

Turning Back the Clock: North Korea's Nuclear Program

Yoo Ho-yeol

INTRODUCTION

When James Kelly, Special Envoy to President George W. Bush, was in Pyongyang in October 2002 for high-level talks, a North Korean official confessed that the North had been pursuing a clandestine uranium enrichment program, which was not only a direct violation of the terms of the 1994 Agreed Framework, but also a defiant violation of various nonproliferation treaties that the North had signed. During the last several months since the meeting, Washington and Pyongyang relations reached a nadir, and it was obvious that both sides “were still in the escalation phase, clearing the debris leading toward the warpath.”¹⁾

Pyongyang has steadfastly refused to meet Washington's demands, insisting on its right to sovereignty and regime survival. After Washington refused to enter into a nonaggression pact, the

1) Alexandre Y. Mansourov, “Security Dilemma, War Trap, and the South Protectorate Over the North,” Policy Forum Online, The Nautilus Institute, February 10, 2003, [http://nautilus.org/fora/security/0238A_Mansourov.html].

North resumed the nuclear weapons development program that had been frozen in 1994. It began by removing containment and surveillance equipment that had been installed by the International Atomic Energy Agency (IAEA), and deported the IAEA inspectors. The North then signaled its intentions to restart the 5-megawatt nuclear reactor and reprocessing facility. On January 10, 2003, the North officially declared its withdrawal from the nuclear nonproliferation treaty (NPT), setting the nuclear situation on the Korean peninsula back to 1994.

Meanwhile, the White House issued a quick response. President George W. Bush, who had been critical of former President Bill Clinton's soft-line diplomatic approach to North Korea even before his inauguration, called for immediate dismantlement of the uranium enrichment program. He warned that unless Pyongyang complied, there would be no further dialogue. At the same time, the U.S. sought a multilateral solution through the Trilateral Coordination and Oversight Group (TCOG) comprised of South Korea, the U.S. and Japan and formed a united front with neighboring countries such as China and Russia. It also took the diplomatic offensive by suspending heavy oil shipments to North Korea, one of the terms of the 1994 Geneva Framework, and by demanding that the UN Security Council address North Korea's decision to pull out of the nuclear nonproliferation treaty.

As matters stand, the North Korean nuclear issue has not only turned back the clock but has once again brought danger and instability to South Korea's doorstep. The future presents a whole host of threats as well as challenges.

THE CURRENT STATE OF NORTH KOREA'S NUCLEAR PROGRAM

No confirmed evidence exists to show just how advanced North Korea's nuclear program is today, how developed it was prior to the

1994 U.S.-North Korea agreement in Geneva, or what will happen in the future. One can presume that only Kim Jong-il and a small number of key officials have the answers. What is known about North Korea's nuclear program is based on information gathered during verification of Pyongyang's data submitted to the IAEA during inspection of the Yongbyun nuclear reactor and facilities after North Korea joined the IAEA and NPT. Other sources of important information include the testimonies of the North Korean defectors who once worked at nuclear facilities, data provided by third countries involved in nuclear deals with North Korea, and evidence gathered during monitoring of North Korea's nuclear facilities. Without thorough inspection of the actual sites, however, that information does not constitute conclusive evidence.

Construction and Operation of the Nuclear Reactors

North Korea has pushed ahead with its nuclear program thanks to support from Russia (at that time, the Soviet Union). Given North Korea's fragile economic, political and diplomatic conditions, Russia was, and still is, the only country that will help it build nuclear reactors.²⁾

In addition to the 5-megawatt nuclear reactor operating before the Agreed Framework was signed, North Korea had been in the process of constructing 50-megawatt and 200-megawatt nuclear reactors. Now that it has vowed to restart its nuclear program, construction of the two nuclear reactors is likely to resume, and, according to a statement released by Pyongyang, at the least four additional large-scale nuclear reactors will be built.

Pyongyang claims that it must construct a graphite-moderated reactor because of dire economic and technological conditions and

2) Russian technicians from the Moscow's Kuluchatov Institute have been involved in building and operating the reactor since the late 1980s. *Yonhap News Agency*, March 8, 2003.

because it has easy access to natural uranium. But, if North Korea moves beyond the relatively small scale of the 5-megawatt reactor to building 50- or 200-megawatt nuclear reactors, much greater amounts of plutonium could be generated.

Extraction and Storage of Plutonium

The greatest concern: How much plutonium is now stored? Since it is the main component of nuclear warheads, any stored plutonium could be sold or transferred to third countries, or even to terrorist organizations. It is assumed that North Korea extracted plutonium when it replaced fuel rods in the 5-megawatt reactor at the Yongbyun nuclear facilities that had been operating until 1994. Serious discrepancies between the data submitted by Pyongyang and the findings of the IAEA inspectors led to the 1993-1994 nuclear crisis on the Korean peninsula; To date, the mystery of the missing plutonium remains unsolved.

Most information on North Korea's plutonium comes from reports submitted by the U.S. Central Intelligence Agency (CIA) to the Executive branch and to Congress, and from reports by South Korea's National Intelligence Service. According to these reports, North Korea extracted between 10 and 30 kilograms of plutonium before freezing its nuclear facilities in 1994. And since five to six kilograms of plutonium are needed for one nuclear warhead, it is presumed that North Korea has enough plutonium to make somewhere between one and six weapons.³⁾

The suspicion that North Korea has much more plutonium than it reported to the IAEA is closely linked to the replaced fuel rods at the Yongbyun nuclear facility. After suspending operations of the 5-megawatt nuclear reactor, North Korea clandestinely replaced the

3) Jon B. Wolfsthal, "Getting Back to Go: Re-establishing a Freeze on North Korea's Plutonium Fuel Cycle," Policy Forum Online, The Nautilus Institute, January 31, 2003, [http://www.nautilus.org/fora/security/0236A_Wolfsthal.html].

fuel rods (the whereabouts of the replaced fuel rods is unknown). From those spent rods, at least ten kilograms of plutonium are estimated to have been extracted and stored at the Yongbyun nuclear facility or elsewhere.

Reprocessing of Spent Nuclear Fuel Rods

In the early 1990s, North Korea had 8,000 spent fuel rods from the 5-megawatt nuclear reactor, which were placed in canisters, sealed and placed underwater for safekeeping as specified by 1994 Geneva Accord guidelines. At least until the end of last year, when Pyongyang declared its noncompliance, no additional plutonium was likely extracted, since the area was under the surveillance of IAEA monitoring equipment and inspectors. However, now that Pyongyang has withdrawn from the NPT and declared resumption of its nuclear program, it is only a matter of time before it extracts large quantities of plutonium by reprocessing the spent fuel rods, or by reloading the nuclear reactor.

Within the next six months, North Korea could extract several tens of kilograms by reprocessing the spent fuel rods, and, if Pyongyang has its way, some 200 to 300 kilograms of plutonium could be extracted annually, enabling the manufacture of 40 to 60 atomic bombs.

Nuclear Development Through Highly Enriched Uranium

Exactly when North Korea began its clandestine uranium-enrichment program is unknown, but sources indicate that Washington confirmed North Korea's uranium enrichment activities several months before Assistant Secretary Kelly's visit to Pyongyang, and suspicious activities in North Korea were detected by the U.S. intelligence agencies as far back as two years ago.⁴⁾

4) Walter Pincus, "N. Korea's Nuclear Plans Were No Secret," *Washington Post*,

Considering the amount of time needed to gather material and conduct research on nuclear development using uranium, it is estimated that North Korea probably acquired and installed materials and equipment from a third country at least five years before, in 1998. And, once Pyongyang's links to related countries become clear, we may find that North Korea was involved in nuclear development even earlier, using methods other than plutonium extraction.

Washington has not disclosed its evidence on North Korean nuclear development; however, considering the time spent and equipment available, we can surmise that North Korea could not yet have reached the level of full-scale production of weapons, and that it will be several years before the program is at the actual extraction stage. However, the uranium-enrichment nuclear weapons program, unlike a plutonium-based program, can be carried out undetected in small-scale facilities,⁵⁾ and the enriched uranium readily converted to a bomb.

Nuclear Weapons Development

According to authorities, North Korea is highly capable of producing a nuclear bomb. Moreover, based on the estimated amount of plutonium North Korea might have extracted, it could already have at least one to three of them. U.S. Defense Secretary Donald Rumsfeld has said that he believes that North Korea may possess one or two nuclear weapons, and U.S. intelligence authorities have announced through different channels that they have enough evidence to believe that it possesses nuclear weapons.

If North Korea has used all the plutonium extracted so far to

February 1, 2003.

5) Fred McGoldrick, "Forcing the North Korean Nuclear Genie Back into the Bottle: Can it be done?" Policy Forum Online, The Nautilus Institute, January 10, 2003, [http://www.nautilus.org/fora/security/0229A_McGoldrick.html].

make nuclear weapons, it could be among the nations possessing more than one nuclear bomb. But, considering information on extracted plutonium, the known amount of extraction, Pyongyang's evasiveness, and the fact that it has not tested the weapons, it seems unlikely that North Korea possesses more than three nuclear weapons.

THE PURPOSE OF NORTH KOREA'S NUCLEAR PROGRAM

Currently, five permanent members of the UN Security Council possess nuclear weapons. Rivals India and Pakistan, have successfully tested nuclear weapons and now possess nuclear capabilities. Israel is also thought to possess nuclear weapons. However, many other countries, regardless of their capability for nuclear development, do not have them. Among the 187 nations who signed the NPT, North Korea is the only nation to withdraw unilaterally from the treaty and pursue a nuclear program. Analysis of North Korea's intentions has proven insufficient and often paradoxical, making more research inevitable.

North Korea's Electric Power Production

North Korea's electrical power comes from hydroelectric- and thermoelectric-power sources; however, it still suffers from chronic power shortages. Seasonal changes and an inadequate water supply limit the hydroelectric power for North Korea's needs. Similarly, insufficient raw materials, such as heavy oil and coal, limit thermoelectric power. Huge amounts of power are wasted as well, leaked during power transmission due to an inefficient supply system and the deterioration of distribution lines. Consequently, North Korea's actual power production is only one-third of its production capacity. Given these facts, North Korea's claim that it

must develop nuclear power sources does hold some validity.

Why they chose a uranium-based graphite-moderated reactor that so conveniently enables weapon production, fuels doubts about North Korea's intentions. North Korea gave several explanations: (1) It had tried to build Soviet Union-sponsored pressurized light water reactors (PLWRs) but by the late 1990s, nothing but a survey of the construction site had been done. (2) A graphite-moderated reactor could be fueled with natural uranium using simple technology and a smaller outlay of funds and manpower. (3) North Korea is rich in uranium and graphite.⁶⁾

Nevertheless, North Korea has either ignored or scrapped other alternatives. Even if its claims are true, Pyongyang's ulterior motive is to generate electric power as well as to extract radioactive fuel. In other words, the goal of developing nuclear weapons is primary, and power generation is simply a pretext for pursuing the primary goal.

Nuclear Weapons Development

Judging that the purpose of the North Korea nuclear program is not simply for power generation, North Korea's dual purpose of survival and benefit seems a more persuasive argument. However, considering that North Korea's track record on nuclear development in the past several years and Pyongyang's ambiguous position, it has become more and more apparent that the real purpose of North Korea's nuclear program is to build nuclear weapons. To fend off international pressure, Pyongyang has gone to great lengths to cover up its nuclear program by disguising it as electrical power generation. When Pyongyang thought it might be forced to make public (based on 1992-1993 IAEA inspections) its hidden intentions,

6) "North Korea on Three Critical Risks: Two Documents," Special Reports, The Nautilus Institute, February 7, 2003, [http://nautilus.org/pub/ftp/napsnet/special_reports/KANPC-3critical2.txt].

it sidestepped the danger by opting for extreme measures: the 1994 North Korean nuclear crisis.

The Agreed Framework put the brakes on Pyongyang's double-edged strategy to build nuclear weapons and supplement its chronic power shortage. But if the primary motive for North Korea's nuclear program is to develop nuclear weapons, and if there are no changes in the circumstances that would compel Pyongyang to give up its goal, North Korea cannot, and will not, give up its nuclear program. That Pyongyang had pursued clandestine nuclear development using the secondary channel of uranium enrichment even after the 1994 accord is only logical. Secrecy was critical, since it violated various nonproliferation treaties that Pyongyang had signed, and, being closely linked to nuclear weapons development, it could not pretend that it was for peaceful purposes.

If North Korea's ultimate purpose for pursuing the nuclear program, despite the obstacles, is to possess nuclear weapons, then the next question is: what are the reasons behind Pyongyang's eagerness to possess nuclear weapons when it only causes isolation from the international community? If Pyongyang's goal to possess nuclear weapons is founded on valid reasons, then, without a change in plans, it is only a matter of time before North Korea possesses them.⁷⁾

North Korea wants to develop nuclear weapons for basically the same reasons and goals as other countries which have tried to develop nuclear weapons for self-defense.⁸⁾ It truly believes that the United States could, and would make a preemptive strike against North Korea and wipe out the current regime. In fact, the issues consistently raised by Pyongyang regarding sovereignty and survival really stem from fear of U.S. actions. And if the North's

7) Jon B. Wolfsthal, "Stop Trying to Isolate North Korea," *International Herald Tribune*, February 6, 2003.

8) Jacques E. C. Hymans, "North Korea: Threat or Challenge?" Paper presented at a international forum at the Dayton Council on World Affairs, February 19, 2003.

provocative manifestos are verbal expressions of fear, then the overt expression is clandestine nuclear development.

In the name of *Suryong* (Great Leader) that has legitimized its dictatorship, the North Korean regime gives absolute power and authority to Kim Jong-il. And if that extreme nationalism is armed with nuclear capabilities, nuclear development could be used not only militarily, but also politically. Given the current status of North Korea's nuclear program, Pyongyang already has the capacity to build nuclear weapons, and thus, regardless of whether it has nuclear weapons or not, it has secured the same bargaining power as other countries with nuclear capabilities.

NORTH KOREA'S STRATEGY FOR THE UNITED STATES

Unwilling to give up its nuclear program, North Korea has stubbornly pursued brinkmanship with the United States, while increasing the stakes, hoping to gain a diplomatic bonanza.

Comprehensive Package Deal

The international community initially believed that North Korea's "diplomacy by confession" was part of a daring new policy to improve relations with other nations, as evidenced by Kim Jong-il's revelation of September 17, 2002 regarding abducted Japanese citizens. Even when tensions escalated between Washington and Pyongyang,⁹⁾ expectations for better relations continued.

Pyongyang has been seeking leverage in negotiations with Washington on nuclear development and other related issues: U.S.-led or U.S.-approved economic aid¹⁰⁾ to improve its serious economic

9) Nancy E. Soderberg, "Escaping North Korea's Nuclear Trap," *The New York Times*, February 12, 2003.

situation; the regime's survival from possible preemptive attack by the U.S.; and compensation for the loss of delayed light-water reactors' construction. Its new strategy has met with a chilly response from Washington as well as the international community because nobody wants to be fooled again by the rogue regime. The prevalent attitude is reflected in the phrase: "Fool me once, shame on you; fool me twice, shame on me."¹¹⁾

Meanwhile, since the disclosure of the program, Pyongyang has insisted that the nuclear issue can only be resolved bilaterally with Washington. Although it may be a key concern of the United States, it is also an important issue for other neighboring countries, as well as the international community. Therefore, Pyongyang's steadfast refusal to deal with anyone besides the U.S. could be interpreted as indifference to resolving the issue, or perhaps, something else that only Pyongyang knows.

Autonomy and Regime Survival of the Kim Jong-il Regime

Washington has demanded the freeze of North Korea's nuclear development and a clear verification of that freeze prior to any discussions. Accordingly, North Korea stands at a crossroads: whether to iron out difficulties in its economy and foreign affairs by giving up its nuclear program first; or to keep its nuclear program and endure pressure from the United States and the international community. It appears that Pyongyang has not made its decision yet and would prefer a more advantageous third choice.

While Pyongyang waits for a third alternative, the North Korea

10) James Brooke, "White House Sticks to Decision to Avoid Talks With North Korea," *The New York Times*, January 30, 2003.

11) Steve LaMontagne, "North Korea's nuclear program: an assessment of U.S. options," Policy Forum Online, The Nautilus Institute, October 30, 2002. recited in Seongwhun Cheon, "North Korea's Nuclear Problem: Political Implications and Inspection Formats," Policy Forum Online, The Nautilus Institute [http://www.nautilus.org/fora/security/0234A_Cheon.html].

nuclear issue will soon cross the nuclear red line.¹²⁾ Pyongyang is likely to know where the United States has placed, or will place the red line on the issue, and it will have countermeasures ready, based on the 1993-1994 experience with the U.S. Accordingly, it has sought to complete the steps as quickly as possible, before sanctions can be imposed: removal of nuclear seals, deportation of nuclear inspectors, re-operation of the 5-megawatt nuclear reactor, transfer of spent rods and withdrawal from the NPT.

However, if the international debate on North Korea's nuclear program continues, Pyongyang will be pressured into reversing its withdrawal from the NPT. If it begins to reprocess the spent rods or if spent fuel rods are found in the newly-loaded 5-megawatt nuclear reactor, Pyongyang will feel the sting of full-fledged sanctions. North Korea will play its nuclear card to gain as much as possible from brinkmanship with the United States; however, should it not go as planned, Pyongyang may have an elaborate strategy in store. It will pursue its nuclear weapons development program, while goading the United States and the international community into action. At that point, it will achieve what it set out for.¹³⁾

The key to North Korea's autonomy and regime survival is preserving the Kim Jong-il regime at any cost. If it can choose, it will prefer economic and diplomatic isolation that preserves its regime rather than military and socio-economic subordination. Thus, having nuclear weapons seems a choice that would be difficult to forgo, even though it entails a number of perils. But before it is subjected to harsh sanctions, Pyongyang will do its utmost to either build nuclear weapons or convince others that it already has them.¹⁴⁾

12) Peter Hayes, "Charging the Nuclear Red Line," Policy Forum Online, The Nautilus Institute, February 10, 2003, [http://nautilus.org/fora/security/0239A_Hayes.html].

13) Glenn Kessler, "U.S. Believes N. Korea Rapidly Seeking Stockpile," *Washington Post*, February 1, 2003.

14) David E. Sanger, and Eric Schmitt, "Satellites Said to See Activity at North Korean Nuclear Site," *The New York Times*, January 31, 2003.

North Korean Nuclear Program and Strategy for the Korean Peninsula

That North Korea, despite the 1994 Agreed Framework, pushed for nuclear development, may stem from Pyongyang's confidence that it had the upper hand on the Korean peninsula. The strategies for the North Korean nuclear program and the Korean peninsula at the time of the 1994 accord were mutually exclusive, as well as mutually restrictive. In short, Pyongyang's strategy aimed to maintain direct contact with the U.S. while excluding South Korea from a discussion of issues on the Korean peninsula.

However, for the last five years, as a result of Kim Dae-jung's Sunshine Policy, Pyongyang's strategy seems to have shifted 180 degrees. Moreover, the newly inaugurated Roh Moo-hyun administration's North Korean policy may be seen, from Pyongyang's view, as more advantageous than that of the previous administration.¹⁵⁾ Pyongyang's consistent appeal to mutual cooperation with South Korea seems to stem from the calculation that a consistent South Korean *rapprochement* policy could offset any disadvantage that comes from the new hawkish administration in the U.S. Since the emergence of North Korea's nuclear issue, Pyongyang has been pursuing ways to step up, rather than suspend, inter-Korean cooperation and exchange. But South Korea has been somewhat taken in by the ruse. Because of its policy to resolve the nuclear issue through dialogue and not to resort to armed measures against North Korea, the South Korean government has become a hostage to the North Korean nuclear program, creating optimal conditions for North Korea's Korean peninsula strategy.

In fact, it appears that Pyongyang is trying to establish a second front with nuclear weapons, inducing either removal of the U.S. military presence in South Korea or a shift in the U.S. strategy for the

15) "The Other Korea," Editorial, *The New York Times*, February 12, 2003.

Korean peninsula. Washington may be compelled to make fundamental changes in the U.S. military presence in South Korea or its strategy for the Korean peninsula, not because of anti-American sentiment or anti-war protests in the South, but because of North Korea's nuclear capabilities. With some 37,000 American troops in South Korea and over 20 million people living in and around metropolitan Seoul, it is unlikely that there would be a U.S.-begun military confrontation on the Korean peninsula. In this regard, Pyongyang will try to influence Roh Moo-hyun administration's new policy to its own advantage.

Although the possibility of complete removal of U.S. armed forces in the South is remote at present, Pyongyang, which has consistently tried to weaken the U.S.-South Korea alliance, will likely push for changes in Washington's policy on the Korean peninsula using the nuclear issue as a bargaining chip. For its short-term plan, Pyongyang will likely try to increase the chances for nuclear weapons; however, if the situation worsens, extreme measures by Pyongyang cannot be ruled out. It will try to prove that it was not bluffing when it declared that any sanctions against North Korea would be understood as a declaration of war. While it wouldn't launch a direct armed attack against South Korea, it could announce that declaration with a nuclear test.

The only solution available to the U.S., a military one, would be like calling the doctor after the patient is dead. Pyongyang will continue the brinkmanship approach without succumbing to pressures from the U.S. In the end, it will have its nuclear capabilities and, with South Korea as a hostage, it will induce the removal of American troops in South Korea. Afterwards, Pyongyang will secure political leadership of the Korean peninsula by negotiating a compromise with Washington (Pyongyang promising that it will not sell or transport nuclear material and other biochemical and bio weapons, and that it will completely dismantle plans to develop missiles capable of reaching the U.S.). Maintaining the Kim Jong-il regime will be its top priority, even at the cost of diplomatic isolation

and loss of economic aid.

CONCLUSION

Whatever the purpose of North Korea's nuclear development, the more important question is whether North Korea has the capacity to develop nuclear weapons. All the information available indicates that in the absence of stricter restriction and surveillance, North Korea does have that capacity. Moreover, the fact that ten years have passed without any investigation into North Korea's past nuclear program has increased the likelihood that it possesses a small number of nuclear weapons. And, unlike plutonium-based nuclear development, uranium-based development can be carried out clandestinely.

Regardless of North Korea's claimed reasons for having a nuclear program, there is no justification. Judging that no other group has more influence on Kim Jong-il than the military, and considering the military's desire for the nuclear program, the argument that the goal of nuclear program is other than developing nuclear weapons is gradually losing its persuasive power. Contrary to expectations, the current nuclear crisis will not expedite collapse of the North Korean regime; in fact, Pyongyang will deal its nuclear card with Washington in order to ensure regime survival. Confronting the United States and then the international community, North Korea will continue to ward off the pressure, while at the same time aggravating tensions by inducing the rest of the world to believe that it possesses nuclear weapons. However, if North Korea comes to regard the Kim Jong-il regime as representing its autonomy, it will use its nuclear weapons program: first, to preserve the current regime and, second, to bring the entire Korean peninsula under the North Korean system.