

GENERAL ASSESSMENT OF THE DPRK NUCLEAR SITUATION

Peter Hayes, Richard Tanter, Joan Diamond

Nautilus Institute

www.nautilus.org

Presentation at Workshop

“A Comprehensive Approach to a NEA-NWFZ”

Research Center for Nuclear Weapons Abolition, Nagasaki University

December 7, 2012

- 1. DPRK Leadership Transition:** The DPRK leadership under Kim Jong Un is stable and more vigorous than it was under Kim Jong Il, but also presents significant marginal uncertainty compared to his father's rule due to his inexperience and lack of a personal political basis for his power in the DPRK polity.
- 2. DPRK Economy is Collapsed:** The DPRK economy is trapped in low level equilibrium. It has seen slight annual improvements in quality of life for urban elite, and party and military members; but the economy as a whole is precariously balanced and cannot grow quickly or substantially given its absolute deficits of infrastructural and human capacity. So long as it remains a nuclear threat, the DPRK will remain at the bottom of a very deep economic hole, sitting on a small pile of nuclear weapons, with no way to get out. It will take huge reconstruction funding to overcome these economic problems. Just to replace the transmission, distribution, and generation power system, for example, will cost roughly \$38-40 billion.
- 3. DPRK's Ecology is Endangered:** Decades of abuse, concentrated points of industrial pollution, and a degraded natural resource base all present a huge cost to be paid by future generations of Koreans. This enduring legacy will present enormous costs later when, for example, urban-domestic and industrial toxic waste sites are found to be co-located at risk to ground water and populations.
- 4. DPRK Nuclear Armament:** The DPRK nuclear threat is primarily political and psychological, not military in nature, designed to coerce and compel, not deter or reassure. The only place that the DPRK knows it can strike with assurance (roughly 50 percent reliability) is a hole in the ground in the DPRK. It has no credible delivery capacity, let alone a reliable, reasonably accurate nuclear weapons system that mates a warhead with a delivery system with a high degree of assurance that it will not fail to fire, fail to be delivered, or backfire.¹

5. **Nuclear-Armed DPRK is Unacceptable:** A new nuclear armed state in this region must never be accepted due to the costs it imposed on the global nuclear non-proliferation regime, to all of those interested in regional security and stability and to the US and its allies. Allowing it to continue its nuclear program and develop additional nuclear warheads and delivery capabilities runs the risk of war, including nuclear war. It also distracts all states in the region from addressing other important security issues. Finally, it leaves most North Koreans starving and without a future, and risks imperiling the South Korean social and economic miracle, should conflict break out. In short, the US and the regional states cannot and should never accommodate a nuclear-armed DPRK, as some have argued.
6. **DPRK LWR Project:** DPRK nuclear reactor project is primarily symbolic, not technological or economic in motivation. It can do little or nothing to alleviate power shortages in the DPRK. It introduces a significant element of Fukushima or Chernobyl-type risk to the Korean Peninsula.²
7. **Six Party Talks Are Dead:** The Six Party Talks are moribund and are highly unlikely to resume. In any case, they offered too little, too late; and were never more than faux multilateralism, to give cover to the United States to engage bilaterally with the DPRK given US domestic political constraints.
8. **DPRK Nuclear Aggression:** DPRK nuclear threats are designed primarily for compellence, not for deterrence purposes. Their flamboyant nuclear threat rhetoric aimed at Korea, Japan, and the United States has been aggressive and even barbaric.³ In fact, it likely is illegal and constitutes nuclear aggression under international law. We should speak truth to power, whether it is American, Korean, or Japanese.
9. **DPRK Has Sufficient Non-Nuclear Military Deterrence:** DPRK deterrence, based on conventional forces, is sufficient, albeit relatively inferior and increasingly so over time. DPRK artillery and rockets cannot reduce Seoul to a sea of fire, but they can produce serious casualties and damage, and spread terror indiscriminately. Such attacks would be primitive and would not last long before the DPRK is crushed militarily (the DPRK runs out of fuel for its war machinery in less than 30 days, at which point, the DPRK military is walking to war). Nuclear weapons, from this viewpoint, draw fire, require major resources to deploy, complicate DPRK military command and control, and are a distraction from the KPA's major military mission. From a US-ROK perspective, the DPRK conventional military threat is substantial, but highly deterred from escalating beyond a low threshold of violence in its recent covert and overt conventional provocations.⁴

- 10. Conventional Deterrence of DPRK is Strong:** US-ROK extended deterrence, based on conventional forces, is strong and credible without the need to resort to nuclear weapons, even *in extremis*.⁵
- 11. US Nuclear Extended Deterrence is Already Recessed:** US nuclear extended deterrence to Japan, ROK, and Taiwan, is weak, recessed, and incredible.⁶ To attack the DPRK, the only nuclear forces that are usable are long-range bombers. The US would conduct a slow-motion shuttle service nuclear attack on the DPRK—a few thermonuclear weapons at a time—far too few to affect a fast-moving battlefield, but too many to avoid serious collateral damage from blast and radiation effects on Koreans, North and South.
- 12. Comprehensive Regional Security Strategy Needed:** Incremental, partial and inconsistent strategies to respond to the DPRK nuclear breakout, implemented by Democratic and Republican Administrations, in or out of alignment with conservative and progressive allied governments over the cycles of confrontation since 1991, have failed completely to stop and reverse the DPRK's nuclear breakout. At best, they slowed it to a slow-motion proliferation trajectory for about a decade. They then accelerated it by confrontation or neglect since 1998 as both the United States and the DPRK used their respective nuclear threats to try to force each other to change their postures and actions, that is to compel, not deter the other.⁷
- A comprehensive approach based on a security settlement that addresses the DPRK's core insecurities—nuclear, military, economic, and cultural—is required to reverse the DPRK's nuclear breakout, and to dismantle its nuclear forces. The Halperin proposal is a realistic pathway to achieve this outcome.⁸ It has been examined closely now at two workshops, one in Tokyo (November 2011), and one in Washington DC (October, 2012).⁹
- 13. Nuclear Negative-Security Assurance is Necessary but Not Sufficient:** A critical element is providing a legally binding, treaty-based guarantee that the nuclear weapons states, in particular, the United States, will not use nuclear weapons against the DPRK. Such an offer has never been made to the DPRK, which has continually emphasized the importance of such a guarantee. The standard US negative security assurance offered to the DPRK since 1992 was always moot due to US qualification that it was rendered inoperative if a non-nuclear weapons state engaged in aggression when in an alliance with a nuclear weapons-state. In effect, the United States insisted that the DPRK abandon its key military alliance with China in order to obtain a US guarantee that it would not use nuclear weapons against the DPRK—an unrealistic and even ridiculous proposition that undermined US credibility in Pyongyang and Beijing.
- 14. Need to Adapt NEA-NWFZ Concepts to DPRK Nuclear Breakout:** The original 3-3 NEA-NWFZ proposal advanced from Japan, especially those articulated by Professor Umebayashi, and separately, by John Endicott, today confronts the reality of a nuclear-

armed DPRK.¹⁰ The DPRK's declared nuclear armament creates a set of dilemmas for the 3+3 proposal that can be resolved only by use of legal precedent, creative diplomacy, expanded participation by more states in the NEA-NWFZ, political leadership at a unique moment of leadership change, and bottom-up welling for a peaceful, sustainable regional security order based on communicative, cooperative, and collaborative relationships, not one based on nuclear threat and military forces.

Evolving Post-Six Party Talks Concept

5 + 4.5

Later becomes

5 + 5 + 0.25

- **4 NPT-NNWS (ROK, Japan, Canada, Mongolia) join at the outset**
- **DPRK joins in a contingent status (0.5 NNWS);**
- **5 NPT-NWS join with negative security assurance to DPRK calibrated to its compliance**
- **This "5+5" model takes time (but not without limit) to integrate fully the DPRK.**
- **Taiwan unilaterally declares will observe obligations of NNWS (0.25 NNWS)**

7

15. DPRK Phased Compliance with NWFZ: In a NWFZ, the DPRK can be admitted at the outset as a full party, but also can be provided time to comply fully which could not happen in less than two years, and might take as long as a decade to complete. During this time, nuclear weapons states can calibrate the degree to which their legally binding guarantee of non attack using nuclear weapons to the extent that the DPRK has disarmed its nuclear weapons, and reverted to non-nuclear weapons state status in compliance with its NPT and IAEA safeguards obligations, as well as fulfilling the requirements to establish confidence that it has not only dismantled its weapons, but abandoned fully its aspirations to acquire nuclear weapons and to become a nuclear-weapons state. In turn, the other non-nuclear weapons states whose territory is covered by a NEA-NWFZ can waive the clause in the standard treaty text whereby the treaty comes into force only when all states have ratified and come into compliance, thereby entering it into force only on their own territory—as occurred in the Latin American NWFZ to enable Argentina and Brazil to join at the outset (it took these two states 18 years to complete the accession process).¹¹

The benefits that might flow to North Korea - in particular, a guarantee that it would not be attacked with nuclear weapons under the Nuclear Weapons-Free Zone - would occur only if the North fully dismantled its nuclear capabilities under monitoring and verification by the

International Atomic Energy Agency or a substitute regional inspectorate established as part of the treaty. Non-nuclear states such as South Korea and Japan could pull out of the treaty after five years if the North had not dismantled its nuclear program by then. As was the case with South Africa's abandonment of its nuclear program, North Korea would have to do more than just comply with its old "safeguards" obligations and establish genuine confidence that it no longer has nuclear weapons capabilities or aspirations held in reserve. Nevertheless, none of these obstacles - even the superficially impassable such as monitoring and verifying North Korea's enrichment capacities¹² - are insurmountable.¹³

16. Key Issues in a NEA-NWFZ: The DPRK is not the only important issue facing a NEA-NWFZ. A NEA-NWFZ must resolve many complicated issues before it can be implemented. These include:

Critical NEA-NWFZ Issues

1. Are NWSs **ready to forego the use of nuclear weapons and nuclear threat against NNWSs in the region?**
2. Should NWSs impose a **verifiable restriction on deployment of nuclear-armed ground-launched ballistic and cruise missiles on their own territory as part of the treaty?**
3. Is a NEA-NWFZ consistent with **continuing nuclear extended deterrence?**
4. Should **nuclear fuel cycle cooperation** be included as part of the NWFZ treaty or as a separate set of parallel side agreements?
5. Are **conventional military means sufficient** for U.S. and its allies to achieve security and to fulfill **its** mutual security obligations without recourse to nuclear threat or nuclear weapons?
6. Would NWSs **disavow past agreements as to NWS prerogatives to station or re-introduce** nuclear weapons into NNWSs covered by a NEA-NWFZ?
7. Would the **firing of nuclear weapons out of the NWFZ be proscribed** in a NEA-NWFZ?
8. Should NEA-NWFZ end at the standard **12 nautical mile coastal limit?** Would NWSs have the **right of innocent transit** of coastal waters and airspace?
9. **What Monitoring and Verification (M&V) and Enforcement is needed in a NEA-NWFZ; and specifically for DPRK?**

Legend: NWS = NPT recognized Nuclear Weapons States NNWS = NPT recognized Non-Nuclear Weapons States

Source: Peter Hayes and Richard Tanter, "Key Elements of Northeast Asia Nuclear-Weapons Free Zone (NEA-NWFZ)," Session 5: Managing the Security Framework, Breaking the Gridlock Workshop, Oct. 10, 2012, <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Hayes-Tanter-NWFZ-2-pager-Oct1-2012.pdf>

17. Expanded Scope of a NEA-NWFZ? Halperin's proposal suggests that it is time to break out of the moribund, rigid mold of the Six-Party talks and cast the net wider. On the US-allied side, for example, it was suggested that Canada might join a Northeast Asia NWFZ; and to make North Korea less isolated, Mongolia might also join the zone as a non-nuclear

weapons state. The UK and France could also buttress the multilateral guarantee of the NPT nuclear states to the North and other non-nuclear states such as Japan and South Korea that they would not be attacked with nuclear weapons so long as they fulfilled their obligations as a party to the NWFZ - including not allowing nuclear weapons to be stationed or fired from their territories.

18. Nuclear Fuel Cycle Competition vs Collaboration: The vexed issue of nuclear fuel cycle inequality and discrimination - especially between Japan and the two Koreas – may hinder the implementation of a NEA-NWFZ. But regional fuel cycle collaboration also offers a way to engage the North, bring its full enrichment capacity out into the open and onto the table as a negotiable capacity, and reduce the perceived inequality between Japan (by foregoing breeder reactors and reprocessing in a post-Fukushima recognition that these are fantasies that no longer justify billion-dollar subsidies) and South Korea (which would give up its aspiration to match Japan by “pyro-processing” spent fuel).¹⁴

19. NWFZ Increases Deterrence, Predictability, and Strategic Stability: Should the North Korean nuclear threat be removed, and the Korean Peninsula stabilized by the creation of a revamped non-partisan UN Command - essentially a peace-keeping force in Korea - then a Northeast Asia NWFZ could free up US and allied aerial and ground forces to strengthen deterrence against a Chinese attack across the Taiwan Strait, thereby reducing the probability that China or the US might be the first to use nuclear weapons in this most dangerous of potential Asian conflict zones.¹⁵

Moreover, it was noted at the workshop that should the North Korean nuclear threat be removed, and the Korean Peninsula stabilized by the creation of a revamped non-partisan UN Command - essentially a peace-keeping force in Korea - then a Northeast Asia NWFZ could free up US and allied aerial and ground forces to strengthen deterrence against a Chinese attack across the Taiwan Strait, thereby reducing the probability that China or the US might be the first to use nuclear weapons in this most dangerous of potential Asian conflict zones.¹⁶ From a Japanese perspective, a NEA-NWFZ would create an enduring geostrategic buffer between the two Koreas, and between China and Japan.¹⁷

20. The Absurdity of Nuclear Threats in the 21st Century: Given the pace of urbanization, including in-situ urbanization of rural villages and towns between major cities, a gigantic urban corridor is likely to emerge all the way from Beijing to Tokyo, and south to Shenzhen, by 2050. This would be world’s first giga-city. Such an urban giga-city will generate new, linear, trans-boundary insecurities, which will require new, networked security transnational capacities to resolve. At the same time, a giga-city implies much increased mobility of people and labor, as well as inter-connected logistics and shared infrastructure. Targeting different parts of this giga-city will increasingly mean that nuclear weapons states are targeting their own vital interests, an absurd security strategy. This, the bottom-up

groundswell of communities and cities seeking to establish their non-nuclear status on the one hand, and their green, interconnected, but self-reliant credentials on the other, establishes the social foundations for a NEA-NWFZ which cannot be sustained or even created by states alone.

21. Conclusion—Leadership is Key: After 2012, the “year of doing nothing,” the two possible sources of leadership to implement Halperin’s concept are the Obama administration and the new occupant of the Blue House in Seoul.

Should Seoul and Washington align their views and recognize the strategic advantages of reaching a regional security settlement, there is little doubt that the other regional powers would follow suit. The question is, who will kick-start the process? The devil may be in the details, but that’s what bureaucracies are there to work out. As we learned after US President Richard Nixon and China’s Chairman Mao Zedong met in 1972 and US President Ronald Reagan met Soviet President Mikhail Gorbachev in 1986, the world can change overnight.

A Six-Party summit of heads of state in mid-2013 could cut through the many snarled knots that have made it impossible so far to resume the Six Party talks, on the one hand, and address how to resolve the big insecurities that drove North Korea towards nuclear armament in the first place, on the other.

Would Obama risk sitting down with North Korea’s Kim in Nagasaki to discuss such a process, alongside the four other heads of state from the region?

If a complete deal were in the offing, why not?

ENDNOTES

¹ Peter Hayes, Scott Bruce, “Unprecedented Nuclear Strikes of the Invincible Army: A Realistic Assessment of North Korea’s Operational Nuclear Capability,” NAPSNet Special Report, September 22, 2011, at:

<http://nautilus.org/napsnet/napsnet-special-reports/unprecedented-nuclear-strikes-of-the-Invincible-army-a-realistic-assessment-of-north-koreas-operational-nuclear-capability/>

² D. von Hippel, P. Hayes, “Small LWR Development and Denuclearization,” 38 North, Washington, DC: U.S.-Korea Institute at SAIS, Johns Hopkins University, February 17, 2011, at: <http://38north.org/2011/02/small-lwr-development-and-denuclearization/>

³ “Supporting Online Material: North Korean Nuclear Statements (2002-2010)” Nautilus Special Report, May 17, 2011, at: <http://nautilus.org/napsnet/napsnet-special-reports/supporting-online-material-north-korean-nuclear-statements-2002-2010/>

⁴ See Roger Cavazos, “Mind the Gap Between Rhetoric and Reality,” NAPSNet Special Report, June 26, 2012, at: <http://nautilus.org/napsnet/napsnet-special-reports/mind-the-gap-between-rhetoric-and-reality/>

⁵ This has been the case for decades. For an authoritative view on the DPRK from former CINCPAC Admiral Denis Blair, see Admiral C. Blair (ret), “With the single exception of planning and developing non-nuclear missile defense systems against nuclear ballistic missiles, past attempts to plan the use of nuclear and non-nuclear weapons in an integrated campaign plan have not persisted. In nuclear wargames over the years, for both military commanders and appointed officials, once nuclear weapons were introduced into a campaign, nuclear escalation considerations dominated the conflict, rather than questions of the effective use of tactical nuclear weapons within an otherwise non-nuclear campaign that had not escalated. This syndrome has even been true for the use of nuclear weapons at sea, where collateral damage considerations are far less than they are on land. In wargames and planning, even when an adversary like North Korea resorts to the use of chemical weapons (like nuclear weapons, a weapon of mass destruction) commanders and officials have shown a preference for refraining from retaliatory use of nuclear weapons if the United States and the Republic of Korea can fight through the chemical weapons with non-nuclear forces and prevail.” In “Integration and Separation of Nuclear and Non-nuclear Planning and Forces,” in Taylor Bolz, editor, *In the Eyes of the Experts, Analysis and Comments on America’s Strategic Posture, Selected Contributions by the Experts of the Congressional Commission on the Strategic Posture of the United States*, United States Institute Of Peace Press, Washington DC, 2009, pp. 77-78 at: <http://www.usip.org/files/In%20the%20Eyes%20of%20the%20Experts%20full.pdf>

See Peter Hayes, “North-South Korean Elements of National Power”, NAPSNet Special Report, April 27, 2011. Available at: <http://nautilus.org/publications/essays/napsnet/reports/north-south-hayes/#2-military-power>;

⁶ For not completely consistent views, see: Jeffrey Lewis, “Extended Nuclear Deterrence in Northeast Asia,” East Asia Nuclear Security Workshop, Tokyo, November 11, 2011 at: <http://nautilus.wpengengine.netdna-cdn.com/wp-content/uploads/2011/12/Extended-Nuclear-Deterrence-in-Northeast-Asia.pdf>

Patrick M. Morgan, “Considerations Bearing on a Possible Retraction of the American Nuclear Umbrella Over the ROK,” Project on Improving Regional Security and Denuclearizing the Korean Peninsula: U.S. Policy Interests and Options (2010), at

<http://www.ncnk.org/resources/publications/Morgan%20Considerations%20Bearing_on_a_Possible_Retraction_of_the_American_Nuclear_Umbrella.pdf/?searchterm=missiles; and Patrick M. Morgan, “Reflections on Contemporary Issues on Extended Nuclear Deterrence,” Research workshop on Australia–Japan Civil Society Cooperation for Nuclear Disarmament, Nautilus Institute at RMIT at RMIT University in Melbourne, September 18-19, 2009, at:

<http://nautilus.wpengengine.netdna-cdn.com/wp-content/uploads/2011/12/morgan.pdf>

⁷ Patrick M. Morgan, “Deterrence and system management: the Case of North Korea,” *Conflict Management and Peace Science*, 23 (2006), pp. 121–138; Peter Hayes, “North Korean proliferation and the end of US nuclear hegemony,” in S. Lodgaard and B. Maerli, *Nuclear Proliferation and International Security*, Routledge, 2007, pp.118–136.

⁸ Morton Halperin, “A New Approach to Security in Northeast Asia: Breaking the Gridlock,” presented at A New Approach to Security in Northeast Asia: Breaking the Gridlock Workshop, Washington DC, Oct. 9-10, 2012 (on Oct. 9), <http://nautilus.wpengengine.netdna-cdn.com/wp-content/uploads/2012/10/Halperin-New-approach-to-Northeast-Asian-Security-Oct8-2012.pdf>. Originally, see Morton H. Halperin, Opening Remarks, “The Rise of a NE Asia NWFZ in Eliminating Nuclear Weapons from the Korean Peninsula,” East Asia Security Workshop, Nov. 11, 2011, Tokyo; paper available at: <http://www.nautilus.org/projects/east-asia-nuclear-security-workshop/papers-and-presentations/papers-and-presentations>.

⁹ See New Approach to Security in Northeast Asia: Breaking the Gridlock Workshop, agenda, participants, papers, and background readings at: <http://nautilus.org/projects/by-name/korea-japan-nwfz/workshops/gridlock/>, especially the Summary Report available at that website.

¹⁰ The 3+3 concept is advanced by H. Umebayashi, “A Northeast Asia Nuclear-Weapon-Free Zone with a Three Plus Three Arrangement,” East Asia Nuclear Security Workshop, Tokyo, Japan, November 2011, at: <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2011/12/UMEBAYASHI—A-NEA-NWFZ-with-3-3-Arrangement-2011-Tokyo.pdf>; and similarly, Kumao Kaneko, “Japan needs no umbrella,” Bulletin of the Atomic Scientists, March/April 1996, pp. 46-51, at: <http://www.thebulletin.org/> Endicott’s 15 year series of workshops first proposed a 1,000 km range from the Korean DMZ that covered parts of Alaska, China, Mongolia, and Russia as well as Korea and Japan; and later, an ellipse that covered NE China, Mongolia, the Russian Far East, part of Alaska, the two Koreas, Japan, and Taiwan at the southern end. See J. Endicott, “Limited nuclear-weapon-free zones: the time has come,” Korean Journal of Defense Analysis, 20: 1, 2008, p. 17, at: <http://dx.doi.org/10.1080/10163270802006305>. Endicott’s concept was reviewed critically by S. W. Cheon, op cit, pp. 106-115.

The first proposal *phased* implementation of a 3+3 concept is found in S. W. Cheon and T. Suzuki, “The Tripartite Nuclear-Weapon-Free Zone in Northeast Asia: a Long-Term Objective of the Six Party Talks,” International Journal of Korean Studies, 12, 2, 2003, pp. 41-68, at:

http://www.kinu.or.kr/eng/pub/pub_03_01.jsp?page=2&num=42&mode=view&field=&text=&order=&dir=&bid=DATA03&ses=&category=11 Nautilus’ 3+2 phased concept was advanced in: Korea-Japan Nuclear Weapon Free Zone (KJNWFZ) Briefing Paper, May 6, 2010, in English, Korean, and Japanese, at: <http://nautilus.org/projects/by-name/korea-japan-nwfz/>

¹¹ This approach is transposed from the Tlatelolco Treaty which established an ingenious and innovative legal mechanism by which reluctant states could be encouraged to join the zone at a later date. It consists of a provision in Article 28 (3) that allows a signatory state to “waive, wholly or in part” the requirements that have the effect of bringing the treaty into force for that state at a particular time.¹¹ As Mexican diplomat Alfonso Garcia Robles noted in his commentary on Article 28: “An eclectic system was adopted, which, while respecting the viewpoints of all signatory States, prevented nonetheless any particular State from precluding the enactment of the treaty for those which would voluntarily wish to accept the statute of military denuclearization defined therein. The Treaty of Tlatelolco has thus contributed effectively to dispel the myth that for the establishment of a nuclear-weapon-free-zone it would be an essential requirement that all States of the region concerned should become, from the very outset, parties to the treaty establishing the zone. In this way, the normative framework for a non-nuclear region can be established before all states are ready to actually implement the framework.” M. Hamel-Green, “Implementing a Korea–Japan Nuclear-Weapon-Free Zone: Precedents, Legal Forms, Governance, Scope, Domain, Verification, Compliance and Regional Benefits,” Pacific Focus, 26:1, April, 2011, pp. 97-98, at: <http://onlinelibrary.wiley.com/doi/10.1111/pafo.2011.26.issue-1/issuetoc>

¹² see Stephen Bosworth, “New Approach to Security in Northeast Asia,” Session 2: Regional Framework for Comprehensive Security Settlement: Does it Work?,” Breaking the Gridlock Workshop, Oct. 10, 2012, <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Bosworth-Alternative-Strategy.pdf>

¹³ Olli Heinonen, “Critical Monitoring and Verification Issues in Northeast Asia,” in Session 5: Managing the Security Framework, Breaking the Gridlock Workshop, Oct. 10, 2012, <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Heinonen-Northeast-Asian-NWFZ.pdf>

¹⁴ See David von Hippel, “Regional Nuclear Fuel Cycle and Energy Cooperation in Support of a Regional NWFZ,” Session 5: Managing the Security Framework, Breaking the Deadlock Workshop, Oct. 10, 2012, <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Von-Hippel-2-pager-Sep28-20121.pdf> and Sharon Squassoni, “DPRK Nuclear Energy in the Context of a Proposed Peace Settlement,” Session 5: Managing the Security Framework, Breaking the Gridlock Workshop, Oct. 10, 2012, <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Squassoni-DPRK-Nuclear-Energy-in-the-context-of-a-proposed-peace-settlement1.pdf>

¹⁵ For related discussions, see:

Eric Heginbotham, “Impact of a NE Asian NWFZ on Taiwan Strait and Korea Deterrence,” Session 6: Critical Military Issues: Deterrence, Compellence, Reassurance, Breaking the Gridlock Workshop, Oct. 10, 2012,

<http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Heginbotham-NWFZ.pdf>

Michael McDevitt, “Critical Military Issues: The Rebalancing Strategy and Naval Operations,” Session 6,

<http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/09/McDevitt-Critical-Military-Issues.pdf>.

Noboro Yamaguchi, “U.S. ‘Rebalancing’ as an Opportunity for a NWFZ in Northeast Asia,” Session 3: Great Power and Allied Core Issues, <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Yamaguchi-NWFZ-October-1.pdf>

Michael Schiffer, “Impact on Nuclear Extended Deterrence,” Session 6, <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Schiffer-Paper-Oct.2-2012.pdf>.

General (Retired) Walter “Skip” Sharp, “Deterrence using all Elements of Power,” Session 6: Critical Military Issues: Deterrence, Compellence, Reassurance, <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Peace-Treaty-Deterrence.pdf>

¹⁶ For related discussions, see:

Eric Heginbotham, “Impact of a NE Asian NWFZ on Taiwan Strait and Korea Deterrence,” Session 6: Critical Military Issues: Deterrence, Compellence, Reassurance, Breaking the Gridlock Workshop, Oct. 10, 2012,

<http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Heginbotham-NWFZ.pdf>

Michael McDevitt, “Critical Military Issues: The Rebalancing Strategy and Naval Operations,” Session 6,

<http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/09/McDevitt-Critical-Military-Issues.pdf>.

Noboro Yamaguchi, “U.S. ‘Rebalancing’ as an Opportunity for a NWFZ in Northeast Asia,” Session 3: Great Power and Allied Core Issues, <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Yamaguchi-NWFZ-October-1.pdf>

Michael Schiffer, “Impact on Nuclear Extended Deterrence,” Session 6, <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Schiffer-Paper-Oct.2-2012.pdf>.

General (Retired) Walter “Skip” Sharp, “Deterrence using all Elements of Power,” Session 6: Critical Military Issues: Deterrence, Compellence, Reassurance, <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/Peace-Treaty-Deterrence.pdf>

¹⁷ As argued by Shinichi Ogawa, “Link Japanese and Koreans in a Nuclear Weapon-Free Zone,” New York Times, August 29, 1997 at: <http://www.nytimes.com/1997/08/29/opinion/29iht-edskin.t.html>