

The Future Impact of North Korea's Emerging Nuclear Deterrent on Nuclear Nonproliferation

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THE FUTURE IMPACT OF NORTH KOREA'S EMERGING NUCLEAR DETERRENT ON NUCLEAR NONPROLIFERATION

The emergence of North Korea's nuclear deterrent has been a grievous blow to international nonproliferation efforts and poses serious national security challenges for the United States and its Northeast Asian allies. It is by no means clear, however, that the precedent North Korea has set will significantly erode the nonproliferation regime or stimulate proliferation elsewhere.

This paper will identify a number of arenas where North Korea's becoming a nuclear weapons possessor state might be expected to have significant negative consequences, and it will assess the damage likely to be done. As will be seen, the ripple effects of North Korea's crossing the nuclear threshold may be more limited than they first appear.¹

Erosion of the Global Nonproliferation Regime - I

Experts will differ regarding what to count as elements of the global nonproliferation regime, but for purposes here, it is useful to be inclusive because the fundamental point to be appreciated is that the combined impact of these very powerful tools failed to deflect Pyongyang's bid to acquire nuclear arms. An immediate concern is that this history may create a deeply troubling precedent that greatly encourages possible future entrants into the proliferation race.

A detailed analysis of the failure of each of the relevant elements of the nonproliferation regime is not needed here. But it is worth recalling what is on the list of measures that were brought to bear in this case and ultimately proven ineffectual. In rough order of international authority and breadth, the ultimately inadequate measures include:

- *Core international regime elements*, specifically the Nuclear Non-proliferation Treaty (NPT); the International Atomic Energy Agency (IAEA) safeguards system;

UN Security Council Resolution 1540, requiring all states to adopt controls over weapons of mass destruction (WMD) and related materials, including export controls; and UN Security Council Resolution 1718 and successors, imposing sanctions on North Korea.

¹ This paper was presented at a June 3–4, 2015 workshop conducted by the project on North Korea's Nuclear Futures. The author wishes to thank the participants at that event and its chair, Joel Wit, for their thoughtful comments on the paper and would also like to express appreciation to Joseph S. Bermudez for his additional suggestions after the workshop.

- *Associated multistate regime elements*, namely the Nuclear Suppliers Group, the Zangger Committee, the Proliferation Security Initiative and the Financial Action Task Force.
- *Widely adopted national measures to implement these various regime elements*, including export and financial controls.
- *Complementary elements* that borrow from broader, external diplomatic, economic, military and intelligence capabilities, including the Six Party Talks; ad hoc diplomatic interventions with China and other parties with influence over North Korea; unilateral and multistate economic sanctions, including isolation from the Western financial system; the threat of military intervention, at least at certain points along the way (such as 1993–1994); and the intensive application of intelligence resources.²

In addition, by repeatedly violating a de facto global moratorium on nuclear testing in 2006, 2009 and 2013, Pyongyang disregarded another important nonproliferation norm.

In effect, North Korea has appeared impervious to nonproliferation measures. This immunity, however, may well be unique. Pyongyang's isolation from global political discourse and the international financial system has made it difficult to craft measures that can create effective external pressures for nuclear restraint. The fact that the UN Security Council was forced to rely in part on embargoing luxury goods highlights how few levers have been available to pry North Korea away from its nuclear ambitions, and those available hardly appear commensurate with the task at hand.

Moreover, time and again, China has diluted efforts to pressure Pyongyang to alter its nuclear course. Not only has China not used its political and economic leverage to restrain North Korea, but it has repeatedly acted to weaken UN sanctions resolutions, made only halfhearted efforts to curb the leakage to North Korea of nuclear- and missile-related goods, and imposed only limited restrictions on North Korean use of Chinese banks for proliferation-sensitive transactions.

It is difficult to identify another potential proliferant state that fits this profile of isolation and steadfast support from a major-power patron. Thus, it is reasonable to anticipate that the nonproliferation regime writ large will continue as a powerful restraining influence on proliferation decisions elsewhere, largely mitigating the demonstration effect of Pyongyang's defiant withdrawal from the NPT; disregard of sanctions imposed by the Security Council, the United States and others; and apparent ease in acquiring high-tech components for its nuclear (and missile) programs.

In this context, the outcome of the ongoing negotiations between the P5+1 (China, France, Russia, the United Kingdom and the United States, plus Germany) and Iran over restraining Tehran's nuclear program takes on particular significance. If Iran, having been subjected to

² Because they are not directly germane to the evolution of North Korea's nuclear deterrent, the list does not include measures, such as the Convention on the Physical Protection of Nuclear Material (CPPNM), focused on securing nuclear materials against use by extremist non-state groups. North Korea has also successfully defied a range of nonproliferation measures to advance its missile program, further highlighting the failure of nonproliferation norms and institutions as restraints in this instance.

virtually the same panoply of nonproliferation pressures outlined above, accepts and implements negotiated limits on its nuclear activities—as it appeared ready to do as of October 2015—it may be possible to pronounce North Korea's nuclear defiance to be a non-contagious malady. If, however, the agreement to implement nuclear restraints collapses and Tehran disregards reimposed UN sanctions, expands its sensitive nuclear infrastructure, and edges ever closer to nuclear arms, the influence of Pyongyang's precedent will loom larger. Indeed, the effect of the two cases in combination would deal a compound setback to the credibility of the nonproliferation regime that would greatly exceed the impact of North Korea's defection standing alone.

Erosion of the Global Nonproliferation Regime - II

North Korea's development of a nuclear deterrent may also challenge the nonproliferation regime along a different vector. The norm underlying the nonproliferation regime, namely, the goal of halting the spread of these weapons, depends on a near-universal consensus of states around the globe. But that consensus, as forcefully underscored during the 2015 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, depends, in part, on a grand bargain: Under Article VI of the treaty, in return for the renunciation of nuclear arms by non-nuclear weapon state parties, the “nuclear weapon state” parties (those that had detonated nuclear explosive devices prior to January 1, 1967—China, France, Russia, the United Kingdom and the United States) must make good-faith efforts toward similar renunciations.

The United States has sought to demonstrate its compliance with this stricture by highlighting its reduced reliance on nuclear weapons, as articulated in the 2010 US Nuclear Posture Review. It also points to the dramatic reductions in deployed US strategic nuclear systems and warheads, as well as the withdrawal of US tactical nuclear weapons from South Korea, its removal of sea-based tactical nuclear weapons (a part of past US deterrence forces protecting Japan and South Korea), and its subsequent retirement of sea-launched nuclear-armed cruise missiles (also a part of past US nuclear deterrence forces protecting those two countries), which had been held for some time in non-deployed reserve in the United States.

The advent of a growing North Korean nuclear arsenal, now estimated at 12 to 20 nuclear weapons, along with a sizable missile arsenal able to reach South Korea, Japan, and, before long, it seems, the United States, has reoriented US nuclear policy toward Pyongyang away from preventive nonproliferation in favor of containment and deterrence. In this context, the United States, to reassure its regional allies, has openly and repeatedly underscored for them the potency of US nuclear deterrent capabilities and US readiness to use these capabilities in defense of its Northeast Asian security partners.³

So far, neither Tokyo nor Seoul has publicly requested the return to the region of US tactical nuclear weapons, but at least one senior South Korean official has raised the possibility.⁴ (The

³ See, for example, “US Says It Sent B-2 Stealth Bombers over South Korea,” *CNN*, March 28, 2013; <http://www.cnn.com/2013/03/28/world/asia/korea-us-b2-flights/>; “US Shows Nuclear Facilities to Reassure Japan, Allies on Deterrence,” *Asahi Shimbun*, July 30, 2013, http://ajw.asahi.com/article/behind_news/politics/AJ201307300096.

⁴ “South Korea Considers Return of US Tactical Nuclear Weapons,” *The Guardian*, November 22, 2010, <http://www.theguardian.com/world/2010/nov/22/south-korea-us-tactical-weapons-nuclear>.

United States is making parallel efforts to reassure its NATO allies in Europe, where the United States is reported to deploy 160 to 200 nuclear bombs at six bases in Belgium, Germany, Italy, the Netherlands and Turkey.⁵)

Such increased, highly publicized US emphasis on nuclear deterrence, including at least the possibility of redeploying tactical nuclear weapons to Asia, could intensify already serious concerns among non-nuclear-weapon NPT parties about the slow rate of progress toward nuclear disarmament—and indeed could lead to embittered complaints that the trend in this direction may be reversing.⁶ How badly such dissension might weaken the treaty is not clear, but obviously such developments will not bolster the consensus on which the treaty depends.

Spur to Proliferation in Northeast Asia

To assess the impact of North Korea's development of a nuclear arsenal in creating pressures for Japan and South Korea to meet this challenge by developing comparable, countervailing armaments of their own, classic proliferation analysis calls for examining the predilections of the two countries' political and military leaders, existing and emerging technological capabilities, and more general factors, such as public attitudes and national cultures, including historical dimensions. The restraining influence of international nonproliferation norms and treaties and related diplomatic interventions by the United States and other governments must also be weighed, as well as the likelihood of a confrontational response to any steps toward nuclearization from a rising, nuclear-armed China—and from North Korea itself.

In the context of 2015, however, the factor most likely to dominate thinking in Tokyo and Seoul on how to manage the North Korean nuclear danger could well be timing. To put the matter succinctly, the two countries face an immediate and rapidly worsening threat from an aggressive, risk-taking and unpredictable North Korea. But with Japan lacking effective delivery systems and South Korea lacking fissile material, they cannot hope to meet this threat by means of indigenous nuclear deterrents for at least five years, and quite possibly longer.⁷ The only effective counter in these circumstances is reliance on the United States.⁸

⁵ Hans M. Kristensen, "Non-Strategic Nuclear Weapons," Federation of American Scientists, Special Report No. 3, Washington, D.C., May 2012, p. 16, http://www.fas.org/docs/Non_Strategic_Nuclear_Weapons.pdf.

⁶ These states have underscored their support for disarmament in a series of international meetings, the most recent attended by 158 countries, examining the humanitarian impacts of nuclear weapons, with some participants pressing for a new convention banning nuclear weapons outright.

⁷ Japan has a substantial and advanced space launch capability, with a number of systems that could be converted to intermediate- and longer-range, nuclear-capable missiles. Nonetheless, making such conversions; refining warhead designs, fusing and separation; manufacturing sufficient numbers to stock a deterrent arsenal; and developing mobile or silo basing systems would require considerable time. "Japan: Missile Program," Federation of American Scientists, <http://fas.org:8080/nuke/guide/japan/missile/index.html>.

⁸ Japanese Prime Minister Shinzo Abe recently acted to reinforce his country's links to Washington, gaining approval of Japan's lower house of parliament to authorizing the use of Japanese military forces abroad in cases when Japan is attacked, or when a close ally is attacked, and the result threatens Japan's survival and poses a clear danger to people. Jonathan Soble, "Japan Moves to Allow Military Combat for First Time in 70 Years," *New York Times*, July 16, 2015, <http://www.nytimes.com/2015/07/17/world/asia/japans-lower-house-passes-bills-giving-military-freer-hand-to-fight.html>.

The United States also confronts an acute timing challenge. In the Asian context, US national security depends on Japan and South Korea remaining stalwart allies in the effort to balance China and contain North Korea. Thus for Washington, the goal in reinforcing its alliance relationships is not merely to reduce proliferation pressures in Tokyo and Seoul, but, more importantly, ensuring that US allies not succumb to nuclear intimidation.

Thus, in a sense, the problem for Washington is not so much preventing proliferation on the part of its allies, but rather finding a more timely substitute for proliferation that will strengthen their strategic postures in a nuclear-fraught Northeast Asia. Fortunately from the US perspective, the situation creates a “virtuous circle”: the greater the reliance of its two Asian partners on this extended deterrence relationship, the more susceptible they become to US counter-proliferation pressures, as Taiwan and South Korea itself learned in the 1970s.

Multiple tools are available to strengthen US allies in Asia. Washington is pursuing many of these avenues, reaffirming its political commitment to defend its regional partners by transferring advanced conventional arms, enhancing regional and US-based missile defenses, and, in the nuclear realm, demonstrating US capabilities with the March 2013 overflight of South Korea by nuclear-capable B-2 bomber(s) and providing considerably more substantial strategic briefings and dialogues than in the past.⁹ Some options, such as reintroducing tactical nuclear weapons on US naval assets deployed in the region, are off the table, at least for the moment, because of continued US and Russian adherence to their pledges to withdraw such weapons under the 1991–1992 Presidential Nuclear Initiatives.¹⁰ Redeployment of US nuclear weapons to Guam, however, may be a practicable and, from the standpoint of Japan and South Korea, desirable measure, although the step would likely trigger heated denunciations from Pyongyang and Beijing.

Just as the impact of North Korea’s nuclear advances on the global nonproliferation regime will be greatly influenced by external factors, in particular, Iran’s future nuclear course, so the impact of North Korea’s nuclear advances on proliferation in the region will be greatly influenced by another external factor, in this case, Chinese behavior, in several areas. These include:

- If China persists in what can only be characterized as a *laissez-faire* policy toward North Korea’s expansion of its nuclear arsenal, including Beijing’s toleration of leakage to the DPRK of Chinese-origin and third-country nuclear- and missile-related goods, pressures for Japan and South Korea to respond will continue, including pressures, even if limited, for the development of independent nuclear deterrents. If China changes course and takes steps to constrain North Korea, such pressures would ease accordingly.
- China’s readiness to assist North Korea militarily in the event of a crisis with the United States and its allies is also a factor that Japan and South Korea must take into account. It

⁹ See, for example, US Department of State, Office of the Spokesperson, “US-Japan Extended Deterrence Dialogue June 10–12 [2014],” June 9, 2014, <http://www.state.gov/r/pa/prs/ps/2014/06/227303.htm>; Ministry of Foreign Affairs, Japan, Japan-US “Extended Deterrence Dialogue,” http://www.mofa.go.jp/press/release/press4e_000637.html.

¹⁰ “The Presidential Nuclear Initiatives (PNIs) on Tactical Nuclear Weapons at a Glance,” *Arms Control Today*, August 2012, <https://www.armscontrol.org/factsheets/pniglance>. If Russia were to renounce such restraints, however, this option would again be available to Washington.

is not clear whether Beijing has offered Pyongyang explicit security guarantees or that it would seek to deter the United States from the possible use of nuclear weapons against the North by threatening nuclear retaliation on behalf of its ally. The possibility of such action, of course, could cause Tokyo and Seoul to question the ultimate reliability of US extended deterrence. But it also underscores the impracticality of their developing indigenous nuclear deterrents, which in this scenario, would need to counter not only North Korea—with its many years' head start—but also the far more daunting nuclear threat from China.

Indeed, at least for some Japanese strategists, the threat from an increasingly assertive China has displaced that from North Korea as the preeminent national security concern. But, as just suggested, once China becomes a major factor in Japanese and South Korean nuclear decision making, the requirements for creating effective indigenous nuclear deterrents grow dramatically, as do the timelines for deploying them, making this option all the more impractical.

Even if under such a “rational actor” analysis, there is no obvious—and perhaps no possible—way for either Japan or South Korea to achieve a timely, credible nuclear deterrent against North Korea, much less against China, it would be wise for analysts to consider less “rational” factors that might propel Tokyo or Seoul toward nuclear armaments. Such factors—in particular, domestic politics and bureaucratic pressures—are clearly in play in both countries.

It does not take an expert to observe that national security hawks now lead the two US allies and within their factions, are champions of nuclear armament. In both states, moreover, nuclear energy establishments also wield considerable influence. In Japan, champions of nuclear energy pine to reopen the Rokkasho Mura reprocessing plant and eventually complete the nuclear fuel cycle, which would add to Japan's already sizable stocks of directly weapons-usable separated plutonium. And, in South Korea, nuclear energy devotees have pressed to engage in near-reprocessing—technically, “pyroprocessing”—a stepping-stone toward plutonium separation and, potentially, de facto nuclear-weapons status.

These influences suggest the United States may confront a mixed strategy in Japan and South Korea, stimulated most immediately by North Korea's nuclearization but also by the looming threat from China. Under this strategy, both of the US regional partners would rely crucially on US extended deterrence for years to come, but both would also be seen edging toward independent nuclear weapon and related capabilities. The actual goal of such hedging would be to shorten the timeline for acquiring independent deterrents, whether or not brought to fruition, and creating sufficient ambiguity about future intentions to keep North Korea and China off-balance.

Washington would presumably oppose such advances, at least in its public pronouncements. Nonetheless, some US policymakers might consider increased nuclear ambiguity on the part of Japan and South Korea to be advantageous in the context of the unfolding US confrontation with Pyongyang and Beijing. Although not a perfect parallel, US endorsement of India's use of a number of its nuclear power reactors to produce plutonium for weapons under the 2006 US-India nuclear deal might be seen as a precedent. This decision went against the grain of US nonproliferation policy, but it supported the underlying goal of the deal, which was to reinforce

US-Indian ties (and Indian military capabilities) as a means of balancing a rising China. The US agreement in 2012 to allow South Korea's development of new ballistic and cruise missiles with capabilities well above the Missile Technology Control Regime (MTCR) threshold of concern is another example of Washington's setting aside certain proliferation goals in order to enhance the military capabilities of a friend confronting a state that the United States also perceives as an adversary.¹¹

In sum, further proliferation in Northeast Asia because of North Korea's nuclear arsenal appears quite unlikely, but a certain ambiguity in Japanese and South Korean nuclear behavior may arise. Unfortunately, the absence of additional nuclear states in the region does little to reduce the risk of nuclear confrontations there that could create considerable dangers for the United States.

Spur to Proliferation Elsewhere

Predictions of nuclear developments in Northeast Asia are dominated by unavoidable practicalities, in particular, the near impossibility of states at risk responding in kind to the North Korean and Chinese nuclear threats on a timely basis. Assessing the impact of a nuclear North Korea farther afield, in contrast, requires a good deal more speculation because outcomes could vary dramatically depending on how specific developments unfold.

Iran. North Korea's impact on further proliferation in the Middle East will depend heavily on Iran's future implementation of the Joint Comprehensive Plan of Action (JCPOA), signed with the P5+1 in mid-July 2015. Three principal scenarios are relevant here.

- If Iran scrupulously implements the terms of the JCPOA, the agreement will significantly constrain its nuclear activities and greatly reduce the likelihood that it will acquire nuclear arms for at least a decade. In this case, the possible impact on Middle Eastern security affairs of North Korea's having become a nuclear armed state will likely be quite modest, with a possible exception, discussed below, regarding Syria. Iran would not develop nuclear arms. In addition, it would have access through a monitored channel to any goods it requires to pursue permitted nuclear activities and, thus, no need for clandestine nuclear supplies from North Korea.
- Under a second scenario, however, matters are not quite so rosy: Iran signs the agreement with the P5+1 but then cheats and seeks assistance from North Korea in one or more prohibited areas. To date, Iran and North Korea have collaborated on the development of short- and intermediate-range missiles, but they are not known to have collaborated on the production of nuclear weapons. In the near future under this scenario, however, Iranian cheating under the P5+1 agreement could include purchasing equipment from North Korea for a clandestine facility in Iran or possibly in another locale; purchases of substantial amounts of North Korean highly enriched uranium; collaboration with Pyongyang on advanced centrifuges; and/or gaining know-how from North Korea on warhead design and nuclear weapons production. Joint activities conducted in North Korea might be especially difficult for outsiders to observe. Missile collaboration might

¹¹ Simon Mundy and Michiyo Nakamoto, "US Eases South Korea Missile Restrictions," *Financial Times*, October 7, 2012, <http://www.ft.com/intl/cms/s/0/5211903e-1052-11e2-a5f7-00144feabdc0.html#axzz3bT8m5zAf>.

also continue, given Iran's presumed interest under this scenario in building a secret nuclear arsenal. Depending on the scale of collaboration, Iran's ability to "sneak out" from the P5+1 agreement could be greatly enhanced.

From the North Korea standpoint, there would be little to lose from such cooperation. Its nuclear arms protect it from military intervention; it is already politically and economically isolated and under heavy sanctions, so it is unlikely to suffer significantly from further punitive measures of this kind; and it will continue to enjoy a measure of protection from its patron—China has never punished Pyongyang for its many grave nuclear transgressions.

- If the P5+1 agreement with Iran unravels, Iran might openly pursue many of the collaborative efforts with the DPRK described in the cheating scenario, above. Presumably Iran would do so with alacrity in order to accelerate its dash to its first nuclear warheads and thereby reduce its window of vulnerability to outside military intervention; alternatively, it might prefer the clandestine option while continuing the pretense of pursuing solely peaceful activities.

As in the cheating scenario, the impact of North Korea's nuclear deterrent is to enable it to pursue such collaborations with impunity.

Saudi Arabia, Egypt and Turkey. If the JCPOA collapses, it has been suggested that several states in the greater Middle East region might be driven to seek nuclear weapons of their own. Saudi Arabia, Egypt and Turkey are most frequently mentioned in this context. Moreover, Saudi Arabia has hinted that even if the deal is fully implemented, it will develop a uranium enrichment capability, which would provide Riyadh with a latent nuclear weapons capability comparable to Tehran's. None of these states has close ties with Pyongyang, but in these circumstances, all might be looking for clandestine nuclear assistance of one type or another. Saudi Arabia would most likely turn to Pakistan, but Pakistan—or, at least, A.Q. Khan during the years when his network was in operation—has sometimes turned to North Korea to fulfill orders from third parties, as when Pyongyang provided Pakistani parties with uranium hexafluoride gas for Libya's late dictator Muammar Gaddafi.¹² Whether North Korea would decline to assist Saudi Arabia or the others in their nuclear endeavors out of loyalty to Iran is not easily predicted.¹³

Syria. From 2001 to 2007, North Korea secretly provided equipment to Syria for construction of a nuclear reactor designed for the production of plutonium and helped in the construction of the facility. The reactor was destroyed as it was approaching operational status by an Israeli airstrike in September 2007. Syria was building the facility in violation of its commitments under the NPT, under which it had pledged not to develop nuclear weapons.

¹² Mark Fitzpatrick, *Nuclear Black Markets: Pakistan, A.Q. Khan and the Rise of Proliferation* (London: International Institute of Strategic Studies, 2007), p. 78.

¹³ Stranger transactions than this can be found in the nuclear history books, such as China's reported supplying heavy water to India for its Dhruva plutonium production reactor whose output was to be used for nuclear weapons directed at China's regional ally, Pakistan—and at China itself. Gary Milhollin, "India's Nuclear Cover-Up," *Foreign Policy*, Fall 1986, pp. 161–75.

With Syria now embroiled in a violent civil war whose duration and outcome remain in doubt, it is difficult to imagine that it has restarted its bid to acquire nuclear arms. However, at least one story has surfaced that cites unnamed intelligence sources as claiming that Syria has, indeed, relaunched the program at a secret facility near the city of Qusayr.¹⁴ If Syria were to pursue this course, North Korea might again step in to assist it. When it did so in 2001 and risked international condemnation or worse, Pyongyang lacked nuclear weapons, but it went forward nonetheless. Presumably, now that it is nuclear armed, it would have still less compunction in providing such aid.

Separately, with the United States and other foreign powers intervening militarily in the Syrian conflict, Bashar al-Assad may observe that Kim Jong Un's possession of nuclear arms provides North Korea with virtual immunity against such intervention. Should Assad remain in power, this lesson could provide strong encouragement for him to resume his quest for nuclear arms.

Myanmar. There is ample evidence that North Korea provided Myanmar with conventional arms and missile technology, some in violation of a UN embargo on such exports.¹⁵ It has also been rumored that Pyongyang provided Yangon nuclear assistance of some sort, but the evidence has been challenged and the matter left unresolved. In recent years, however, in the wake of increasing democratization and some diminution of the authority of the country's military, whatever concerns may have existed regarding the country's nuclear ambitions appear to have eased, with the United States, for one, publicly indicating that its concerns on the subject have been allayed.¹⁶ In this setting, North Korea's nuclear capabilities do not appear to be a source of proliferation concern.

Diminishing market? In light of the above analysis, if the JCPOA is fully implemented and Iran is thus not in the market for possible nuclear assistance from North Korea, it will be hard to identify a state that is under pressure to proliferate and would turn to Pyongyang for such support. Indeed, the market for North Korean nuclear goods could shrink to innocuous levels.

Non-state actors. With the advent of the Islamic State (ISIS) in Syria and Iraq, the enlarged role of the al-Nusra Front and al-Qaeda in Syria, the Taliban in Afghanistan, Boko Haram in Nigeria, and the long-standing presence of Hezbollah in Lebanon, and Hamas in Gaza, the nature of militarized non-state actors has gradually changed. Rather than being networks of fragmented cells with no enduring geographic base, today's violent non-state actors control substantial swaths of territory and, in several instances, considerable financial resources. As events unfold, moreover, some are acquiring powerful weaponry—significant stocks of surface-to-surface missiles, in the case of Hezbollah and Hamas, and radioactive materials (from hospitals and industries in Mosul) and small quantities of poorly dispositioned chemical weapons, in the case of the Islamic State—that point toward possible future bids to acquire WMD capabilities.

¹⁴ Erich Follath, "Assad's Secret: Evidence Points to Syrian Push for Nuclear Weapons," *Spiegel Online International*, January 9, 2015, <http://www.spiegel.de/international/world/evidence-points-to-syria-still-working-on-a-nuclear-weapon-a-1012209.html>.

¹⁵ Jay Solomon, Yuka Hayashi, and Colum Murphy, "Korea's Illegal Weapons Pipeline Flows On," *Wall Street Journal*, November 29, 2012, <http://www.wsj.com/articles/SB10001424127887323830404578144981537771060>

¹⁶ See, "Myanmar Overview," Nuclear Threat Initiative, citing sources, <http://www.nti.org/country-profiles/myanmar/>.

While it is possible to imagine the acquisition by some of these groups of limited chemical, biological or radiological capabilities, it is more difficult to conceive of their pursuing nuclear weapons, much less succeeding. Construction and operation of the needed nuclear facilities is simply beyond the technical abilities of these groups, even if North Korea were to provide assistance, and none of these actors can count on maintaining a stable geographic base for such facilities that would endure for the decade or more needed for their construction and operation. Nor is it likely that North Korea might provide such complete nuclear weapons to them for fear of losing control over their use—and possibly being linked to a future detonation.¹⁷ This restraint, however, assumes that the North Korean government remains intact and operational.

Civil Unrest

The potential for proliferation involving North Korea's growing nuclear arsenal must also consider the dangers that this capability might pose in the event of regime collapse, whether as the result of rebellion or of military conflict with South Korea and the United States. Assuming a crisis of either type in which DPRK command authority becomes uncertain, control over the various components of North Korea's nuclear program might devolve along at least five basic paths:

- Nuclear custodians protect their assets until order is restored and turn them over to the country's new ruling authority.¹⁸
- A faction of North Korean nuclear insiders or outsiders seize the assets and hold them hostage either as bargaining chips in the unfolding tumult or for future sale.
- Anarchy reigns, and nuclear assets are partly destroyed and partly dispersed to unidentified warring elements.
- One or more outside powers (China, the United States or South Korea) intervene and gain control of the nuclear assets.
- Various combinations of the above.

One expert observer of the North Korean nuclear program believes that the first of these scenarios is the most likely, given that these custodians are thought to be the most highly trained, best equipped and most loyal of North Korea's forces. He has also noted that this group would be the most likely faction to maintain possession of North Korea's nuclear assets for possible use as bargaining chips.¹⁹

Adding further complexity is that multiple categories of nuclear assets, initially under the control of a number of different governmental entities and located at a number of sites, will be at issue as the crisis unfolds. Among categories of nuclear assets of concern are:

¹⁷ Whether Pyongyang might provide assistance to one or more of these groups for a conventional weapons program is a more realistic concern but beyond the scope of the discussion here.

¹⁸ This seemed to be the direction of events in Syria.

¹⁹ Comments of Joseph S. Bermudez on an earlier version of this paper.

- Missiles armed with complete nuclear warheads;
- Nuclear warheads ready to be mounted on missiles;
- Warheads ready to receive fissile material;
- Unarmed nuclear-ready missiles;
- Fissile material components for nuclear warheads;
- Bulk fissile material in various chemical and physical forms prior to fabrication into warhead components;
- Facilities for producing these various items and materials;
- The technical information relevant to all of the above categories; and
- The scientists and engineers involved.

The first six of these would have the greatest immediate danger in the hands of third parties, but in the longer term, North Korean expertise could be of even greater value to an open-ended state-level nuclear weapon program.

Multiple forms of “proliferation” can be imagined in such circumstances. If command structures break down, virtually all of the above nuclear assets would shift rapidly from being under the control of the state to being under the control of entities that are, by definition, “non-state actors.” Assuming that these entities remain internally cohesive, some assets—including those posing the most immediate dangers—would be under the control of custodians in the military and security services, while others would be under the control of the nuclear weapons manufacturing complex.

A number of important studies have focused on the great difficulty that US and South Korean forces would face in locating, securing and rendering safe Pyongyang’s nuclear assets if they entered the North in the course of a regime collapse-triggering conflict.²⁰ One of the most urgent tasks in this regard, these studies stress, would be securing North Korea’s land and maritime borders to prevent leakage of such matériel abroad—a seemingly daunting effort given the

²⁰ Several of these studies include: RAND Corporation, Bruce W. Bennett, “Preparing for the Possibility of a North Korean Collapse,” a report issued in 2013, http://www.rand.org/content/dam/rand/pubs/research_reports/RR300/RR331/RAND_RR331.pdf, as well as Bennett’s accompanying briefing before the US-China Economic and Security Review Commission on January 29, 2014, “Preparing for the Possibility of a North Korean Collapse,” http://www.rand.org/content/dam/rand/pubs/testimonies/CT400/CT404/RAND_CT404.pdf. Please also see Michael E. O’Hanlon’s opinion piece for the Brookings Institution in June 2009, “North Korea Collapse Scenarios,” <http://www.brookings.edu/research/opinions/2009/06/north-korea-ohanlon>; and Robert J. Peters’ article for the blog *38 North*, “The WMD Challenges Posed by a Collapse of North Korea,” April 14, 2015, <http://38north.org/2015/04/rpeters041415/>.

massive refugee flows that could be expected and the relatively small physical size of many nuclear assets.²¹

During the period of turmoil, however, it would be difficult for any faction possessing such assets to strike a deal and make them available to a geographically-distant violent extremist group or state. Still, plans might be made by a North Korean faction to cache some of these assets for possible future sale.

Presumably, relatively small quantities of nuclear weapon material or a small number of nuclear warheads would be of particular interest to violent extremists, who could exploit them for political blackmail or a large-scale terrorist attack. In the collapse scenario, the non-state sellers would likely have fewer qualms about making such transfers than a functioning North Korean government.

External states seeking a nuclear weapons capability would likely have greater interest in nuclear weapons technology and expertise than in acquiring a handful of weapons themselves, although in some circumstances, acquiring a somewhat larger number of weapons—perhaps 10 to 20—and the expertise to maintain and use them might be attractive. In mid-2015, however, with the signing of the JCPOA, it is not clear that any state is in the market for such goods.²² This benign situation would, of course, change dramatically if implementation of the JCPOA breaks down or Iran launches a clandestine “sneak out” strategy. Nor can the emergence of new proliferant states be ruled out.

Threatened or actual use of a nuclear weapon by one faction against another within North Korea during a period of civil strife is a possibility lurking in the background. It would become more likely if, for example, the turmoil begins during a confrontation with the South (and the United States), leading North Korean missiles to be armed and deployed, and launch authority, pre-delegated.²³

Given the multiplicity of variables, these scenarios are very difficult to project, but one likely dimension for almost all alternatives is the involvement of China. At a minimum, China would seal its borders with North Korea to control refugee flows. Quite possibly, whether North Korea faced collapse from internal stresses or under invasion, China might send armed columns into North Korea that could include units with nuclear security missions, but given the scale of

²¹ In commenting on an earlier version of this paper, Joseph S. Bermudez differed with this view. “I often wonder about this. A sea blockage of NK is actually a fairly simple thing to effectively accomplish, especially if the Chinese participate. The DMZ, even in wartime, is/would be a significant obstacle for anyone to cross without being approved. The Chinese border does present a problem. Given, however, that in a crisis the PLA [People’s Liberation Army] would both conduct operations from the border and block the border, as one of the last things the Chinese want is an influx of NK refugees, it is likely that it would be difficult to smuggle out significant nuclear assets. Not to mention that the PLA, should it desire, absolutely has the manpower to seal the border.”

²² One scenario brought to the author’s attention by John Schilling is the possibility that leaders faced with prosecution for war crimes or crimes against humanity might seek to acquire ready-to-use nuclear arms as a means of staving off intervention by foreign forces that could lead to their being brought to justice.

²³ Pre-delegation raises other disturbing possibilities, as well, including the possibility of advance authority being given to launch a nuclear attack upon loss of communications with the national command authority.

the problem it is hard to see how this could be effective absent active cooperation from North Korean elements controlling the country's nuclear stores.²⁴

In light of official statements and past behavior, it appears that from a Chinese perspective, the best way to keep the North's nuclear assets secure is to reduce the risk of conflict on the peninsula and to deflect civil turmoil by sustaining the Kim regime with essential foodstuffs, oil and other economic assistance. Ironically, while one might hope that the fall of the regime could usher in a less belligerent and unpredictable replacement and thereby reduce the risk of nuclear conflict, the process of regime change may, itself, open an even more deadly nuclear Pandora's Box.²⁵

Conclusions

As noted at the beginning of this paper, there is no question that North Korea's acquisition of nuclear weapons has created a most serious security challenge for the United States and its allies in Northeast Asia. The unique status of North Korea in the international system, the fact that its nuclear deterrent capabilities are so well advanced compared to the barely nascent military nuclear capabilities of Japan and South Korea, and the potential for constraining the Iranian nuclear program through the JCPOA all point to the likelihood that if North Korea remains internally stable, its nuclear advances will have few reverberations in terms of stimulating proliferation elsewhere. Under some scenarios, however, most importantly if the JCPOA collapses or if Iran secretly violates its provisions, North Korea's defiant nuclear behavior could compound the erosion of global nonproliferation norms and institutions and, in certain circumstances, facilitate the emergence of Iran as a new nuclear power. Moreover, if tensions within North Korea or conflict on the peninsula bring the sudden breakdown of central authority, proliferation through loss of control over the country's nuclear assets would emerge as a grave new danger.

²⁴ In his comments, Joseph S. Bermudez offered a contrary view on this final point, arguing, "It is likely that specialized units of PRC intelligence and specific elements of the XV Airborne Corps and Special Operations Forces have the neutralization of NK nuclear assets and custodial units as a wartime mission—with or without NK cooperation." Execution of that mission may be quite challenging, however, given that North Korean nuclear assets will be dispersed in numerous locations, many of which will have been deliberately obscured as part of North Korean concealment and deception.

²⁵ These challenges point to the need for launching unpublicized consultations with China, conducted at the level of technical experts on managing North Korea's nuclear assets in the event of government failure. Early US discussions of this kind with Russia regarding Syria's conventional weapon arsenal contributed significantly to the rapid diplomatic intervention that led to the elimination of that arsenal after the Ghouta crisis in 2013.

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