

# **Nuclear Security 2012**

**Challenges of Proliferation and Implication for the Korean Peninsula** 

edited by Jung - Ho Bae and Jae H. Ku





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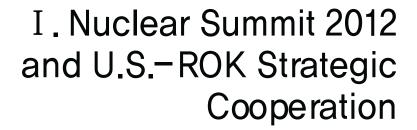
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: Challenges of Proliferation and Implication for the Korean Peninsula

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#### 1. Introduction

With the demise the of the Cold War and in the aftermath of 9·11, American leaders began voicing more concerns about unsecured nuclear material falling into the hands of Al Qaeda and other terrorist networks. The concern is not generally over nuclear warheads in the possession of declared nuclear states, although political instability in Pakistan continues to raise concerns over its ability to maintain and secure its nuclear weapons. The main concerns arise from securing nuclear materials in the possession of countries which are either actively in pursuit of nuclear weapons program, such as North Korea, Iran, and Syria or countries which have a questionable capacity to safeguard the nuclear material already in their possession. These two types of countries make it more likely that terrorist networks may eventually succeed in acquiring both the technology and the material to create a nuclear device.

Therefore, the international community's heightened concern has been over maintaining the security of the stockpile of nuclear material used for both civilian and military use. Although the chance of a nuclear weapon being used by a nuclear state has dramatically fallen, the possibility that a terrorist network will try to acquire and use a nuclear device against the United States has dramatically increased. Since the end of the Cold War, the International Atomic Energy Agency(IAEA) has tracked nearly 1,000 incidents involving the illicit



<sup>&</sup>lt;sup>1</sup>-See in this book Walter Andersen's chapter "South Asia and the Strategic Implications of Nuclear Weapons."

trafficking of nuclear and other radioactive materials.<sup>2</sup> According to U.S. officials, there exists over 2,000 tons of plutonium and highly enriched uranium for military and civilian use in dozens of countries; moreover, there have been 18 documented cases of theft or loss of plutonium or highly enriched uranium.<sup>3</sup> When one adds the unknown number of cases of terrorist organizations and other non-state actors reaching out to nuclear weapons scientists, the future does not bode well for nuclear security. That is, the threat of nuclear terror posed by non-state actors has become more serious.

To confront such a threat, in January 2008, writing in the Wall Street Journal, four distinguished U.S. statesmen - George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn - called upon the world, the U.S. and Russia<sup>5</sup> in particular, to "Dramatically accelerate work to provide the highest possible standards of security for nuclear weapons, as well as for nuclear materials everywhere in the world, to prevent terrorists from acquiring a nuclear bomb (emphasis original)."6 In April 2009, President Barack Obama delivered a speech in Prague calling for the eventual and ultimate elimination of

<sup>&</sup>lt;sup>2</sup>- Walter Andersen, "South Asia and the Strategic Implications of Nuclear Weapons."

<sup>3-</sup>Office of the Press Secretary, The White House, "Key Facts about the Nuclear Security Summit," (13 April, 2010).

<sup>4-</sup> See in this book Sharon Weiner's chapter "Nuclear Weapons and Non-State Actors: Issues for Concern."

<sup>&</sup>lt;sup>5</sup>- Presently, of the 23,000 nuclear warheads in existence, the U.S. and Russia possess an overwhelming number of nuclear warheads; nearly 22,000 nuclear warheads or over 95% of existing stockpile of warheads are in their possession. Swadesh M. Rana, "The NPT and Nuclear Security Summit," CBRN South Asia Brief, No. 19 (April 2010), p. 2.

<sup>6-</sup> The Wall Street Journal (15 January, 2008).

all nuclear weapons. His speech followed earlier calls for a world free of nuclear weapons, in which he proposed that a nuclear security summit be held in Washington D.C. in 2010.

The IAEA defines nuclear security as "the prevention and detection of, and response to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear material, other radioactive substances or their associated facilities." What this means in terms of international relations is taking action to keep non-states actors from acquiring nuclear fission material or using such material maliciously.



### 2. The First Nuclear Summit

As proposed by President Obama, the first Nuclear Security Summit was held in Washington D.C., on 12–13 April, 2010. In attendance for the two-day summit were forty-seven heads of states and governments as well as the representatives of three international organizations (the UN, the IAEA and the EU).<sup>8</sup> These leaders came, at the behest of the United States, to find better ways to secure all vulnerable fissile, nuclear material and to prevent nuclear material from reaching the hands of international terrorists.

<sup>7-</sup>International Atomic Energy Agency, "Concepts and Terms," <a href="http://www-ns.iaea.org/standards/concepts-terms.asp?s=11&l=90>">http://www-ns.iaea.org/standards/concepts-terms.asp?s=11&

<sup>8–</sup> The Summit was the largest conference held in Washington D.C. since the San Francisco conference convened in 1945 to create the UN. It is considered to be one of the largest international conferences ever in the area of disarmament and non-proliferation.

The thrust of the first Nuclear Security Summit has been to reinforce the "principle that all states are responsible for ensuring the best security of their materials, for seeking assistance if necessary, and providing assistance if asked, (and to promote) international treaties that address nuclear security and nuclear terrorism."9 Therefore, the main goals of the Summit were to ① build a consensus on the seriousness of the threat of nuclear terror. (2) reconfirm that securing nuclear material is the most urgent task in order to prevent nuclear terror, and ③ strengthen domestic nuclear security measures, the role of the IAEA and international cooperation.

Thus, given the potential for misuse and misallocation of nuclear material, President Obama has called upon the leaders of the 47 countries to come "together to advance a common approach and commitment to nuclear security at the highest levels."10 After two days of discussion, the leaders shared the thought that nuclear terror is one of the most urgent and serious challenges to international security and signed a 12 item communiqué and a work plan, calling for the securing of all vulnerable nuclear material over the next four years. 11 The non-binding communiqué released after the Summit specifies the following:

<sup>9-</sup> Office of the Press Secretary, The White House, "Key Facts about the Nuclear Security Summit."

<sup>10-</sup>Ibid.

<sup>11</sup>\_ The Work Plan calls for more inter-state cooperation and also to cooperate more with the IAEA to better detect and respond to cases of potential trafficking of illicit nuclear material.

- ① Reaffirm the fundamental responsibility of States, consistent with their respective international obligations, to maintain effective security of all nuclear materials, which includes nuclear materials used in nuclear weapons, and nuclear facilities under their control; to prevent non-state actors from obtaining the information or technology required to use such material for malicious purposes; and emphasize the importance of robust national legislative and regulatory frameworks for nuclear security;
- ② Call on States to work cooperatively as an international community to advance nuclear security, requesting and providing assistance as necessary;
- ③ Recognize that highly enriched uranium and separated plutonium require special precautions and agree to promote measures to secure, account for, and consolidate these materials, as appropriate; and encourage the conversion of reactors from highly enriched to low enriched uranium fuel and minimization of use of highly enriched uranium, where technically and economically feasible;
- Endeavor to fully implement all existing nuclear security
   commitments and work toward acceding to those not yet joined,
   consistent with national laws, policies and procedures;
- ⑤ Support the objectives of international nuclear security in-struments, including the Convention on the Physical Protection of Nuclear Material, as amended, and the International Convention for the Suppression of Acts of Nuclear Terrorism, as essential elements of the global nuclear security architecture;



- 6 Reaffirm the essential role of the International Atomic Energy Agency in the international nuclear security framework and will work to ensure that it continues to have the appropriate structure, resources and expertise needed to carry out its mandated nuclear security activities in accordance with its Statute, relevant General Conference resolutions and its Nuclear Security Plans;
- (7) Recognize the role and contributions of the United Nations as well as the contributions of the Global Initiative to Combat Nuclear Terrorism and the G-8-led Global Partnership Against the Spread of Weapons and Materials of Mass Destruction within their respective mandates and memberships;
- 8 Acknowledge the need for capacity building for nuclear security and cooperation at bilateral, regional and multilateral levels for the promotion of nuclear security culture through technology development, human resource development, education, and training; and stress the importance of optimizing international cooperation and coordination of assistance:
- (9) Recognize the need for cooperation among States to effectively prevent and respond to incidents of illicit nuclear trafficking; and agree to share, subject to respective national laws and procedures, information and expertise through bilateral and multilateral mechanisms in relevant areas such as nuclear detection, forensics, law enforcement, and the development of new technologies;
- ® Recognize the continuing role of nuclear industry, including the private sector, in nuclear security and will work with industry

- to ensure the necessary priority of physical protection, material accountancy, and security culture;
- ① Support the implementation of strong nuclear security practices that will not infringe upon the rights of States to develop and utilize nuclear energy for peaceful purposes and technology and will facilitate international cooperation in the field of nuclear security; and
- Recognize that measures contributing to nuclear material security have value in relation to the security of radioactive substances and encourage efforts to secure those materials as well.<sup>12</sup>

In sum, the first Nuclear Security Summit succeeded in building a consensus on the seriousness of the threat of nuclear terror, reaching an agreement on implementing domestic nuclear security measures, reconfirming the essential role of the IAEA in the international nuclear security framework, and supporting international agreements and cooperative plans related to nuclear security.

Another outcome was the announcement in the second day of the Nuclear Security Summit that Chile and Canada had agreed to ship their highly enriched uranium to the United States while Ukraine agreed to ship its highly enriched uranium out of the country within two years. Also, the United States and Russia reached an agreement to eliminate enough total plutonium for approximately 17,000 nuclear



Office of the Press Secretary, The White House, "Communiqué of the Washington Nuclear Security Summit," (13 April 2010), <a href="http://www.whitehouse.gov/the-press-office/communiqu-washington-nuclear-security-summit">http://www.whitehouse.gov/the-press-office/communiqu-washington-nuclear-security-summit</a>.

<sup>&</sup>lt;sup>13</sup>– The White House Blog, "An Opportunity-Not Simply to Talk, But to Act," (13 April, 2010), <a href="http://www.whitehouse.gov/blog/2010/04/13/opportunity">http://www.whitehouse.gov/blog/2010/04/13/opportunity</a> -not-simply-talk-act>.

weapons, an agreement that had been stalled since 2000.<sup>14</sup> Finally, it was announced at the Summit that South Korea will host the next Nuclear Security Summit in 2012.

### 3. Why South Korea?

President Obama proposed that South Korea host another such summit. In a telephone conversation between President Obama and President Lee Myung-Bak on 1 April, 2010, Obama asked Lee to host a second Nuclear Security Summit, citing its significance and potential for it to become a regularized event. 15 Aside from the good personal relations between the two presidents of the United States and South Korea that may have prompted Obama to ask Lee to host a second summit, South Korea is a good locus for the summit, because the Korean peninsula possesses both the downside of a nuclear weapons program in North Korea and the upside of a peaceful civilian nuclear program in South Korea.

South Korea willingly accepted the proposal. 16 The strategic significance of hosting the second Nuclear Security Summit can be summarized as follows. First, South Korea can highlight its peaceful use of nuclear energy. The peaceful use of nuclear energy constitutes one

<sup>14</sup>\_ Ibid.

<sup>&</sup>lt;sup>15</sup>- Myo-ja Ser, "Korea will host nuclear security summit in 2012," JoongAng Daily (14 April, 2010).

<sup>16-</sup> Ibid. According to Korean officials, South Korea agreed to host the summit because of its promotion of peaceful use of nuclear technology whereas the North has been pursuing a destabilizing nuclear arms program.

of the three pillars of the NPT along with nuclear disarmament and non-proliferation. Though South Korea has been peacefully operating active civilian nuclear energy programs, it does not possess nuclear fissile material or facilities for enrichment and reprocessing. It can be said that South Korea is an exemplary state with respect to the peaceful use of nuclear energy.<sup>17</sup>

Second, South Korea can enhance the level of awareness in the international community of the threat that the North Korean nuclear program poses and strategically facilitate international public opinion that would work favorably in resolving the North Korean nuclear issues. By focusing international attention on and garnering the will for resolving the North Korean nuclear issues, South Korea can put more pressure on North Korea to denuclearize.

Third, South Korea can highlight and publicize its efforts for nuclear security to the international community. Some security experts and policy makers in neighboring countries are suspicious of a unified Korea going nuclear. To dispel such a concern, South Korea can clearly publicize its efforts for nuclear security and its will for a nuclear weapon-free Korean peninsula.

Fourth, by hosting a large scale international conference, South Korea can enhance its international status. Hosting this summit is in line with President Lee Myung-Bak's policy of raising the profile of South Korea in the international community. In November 2010,



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<sup>&</sup>lt;sup>17</sup>– Bong-Geun Jun, "Haeg-anbo Jeongsanghoeui-ui Seonggwa-wa Gwaje (Results and Tasks of the Nuclear Summit)," Ju-yogugjemunjebunseog (Analysis of Major International Events) (Seoul: IFANS, 18 May, 2010).

South Korea hosted the G20 Summit as the first non-G8 country and the first Asian country to do so. The second Nuclear Security Summit will surpass the G20 Summit as the largest summit ever hosted by the Korean government.

Therefore, South Korea should contribute to gathering the international community's capabilities for nuclear security while hosting such a large summit and should, above all, put every effort toward making the summit a turning point in resolving the North Korean nuclear problems.

# 4. Nuclear Security and the Nuclear Programs on the Korean Peninsula: North Korea's Nuclear Weapons Program vs. South Korea's Peaceful Civilian Nuclear Energy Program

The on-going nuclear standoff between North Korea and the rest of the world continues to destabilize regional security, as well as chipping away at the Non-Proliferation Treaty(NPT). Although North Korea signed the Nuclear Non-Proliferation Treaty in 1985 and ratified it in 1992, it withdrew from the NPT in 1993. The tortuous negotiations to denuclearize North Korea between North Korea and concerned parties including the United States have yielded little result in the past two decades. Rather, while negotiations have been on-going via the Six Party Talks and in other formats, North Korea has conducted two underground nuclear tests in October 2006 and in May 2009.

It can be pointed out that North Korea's nuclear weapons program poses threats to non-proliferation in at least two ways. First, North Korea sets a bad precedent for other countries that would like to follow in its footsteps, such as Iran and Syria. Second, North Korea has the potential to provide nuclear devices, material, and technology to other states and/or networks. For instance, Syria was constructing a clandestine reactor in 2007 with the assistance from North Korea when it was destroyed by an Israeli airstrike. Recent press reports have speculated that North Korea and the military regime in Burma/Myanmar may have had discussions on some aspects of nuclear cooperation. Security experts fear that the real danger North Korea poses is its ability to proliferate nuclear material and technology along with their sales of missiles and missile technology.



On the South Korean side, it has had a successful civilian nuclear program for the past forty years. South Korea built its first commercial nuclear power plant in 1978. Since then, it has built and operated 19 reactors; South Korea now has the sixth largest nuclear capacity in the world.<sup>20</sup> In 2009, a South Korean consortium led by Korea Electric Power Corporation(KEPCO) sealed a deal with the United Arab Emirates to build four nuclear power plants costing \$40

<sup>&</sup>lt;sup>18</sup>– See in this book Jim Walsh's chapter "Three States, Three Stories: Comparing Iran, Syria and North Korea's Nuclear Programs."

<sup>&</sup>lt;sup>19</sup>– Julian Borger, "Burma suspected of forming nuclear link with North Korea," *The Guardian* (21 July, 2009), <a href="http://www.guardian.co.uk/world/2009/jul/21/burma-north-korea-nuclear-clinton/print">http://www.guardian.co.uk/world/2009/jul/21/burma-north-korea-nuclear-clinton/print</a>.

<sup>&</sup>lt;sup>20</sup>– Jisup Yoon, "Korean Nuclear Energy and Approach to Spent Fuel Management," A Presentation at the U.S.-Korea Institute, Johns Hopkins University School of Advanced International Studies (1 November, 2010).

billion over the life of the projects.<sup>21</sup> In early 2010, a South Korean consortium led by the Korea Atomic Energy Research Institute and Daewoo Engineering and Construction Company signed a \$130 million deal with Jordan to build its first nuclear research reactor.<sup>22</sup> By 2030, South Korea hopes to have exported 80 nuclear power reactors worth \$400 billion.<sup>23</sup> If these plans are successfully executed, South Korea would be the world's third largest exporter of nuclear reactors, garnering 20 percent of the global market.<sup>24</sup>

# 5. The Second Nuclear Summit: South Korea's Main Policy Agenda and Strategy

As the host of the second Nuclear Security Summit, South Korea has an opportunity to strengthen and promote not only international standards and institutions for safeguarding nuclear materials but also resolve peninsular nuclear issues. In preparation for the summit, South Korea should make a comprehensive review of what has been achieved since the first summit, identify the areas that need improvement, and put forth ideas or initiatives that could be identified as having originated in Seoul. The follow up issues from the first summit include how well

<sup>&</sup>lt;sup>21</sup>- Yoon, "Korean Nuclear Energy and Approach to Spent Fuel Management,"

<sup>&</sup>lt;sup>22</sup>- "South Korea-Jordan Sign \$130M Nuclear Deal," United Press International (31 March, 2010), <a href="http://www.upi.com/Science">http://www.upi.com/Science</a> News/Resource-Wars/2010/03/31/South-Korea-Jordansign-130M-nuclear-deal/UPI-16251270062075>.

<sup>&</sup>lt;sup>23</sup>– Richard Weitz, "Another Korean Nuclear Issue," *The Diplomat* (19 July, 2010), <a href="http://the-diplomat.com/2010/07/19/another-korean-nuclear-issue/3">http://the-diplomat.com/2010/07/19/another-korean-nuclear-issue/3</a>.

<sup>24</sup>\_ Ihid

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the Work Plan has been implemented. The Work Plan called for the strengthening of United Nations Security Council Resolution 1540 and other international agreements, which call for member states to do their utmost to prevent non-state actors from acquiring nuclear weapons and material.

Some of the specifically proposed actions include more and better cooperation among states and with the IAEA in information sharing; providing additional funding, either for the IAEA or for many of the national governments to implement the Work Plan; and greater improvement in securing nuclear material at reactor sites and at storage sites by having armed guards and surveillance systems.

Some of the contentious issues not raised in the first summit may be raised in Seoul due to either an improvement or a worsening of the political and security climate. For instance, the sanctioning of Iran's nuclear program was not addressed in the first summit. If in 2012 the Iranian nuclear program continues to defy the standards and demands set by the IAEA, Iran's nuclear program could be raised at the summit for some kind of punitive action. For South Korea, this issue hits close to home as it continues to deal with a belligerent and recalcitrant North Korea that remains unwilling to curb its nuclear program. That Iran may be close to following in North Korea's footsteps may require the summit participants to raise the Iranian issue. Also at the summit, the North Korean nuclear program will most likely be raised, although any actionable course may be very limited. As mentioned before, South Korea and the United States can use the international stage to seek to dissuade pressure North Korea from

further escalating the nuclear standoff.

Another issue that should be raised is the spent fuel recycling issue, especially since this issue directly involves South Korea. In 1974, the United States and South Korea agreed that any "nuclear material supplied to South Korea may be reprocessed only in facilities acceptable to both parties upon a joint determination that IAEA safeguard may be effectively applied."25 This agreement will expire in 2014. The South Korean government has proposed reprocessing through what it calls a "proliferation-resistant" technology called pyroprocessing but the U.S. has halted the use of this technology because it "would partially separate plutonium and uranium from spent fuel."26 The concern is that pyroprocessing is not completely proliferation resistant, and that allowing South Korea to reprocess may weaken the international community's resolve to prevent North Korea from further reprocessing.

Therefore, on this issue of fuel recycling, South Korea could, in coordination with the United States, propose several spent fuel management options. It could call for an international collaboration on advanced fuel cycle, a multilateral approach for spent fuel management and energy sustainability, and protocol for enhancing proliferation resistant safeguards. All of these actions should be consistent with the rules and regulations of the NPT.

<sup>&</sup>lt;sup>25</sup>- Fred McGoldrick, "New U.S.-ROK Peaceful Nuclear Cooperation Agreement: A Precedent for a New Global Nuclear Architecture," Center for U.S.-Korea Policy (November 2009), p. 3.

<sup>&</sup>lt;sup>26</sup>- Mark Holt, "U.S. and South Korean Cooperation in the World Nuclear Energy market: Major Policy Considerations," CRS Report for Congress (21 January, 2010), p. 10.

# 6. Working for U.S.-ROK Strategic Cooperation

The security climate on the Korean Peninsula at the end of 2010 is one of tense confrontation not seen on the Peninsula in almost four decades. On 26 March, 2010, a 1,200-ton South Korean naval ship, the Cheonan, sank off the western coast in the Yellow Sea, killing 46 sailors. Two months later, a South Korea-led investigating team that included Australia, Britain, Sweden, and the United States concluded that a torpedo had sunk the ship. The investigating team also concluded that North Korea was behind the sinking. The March sinking froze inter-Korean relations through much of 2010; the relations appeared to be thawing at the end of the summer, as evidenced by nominal provisions of aid to the North by the South and reinstated family reunions. The thaw went into a deep freeze at the end of November when the North Korean military fired scores of artillery shells onto a South Korean island, the Yeonpyeong, killing two civilians and two soldiers. South Korea has vowed to take tough military counter measures if North Korea repeats its provocations. For the time being, the Six Party Talks, a framework of negotiations intended to denuclearize North Korea, appears to be dead in its tracks.

In 2012 when South Korea hosts the Nuclear Security Summit, the political-military security around the Korean Peninsula may have improved. While this improvement is hoped for, given North Korea's pattern of provocations to extract concessions or designed for domestic political consumption, one can expect periods of political lull punctuated by North Korean military provocations. Therefore, in preparation for



the Summit South Korea should continue and intensify cooperation with the United States on a range of issues relevant to nuclear security. The Summit can provide a useful international forum to place additional constraints on North Korea's nuclear weapons program. Even if this has a limited impact, the international community benefits from repeated calls for a complete denuclearization of North Korea because acceptance of North Korea as a nuclear weapons state will undermine the integrity of the non-proliferation regime.

On issues that are more directly tied to South Korea's civilian nuclear programs, here too, only cooperation with the United States can result in outcomes that the South Korean government seeks. As South Korea's domestic nuclear program, as well as its export of nuclear reactors, expands, it will have to resolve the issues of spent fuel storage. This resolution can only come about through nuclear cooperation with the United States. The Nuclear Security Summit 2012, therefore, can be a useful catalyst to achieving agreements that would be mutually beneficial. Finally, hosting the 2012 Summit will continue to highlight South Korea's increasingly important presence on the global stage.

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