Ministry of National Defense, *2018 Defense White Paper*, 2; and White House, Joint Statement.

<sup>177</sup> Cha and Katz, “Right Way to Coerce North Korea,” 97.

<sup>178</sup> See, for example, Daniel R. DePetris, “Hwasong-16: North Korea’s Plan for This New Missile,” *The National Interest*, October 13, 2020, <https://nationalinterest.org/blog/korea-watch/hwasong-16-north-koreas-plan-new-icbm-170593>; Gortney, statement, p. 5.

<sup>179</sup> Sagan, “Korean Missile Crisis,” 82.

<sup>180</sup> See sections on operational unpredictability and “dynamic force employment” in Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military’s Competitive Edge* (Washington D.C., DoD, 2018), 5, 7, <https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>.

<sup>181</sup> The Pentagon’s “useful wish list” here could be quite extensive as individual thinkers propose different—albeit largely overlapping—sets of high-priority capabilities. For instance, in urging for a consistent and clear-cut U.S. Korea strategy, which is to include bolstered alliances with Japan and South Korea, Cha and Katz add “antisubmarine warfare” to the list, whereas Michael Green and Matthew Kroenig prefer having *B-1* and *B-2* bombers deployed to new locations in the Asia-Pacific. Yet, all of the aforementioned emphasize the need for additional stand-off conventional strike capabilities. See Cha and Katz, “Right Way to Coerce North Korea,” 93; and Green and Kroenig, “New Strategy for Deterrence.”

<sup>182</sup> Consider this statement for instance: “...the real intention of the US is to seek its own political and diplomatic interests while wasting time away under the signboard of dialogue and negotiations and at the same time keep sanctions so as to gradually reduce our strength.” Kim Jong Un, New Year’s address, January 1, 2020.

<sup>183</sup> Kim Jong Un, New Year’s address, January 1, 2018; see also his annual address for 2020.

<sup>184</sup> Jovan Kovacic, President and Founder of East-West Bridge (EWB) and Member of the Trilateral Commission Executive Committee, e-mail communication with author, August 13, 2018.

<sup>185</sup> See, for example, Hazel Smith, *Hungry for Peace: International Security, Humanitarian Assistance, and Social Change in North Korea* (Washington D.C.: United States Institute for Peace, 2005).

<sup>186</sup> Part of the explanation of this majoritarian self-esteem and high regard for the Kim regime lies in “Pyongyang...strengthening its propaganda...on the superiority of the socialist system.” ROK Ministry of National Defense, *2018 Defense White Paper*, 23.

<sup>187</sup> Wright/Intelligent Biology, *Getting Messages Through*, 21-25.

<sup>188</sup> Milinovic in “Interview,” September 1, 2018. In Milinovic’s own experience, “the Sun Horse and...the Wind Horse” are two literary incarnations of *Chollima* symbolizing, in practice, the North Korean military and economy respectively. Aside from this, the KPA’s symbolic association with “the Sun” was originally established through its first Supreme Commander, Kim Il Sung, whose name (reportedly adopted post 1935) literally means: “Kim becomes the sun.” This esoteric connection has been perpetuated to date via the eccentric “Sun” titles assigned to North Korea’s *Suryong(s)* (i.e., “Great Leader[s]”) over the decades, one of which reads “the Sun of the 21<sup>st</sup> Century!” See Bradley K. Martin, *Under the Loving Care of the Fatherly Leader: North Korea and the Kim Dynasty* (New York: Thomas Dunne Books, 2004); and Mark O’Neill, “Kim Il-sung’s Secret History,” *The South China Morning Post*, October 17, 2010, <https://www.scmp.com/article/727755/kim-il-sungs-secret-history>.

<sup>189</sup> Kim Jong Un, New Year’s address, January 1, 2020, quoted and explained in Varriale, “What North Korea Is Not Telling Us.”

<sup>190</sup> The DPRK’s implementation of solid-fuel rocket technology in its SLBMs and some of its SRBMs makes it just a matter of time before it unveils a disquieting solid ICBM. The country has embarked on its quest for a more capable and survivable long-range missile at least since late 2017 and this is evidenced by its evolving infrastructure for developing solid-fuel technologies. Thus, Pyongyang’s acquisition of what would be a partial *Minuteman III* capability might not be as remote as some might think, despite the current lack of open-source intelligence on the North having ground-tested a larger solid-fuel motor. This poor man’s *Minuteman III* could possibly emerge within the 2026-27 timeframe. Prior to October 10 this year, some had mistakenly seen the DPRK’s upcoming “new strategic weapons system” (*Hwasong-16*) as being potentially the country’s first ever solid-fuel ICBM. For more details see Harry Kazianis, “North Korea’s Long March Towards Solid-Fueled ICBMs,” 1945.com,

August 19, 2020, <https://www.19fortyfive.com/2020/08/north-koreas-long-march-towards-solid-fueled-icbms/>; and Elleman “Does Size Matter.”

<sup>191</sup> For piquant details on the mysterious PDU-99 booster, which is suspected to be an advanced pulse-detonation engine using a “new,” “powerful” and “clean” propellant, see Jill Hruby, *Russia’s New Nuclear Weapon Delivery Systems: An Open Source Technical Review* (Washington, D.C.: NTI, 2019), 15, 39, [https://media.nti.org/documents/NTI-Hruby\\_FINAL.PDF](https://media.nti.org/documents/NTI-Hruby_FINAL.PDF); and TASS, “Key Facts about Russia’s Advanced Sarmat ICBM System,” March 1, 2018, <https://tass.com/defense/992360>.

<sup>192</sup> Department of Defense, *2018 National Defense Strategy*, 6, 8-9.

<sup>193</sup> James Fergusson, in-person interview by author, Winnipeg, December 19, 2019.

<sup>194</sup> Even though there is a clear expert understanding of this “open door” principle toward its northern neighbor, especially among Canada’s Conservative circles, there is still much room for Washington to indicate and emphasize its strategic interest for a joint missile defense shield without making significant political waves across the border. For instance, the executive summary of the latest U.S. *Missile Defense Review* contains barely two short paragraphs on NORAD highlighting the latter’s ongoing modernization in terms of countering cruise missiles and advanced missile threats, with no explicit hint of a joint continental BMD. Furthermore, the unclassified synopsis of the 2018 U.S. *National Defense Strategy*, while discussing the importance of “strengthening alliances,” avoids referencing NORAD altogether. See Conservative Party of Canada/James Bezan, press release, “Missile Defence a Priority for Canada’s National Security: Conservatives,” January 17-18, 2019, <https://www.conservative.ca/missile-defence-a-priority-for-canadas-national-security-conservatives/> and <https://jamesbezan.com/missile-defence-a-priority-for-canadas-national-security-conservatives/>; U.S. Department of Defense, *2019 Missile Defense Review* (Washington, DC: DoD, 2019), XI and XVII, [https://www.defense.gov/Portals/1/Interactive/2018/11-2019-Missile-Defense-Review/The%202019%20MDR\\_Executive%20Summary.pdf](https://www.defense.gov/Portals/1/Interactive/2018/11-2019-Missile-Defense-Review/The%202019%20MDR_Executive%20Summary.pdf); and *2018 National Defense Strategy*, 5, 8-9.



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