An Intelligence Perspective

North Korea's Nuclear Program: The Early Days, 1984–2002

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The North Korean nuclear program has been a major intelligence and policy challenge for more than 30 years. Former Secretary of Defense Bill Perry described the problem as "perhaps the most unsuccessful exercise of diplomacy in our country's history."[1] Donald Gregg, who was CIA station chief in Seoul as well as US ambassador to South Korea, called North Korea the "longest running intelligence failure in the history of American espionage."[2]

To be fair, Gregg was referring specifically to a lack of success in recruiting human sources—not necessarily errors in specific or overall assessments. Nonetheless, his comment underscores the difficulty of figuring out what North Korea is up to. In 2005, the Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction (WMD), which was convened to investigate the failed 2002 national intelligence estimate on Iraqi WMD capabilities, indicated that we know "disturbingly little about the weapons programs and even less about the intentions of many of our most dangerous adversaries,"[3] presumably including North Korea.

Today we know a lot more about North Korea's nuclear program—but mostly it is what *they* want us to know. Pyongyang has conducted six nuclear tests. We know that North Korea has nuclear weapons, a significant fissile material production capacity, and an ambitious nuclear and missile development effort. These programs are completely unconstrained. The United States has tried many approaches to deal with the problem over the years, and intelligence has played a key role in support.

Are there lessons to be learned from this experience? Obviously, it's a very big question and I will sketch out just a few thoughts, mostly from an intelligence perspective: What we knew and when and how we thought about the problem. North Korea was one of many issues I worked on as an analyst and manager in CIA until my retirement in 2006. The views that follow are my own, of course, and the specific information is drawn from the extensive public literature on the issue, as well as declassified intelligence documents.

I'd like to proceed by dividing the history of the early North Korean nuclear program into three parts, beginning in 1984, when we first realized the potential plutonium production capacity of a reactor under construction at the Yongbyon nuclear research center, and ending with the demise of the 1994 Agreed Framework between the United States and the Democratic Peoples Republic of Korea in 2003—after which North Korea overtly expressed its intent to

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build nuclear weapons and then went on to do so.

Phase 1: 1984–89— How Concerned Should We Be?

Concerns about North Korea's nuclear program first arose in the early 1980s. The proliferation picture looked very different at that time. The Cold War was still on, and the US-Soviet nuclear competition was still the major foreign policy concern. Nonproliferation was not fully established as a global norm. The Nuclear Nonproliferation Treaty (NPT) was more than 10 years old, but many key countries had not yet signed on—they included China, France, South Africa, Argentina, Brazil, and Spain. Those of us following nuclear proliferation developments at the time were concerned about what was sometimes called the "dirty dozen"—familiar countries like India, Pakistan, Iran, and Iraq were on the list, but so were South Africa, Argentina, and Brazil.[4]

In Asia, North Korean nuclear questions were not a focus of intelligence or policy concern. Rather, attention was focused on Taiwan and South Korea. These countries had made the decision to pursue nuclear weapons in the mid-1970s, largely in response to concerns about the credibility of US security guarantees. In both cases, the United States learned of the efforts early on and took quick and effective action to shut them down.[5]

In 1983, a CIA document projecting nuclear proliferation trends over the succeeding 10 years mentioned North Korean interest in nuclear power, but it discounted the likelihood of any near-term progress. This paper also judged, "There was no basis for believing that the North Koreans have either the facilities or materials to develop and test nuclear weapons."[6] By the next year, however, that picture would start to change, and North Korea would begin its ascent to the top of nonproliferation concerns.

By April 1984, CIA had determined that a reactor under construction in North Korea would, when completed, "be capable of producing significant quantities of weapons-grade plutonium." A memorandum to policymakers warned that this would be "significant step" toward a North Korean weapons capability.[7]

Still, the Intelligence Community was cautious about judging the actual intent of Pyongyang's efforts. A National Intelligence Council (NIC) paper in 1985 noted there was no evidence that North Korea was building a reprocessing facility or working on development of a nuclear explosive device. The paper also stressed disincentives for North Korean nuclear weapons development, including the possibility that South Korea would "be provoked to do likewise" or that the Soviet Union or China would react negatively.[8]

The early 1984 CIA warning of weapons potential stimulated the first of many policy initiatives to deal with the problem. North Korea had been in negotiations with the Soviets for nuclear power reactors, and the United States pressed Moscow to make adherence to the NPT a condition of any sale. Pyongyang joined

In 1984, the Intelligence Community realized the reactor then under construction at the Yongbyon nuclear research center (above) had the potential to produce "significant quantities" of weapons-grade plutonium

the treaty on 12 December 1985, and two weeks later the Soviets agreed to sell four light-water power reactors to North Korea, but the deal would later fall through.[9]

Many hoped that adherence to the NPT would resolve concerns about North Korea's program. According to the political counselor in Seoul at the time, "It looked like a possible breakthrough in relations. . . . We thought that maybe we could lay to rest any concern about North Korea's developing nuclear weapons."[10]

In an analysis published in March 1986, CIA saw North Korean accession to the NPT as an indication of peaceful intent and thought IAEA [International Atomic Energy Agency] inspections and safeguards would provide better information about Pyongyang's nuclear program. At the same time, however, the paper stressed that the NPT and safeguards were not foolproof and could not "head off" a North Korean effort to develop nuclear weapons if Pyongyang was so inclined.[11]

Over the next few years, CIA produced several analytic products that continued to emphasize the likely peaceful purpose of Pyongyang's nuclear efforts, while also noting the potential for weapons applications.

- A major paper published in October 1986 judged that it was "unlikely that [North Korea] would locate a primarily military reactor at a known research center or agree, as it has with NPT adherence, to open it to international safeguards."[12]

- An update in May 1988 concluded that the program deserved "close scrutiny" because of delays in concluding a safeguards agreement and the possibility that a reprocessing capability was being developed.[a] Still, the paper concluded that there was "no evidence that North Korea is pursuing a weapons capability, but we cannot rule out that possibility."[13]

- As late as March 1989, a CIA analysis began with the caveat that the Yongbyon reactor "may be part of a civilian power generation program." Pyongyang was continuing to delay formal safeguards negotiations, and the paper noted that such delays "would increase international concerns that the North's activities at Yongbyon were not strictly peaceful." The paper did allow that "North Korea may be willing to risk the international censure that a nuclear weapons program would bring in order to maintain a decided military advantage over the South"—leaning a bit more in the direction of possible weapons intent but stopping short of a specific judgment.[14]

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During those years, the presumed "breakthrough" of obtaining North Korea's signature on the NPT led to apparent complacency on the policy side—where, understandably, attention was most focused on the impending collapse of the Warsaw Pact and the Soviet Union—despite Pyongyang's foot-dragging on safeguards. North Korea was supposed to negotiate and sign a safeguards agreement within 18 months of signing the NPT, but it was granted an additional 18 months after the IAEA belatedly discovered it had sent Pyongyang the wrong documents.[15] The second deadline passed in December 1988 with no further movement toward completion of a safeguards agreement or North Korean acknowledgment of its nuclear activities.

Phase 2: 1989–94—North Korea Takes Center Stage

In 1989, five years after alarms were first raised, worrisome developments began to accelerate along several dimensions. Pyongyang's program grew in several respects, and the first public accounts of a North Korea nuclear weapons program and its potential appeared. These led to controversies and debates in the policy and intelligence communities that would only grow over the years. Equally important, several broader regional and global developments began to affect the evolution, and interpretation, of developments in North Korea.

When the George H. W. Bush administration took office in January 1989, Secretary of State James Baker began a new effort to build international pressure on Pyongyang, mostly through the Soviet Union and China.[16] In May 1989, US officials provided South Korea with the first detailed briefing on North Korean

a. A perennial challenge of nuclear reactors is the treatment of spent reactor fuel. Reprocessing is required to recover weapons-usable plutonium from nuclear fuel that has been irradiated in a reactor. It is a chemical process that involves separation of the plutonium from other fission products and unburned nuclear fuel.

Intelligence assessments during this time continued to highlight concerns about North Korea's program, but they still did not directly conclude that Pyongyang was developing nuclear weapons.

nuclear developments, including the possibility that a reprocessing facility had first been under construction since 1986.[17] Press accounts of North Korea's nuclear program and its potential began appearing shortly thereafter as well—leading to North Korea's first public denial that it was pursuing a nuclear weapons capability.[18] By October, Secretary of State Baker was further raising the temperature of public discussion by stressing the nonproliferation concern posed by North Korean nuclear developments.[19]

The increased public attention to the issue was part of a US effort to increase diplomatic pressure, but it also had the effect of emphasizing the weapons potential of the program to the exclusion of potential peaceful applications—somewhat in contradiction to the impressions left by intelligence assessments up to that point.

At the same time, geopolitical developments were increasing North Korea's security concerns and adding to its isolation. China was beginning the process of liberalizing its economy and sought better relations with Seoul.[20] The Soviet Union was in the midst of "perestroika" and accelerating toward its final demise in 1991. In the words of Don Oberdorfer, "The Soviet Union evolved from godfather and benefactor of North Korea to partner and client of South Korea."[21] From North Korea's perspective, the world was looking increasing hostile.

In Washington, there was growing concern about the program but also the perception that there were few good options for dealing with it. Little was being done beyond the program of pressure on Russia and China to influence Pyongyang's behavior. It was having little effect. According to a former official in the Reagan and Bush administration quoted in the Oberdorfer and Carlin history, *The Two Koreas*, "The real problem was the policymakers' reluctance to face the issue, an avoidance of reality that probably flowed from the realization of the scope and difficulty of the problem."[a, 22]

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- Talking points prepared for diplomatic talks with China noted "serious questions" about North Korean intentions and stressed the need to deal with Pyongyang's "potential development" of nuclear weapons by mid-decade.[23]
- An NIE published in July 1991 described the program as "of grave concern" and concluded that using the facilities under construction, "Pyongyang could have a plutonium-based nuclear device in two to five years." The estimate went on to note that since North Korea's NPT accession in 1985, Pyongyang had "failed to conclude a safeguards agreement or to declare the facilities where we suspect a weapons program is being undertaken."[b, 24]

In late 1991, developments related to the collapse of the Soviet Union enabled the United States to take a radical step that had been contemplated, but not acted on, in the past—the withdrawal of US nuclear weapons from South Korea. The move, undertaken as part of a unilateral withdrawal of tactical weapons worldwide, had a galvanizing effect. Direct talks between North and South Korea began in October 1991 and led by the end of the year to a nonaggression pact and a joint pledge not to develop nuclear weapons or to possess reprocessing or enrichment facilities.[25] For the second time, on the surface it appeared to many that the North Korean nuclear problem was on the road to resolution.

At nearly the same time, however, there was a dramatic shift in the tone and tenor of US intelligence assessments. In contrast to previous nuanced and cautious assessments of weapons intent, a December NIC memorandum judged that potential economic sanctions "would not cause North Korea to abandon its nuclear weapons program."[26] In January 1992, the CIA produced an Intelligence Community-coordinated *National Intelligence Daily* (NID) Special Analysis, which warned that the North-South agreement could not "ensure termination of Pyongyang's nuclear weapons program" and that the weapons program could

a. Robert Carlin was himself an analyst in the Bureau of Intelligence and Research during the period discussed in this essay.

b. This reference is the first in the declassified record to directly address the question of whether a weapons program was in fact under way, but it falls short of a declarative assessment.

go underground in the face of IAEA inspections.[27] A NID article the next month reported that North Korea had conducted its first high-explosive (HE) test since 1988 and could be preparing to operate its reprocessing complex, "suggesting Pyongyang is moving forward with its nuclear weapons program."[28]

The documents declassified thus far offer no explanation of what appeared to be the newly presumed existence of a weapons program. Undisclosed factors may offer explanations, but there is no indication or reference to new technical developments in the available material. According to several sources, concerns about the reprocessing plant had arisen by 1987.[29] The declassified February 1992 NID article noted that HE testing had taken place as early as 1988,[30] while other sources refer to such testing as early as 1983.[31]

In early 1992, the new-found IC pessimism over North Korea's program clashed with policy optimism inspired by developments on the diplomatic and inspection fronts. On 25 February 1992, Director of Central Intelligence Robert Gates, who had been following the issue as CIA's deputy director for intelligence and as chairman of the NIC, told the House Foreign Affairs Committee that North Korea was "from a few months to a couple of years" from having a nuclear weapon.

At nearly the same time, however, North Korea was finally concluding its safeguards agreement with the IAEA. In May 1992, IAEA Director General Hans Blix led the first IAEA visit to the Yongbyon site. Pyongyang declared the operating 5 MWe reactor, two unfinished gas-graphite reactors, and the reprocessing plant (which it called a "radiochemical laboratory"). The North Koreans surprised the IAEA by saying that the reprocessing plant had already operated, separating less than100 grams of plutonium. They offered a standing invitation to visit any site in North Korea, even if it had not been a part of the declaration.[32]

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By the summer and fall of 1992, however, the IAEA was becoming concerned about inconsistencies in Pyongyang's declaration. IAEA officials were particularly worried about the possibility that more plutonium had been separated than the roughly 100 grams declared. The IAEA, having just been able to see firsthand Iraq's massive nuclear program after US forces had defeated Iraqi forces the year before, had been stunned and was newly sensitized to clandestine nuclear activity—something that not been its traditional focus.[33]

During this period, US intelligence played a key role in supporting the IAEA by providing imagery of what appeared to be camouflaged nuclear waste sites near the reprocessing plant.[34] Were it given access to the sites, the IAEA could have analyzed any nuclear waste they might contain and move toward a determination of how much plutonium North Korea had actually produced. Ultimately, Pyongyang's refusal to allow access to the sites led to a formal IAEA request for "special inspections" of the camouflaged sites. In March 1993, rather than comply, North Korea surprised the United States and others by announcing its intention to withdraw from the NPT.[35]

While the confrontation over special inspections was taking place, the IC produced its first NIE on the North Korea nuclear issue. The November 1993 estimate reportedly judged that there was a "better than even chance" that North Korea had already produced one or two nuclear weapons.[36]

The estimate was controversial in the policy community, to say the least. In their book recounting events in this period, three key policy participants wrote that the estimate "shed no light but plenty of heat." In their view, no one could know whether Pyongyang had nuclear weapons, and the estimate amounted to "precision without accuracy," damaging administration credibility and handing ammunition to its critics.[37]

Another observer claimed that the estimate "strengthened North Korea's bargaining position and nearly led to war."[38] Whatever its merits, the estimate foreshadowed future polarization (among both the IC and policy players) between those projecting the worst case and those inclined to leave more room for other possibilities. Within the IC, the starkest divisions were reportedly between State's Bureau of Intelligence and Research (INR) (which dissented from the estimate's judgments) and the Defense Intelligence Agency (DIA), which (according to a 3 December 1993 *Washington Post* article) was already judging that "North Korea will continue its nuclear weapons program

Washington DC, 1994: President Bill Clinton and Assistant Secretary of State Robert Gallucci brief reporters following the negotiation of the Agreed Framework with North Korea. Photograph, a deal that was to have ended the North's nuclear weapons program. Photo © Marcy Nighswander/AP.

despite any agreement it signs to the contrary."[39]

In June 1993, Washington persuaded Pyongyang to suspend its withdrawal from the NPT and accept a regular IAEA presence at Yongbyon. However, the North asserted a "special status" under the NPT, and dealings with the IAEA proved to be contentious. The crisis deepened in April 1994, when Pyongyang began to refuel the 5 MWe reactor, which by then contained in its spent fuel enough plutonium for four or five nuclear bombs.

In June, as the United States pursued sanctions resolutions at the United Nations and considered beefing up its forces in South Korea, former President Jimmy Carter met with North Korean Premier Kim Il-Sung in Pyongyang. After the meeting, Carter reported that North Korea was willing to "freeze" its program—i.e., forgo reprocessing of the spent fuel or further operation of the reactor—in return for high-level talks with the United States. Ultimately, after another several months of negotiations the United States and North Korea signed the Agreed Framework on 21 October 1994. (See facing page.)[40, 41]

Phase 3: 1994-2002—The Life and Death of the Agreed Framework

The IC role in monitoring North Korea's program changed when IAEA inspectors gained access to Yongbyon. From the first identification of North Korea's plutonium production potential in 1984 to the first IAEA visit to Yongbyon in 1992, US intelligence was the only source of information on what was happening in North Korea's nuclear program. After 1992 the IAEA was on-site at Yongbyon, initially to implement safeguards designed to ensure that North Korea was adhering to its NPT obligations.

The IC played a supplemental role. In addition to providing information about sites of concern at Yongbyon to which the IAEA was not permitted access, the United States, along with other countries, provided technical expertise in the evaluation of environmental samples collected by IAEA inspectors.[42] The US help allowed the IAEA to uncover inconsistencies in North Korea's declarations about how much plutonium reprocessing it had carried out.[43] Pyongyang's inability to satisfactorily explain these inconsistencies, and its refusal to cooperate with the IAEA proposal for "special inspections," led to the crisis of 1993–94.

After the Agreed Framework was signed in 1994, these "historical" issues about past reprocessing activity were put aside for the moment—to be resolved, according to the terms of the Agreed Framework, at a future date "when a significant portion of the LWR project is completed, but before delivery of key nuclear components."[a] (See text on facing page.)

In the meantime, the IAEA's continuing job at Yongbyon was to monitor the spent fuel discharged in 1994 and confirm, as stipulated in the agreement, that the reactor and reprocessing plant were "frozen."

With the IAEA monitoring activities at Yongbyon, the IC turned to looking for potential nuclear-related activity elsewhere in North Korea. This was a fundamentally different and more difficult challenge; instead of monitoring developments and

a. The Agreed Framework called for replacing the existing North Korean reactors with light water power reactors (LWRs), which were considered to be more "proliferation resistant."

Provisions of 21 October1994 Framework Accord

I. Both sides will cooperate to replace the D.P.R.K.'s graphite-moderated reactors and related facilities with light-water reactor (LWR) power plants.

1) In accordance with the October 20, 1994 letter of assurance from the U.S. President, the U.S. will undertake to make arrangements for the provision to the D.P.R.K. of a LWR project with a total generating capacity of approximately 2,000 MW(e) by a target date of 2003.

-- The U.S. will organize under its leadership an international consortium to finance and supply the LWR project to be provided to the D.P.R.K.. The U.S., representing the international consortium, will serve as the principal point of contact with the D.P.R.K. for the LWR project.

-- The U.S., representing the consortium, will make best efforts to secure the conclusion of a supply contract with the D.P.R.K. within six months of the date of this Document for the provision of the LWR project. Contract talks will begin as soon as possible after the date of this Document.

-- As necessary, the U.S. and the D.P.R.K. will conclude a bilateral agreement for cooperation in the field of peaceful uses of nuclear energy.

2) In accordance with the October 20, 1994 letter of assurance from the U.S. President, the U.S., representing the consortium, will make arrangements to offset the energy foregone due to the freeze of the D.P.R.K.'s graphite-moderated reactors and related facilities, pending completion of the first LWR unit.

-- Alternative energy will be provided in the form of heavy oil for heating and electricity production.

-- Deliveries of heavy oil will begin within three months of the date of this Document and will reach a rate of 500,000 tons annually, in accordance with an agreed schedule of deliveries.

3) Upon receipt of U.S. assurances for the provision of LWR's and for arrangements for interim energy alternatives, the D.P.R.K. will freeze its graphite-moderated reactors and related facilities and will eventually dismantle these reactors and related facilities.

-- The freeze on the D.P.R.K.'s graphite-moderated reactors and related facilities will be fully implemented within one month of the date of this Document. During this one-month period, and throughout the freeze, the International Atomic Energy Agency (IAEA) will be allowed to monitor this freeze, and the D.P.R.K. will provide full cooperation to the IAEA for this purpose.

-- Dismantlement of the D.P.R.K.'s graphite-moderated reactors and related facilities will be completed when the LWR project is completed.

-- The U.S. and D.P.R.K. will cooperated in finding a method to store safely the spent fuel from the 5 MW(e) experimental reactor during the construction of the LWR project, and to dispose of the fuel in a safe manner that does not involve reprocessing in the D.P.R.K..

4) As soon as possible after the date of this document. U.S. and D.P.R.K. experts will hold two sets of experts talks.

-- At one set of talks, experts will discuss issues related to alternative energy and the replacement of the graphite-moderated reactor program with the LWR project.

-- At the other set of talks, experts will discuss specific arrangements for spent fuel storage and ultimate disposition.

II. The two sides will move toward full normalization of political and economic relations.

1) Within three months of the date of this Document, both sides will reduce barriers to trade and investment, including restrictions on telecommunications services and financial transactions.

2) Each side will open a liaison office in the other's capital following resolution of consular and other technical issues through expert level discussions.

3) As progress is made on issues of concern to each side, the U.S. and D.P.R.K. will upgrade bilateral relations to the Ambassadorial level.

III. Both sides will work together for peace and security on a nuclear-free Korean peninsula.

1) The U.S. will provide formal assurances to the D.P.R.K., against the threat or use of nuclear weapons by the U.S.

2) The D.P.R.K. will consistently take steps to implement the North-South Joint Declaration on the Denuclearization of the Korean peninsula.

3) The D.P.R.K. will engage in North-South dialogue, as this Agreed Framework will help create an atmosphere that promotes such dialogue.

IV. Both sides will work together to strengthen the international nuclear non-proliferation regime.

1) The D.P.R.K. will remain a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and will allow implementation of its safeguards agreement under the Treaty.

2) Upon conclusion of the supply contract for the provision of the LWR project, ad hoc and routine inspections will resume under the D.P.R.K.'s safeguards agreement with the IAEA with respect to the facilities not subject to the freeze. Pending conclusion of the supply contract, inspections required by the IAEA for the continuity of safeguards will continue at the facilities not subject to the freeze.

3) When a significant portion of the LWR project is completed, but before delivery of key nuclear components, the D.P.R.K. will come into full compliance with its safeguards agreement with the IAEA (INFCIRC/403), including taking all steps that may be deemed necessary by the IAEA, following consultations with the Agency with regard to verifying the accuracy and completeness of the D.P.R.K.'s initial report on all nuclear material in the D.P.R.K..

Signatures

There was also a continuing concern that North Korea might be pursuing a covert uranium enrichment program as a second route to production of fissile material for nuclear weapons.

assessing the capabilities of facilities at a specific, known location, the IC was trying to uncover postulated clandestine activities at unknown sites.

Kumchang-ri

One potential pitfall of holding a firm belief that clandestine activities are underway somewhere is that you are likely to find activity, even if it doesn't really exist. In 1994, the director of DIA testified before Congress that the North would "continue its nuclear weapons program despite any agreement it signs to the contrary."[44] This conviction was likely a factor in DIA's 1998 identification of a large underground complex at Kumchang-ri as a site where Pyongyang was replicating the plutonium production facilities at Yongbyon, although observers would note that the view was not universally held around the IC and that, as a result, distorted pictures of the situation favoring one view or another would reach the public.[45]

After months of negotiations, the North Koreans allowed US inspectors on the site in return for 400,000 tons of food aid. After the visit, which took place during 18–24 May 1999, it was concluded that the facility did "not contain a plutonium production reactor or reprocessing plant" and that the site was unsuitable for such purposes.[46]

The incident proved to be an embarrassment for the IC and demonstrated the risks of substituting assumptions and beliefs for thorough analysis. Intelligence is rarely comprehensive or definitive—there is usually room for alternative interpretations of available information available. When participants or observers hold strong opinions, the temptation exists, consciously or not, to emphasize the information or interpretation most congenial to predispositions. Succumbing to such temptations puts the credibility of IC assessments at risk and could be considered a form of politicization. Analysts and customers would be better served by a critical evaluation of information gaps and consideration of alternative explanations for the information available.

Uranium Enrichment

There was also a continuing concern that North Korea might be pursuing a covert uranium enrichment program as a second route to production of fissile material for nuclear weapons. According to a Congressional Research Service study, reports relating to North Korean procurement of enrichment-related equipment had been seen as early as the mid-1980s.[47]

By the late 1990s, however, concern was focusing on information that North Korea was obtaining centrifuge-related technology from Pakistan, possibly in return for North Korea ballistic missiles. According to an account by Yoichi Funabashi (editor in chief of the Japanese newspaper *Asahi Shimbun*), in 1999 the US Department of Energy was reporting that North Korea was "at the first stage of a uranium enrichment program in cooperation with Pakistan."[48]

By the end of the Clinton administration, the effort was apparently judged to be at the level of research and development, rather than full-scale production. According to Robert Einhorn, assistant secretary of state for nonproliferation during the Clinton administration's last two years, "What we saw, and it was very, very spotty at the beginning, we saw procurement attempts, attempts to acquire some dual use items that had application in an enrichment program. And we were aware of the North Koreans shopping around."[49]

In the early months of the George W. Bush administration, however, new information changed the picture. According to Jack Pritchard, senior director for Asian affairs in the Clinton administration, information available in June 2002 persuaded him that North Korea had "embarked on a program to create nuclear weapons by using highly enriched uranium [HEU]."[50] An untitled CIA fact sheet delivered to Congress in November 2002 indicated that the IC had learned "recently" that North Korea had begun seeking centrifuge-related materials in large quantities the previous year and that Pyongyang was constructing a plant that could produce enough weapons-grade uranium for two or more nuclear weapons per year as soon as mid-decade.[51]

In October 2002, Assistant Secretary of State James Kelly led a delegation to Pyongyang to renew discussions with the North—Pyongyang's first such meeting with the a representative of the new Bush administration. While originally intended to present new proposals (the "broad approach") developed in the administration's policy review, the enrichment program became

the sole agenda item. As Kelly later recounted,

> *I stated that the United States now had a pre-condition to further engagement—that the DPRK's uranium enrichment program* [had to] *be dismantled immediately . . . I did not confront the Vice Foreign Minister* [Kim Gye Gwan] *with specific evidence of their uranium enrichment program, but I was emphatic that the U.S. knew the program was being aggressively implemented and it was a serious violation of international agreements. I asked the North Korean government to weigh its response carefully.*[52]

Initially, the North vigorously denied Kelly's allegations. The following day, however, Kang Sok Ju, North Korea's first deputy minister of foreign affairs—much to the surprise of the US delegation—ambiguously acknowledged that the North had a uranium enrichment program.[53]

After the October 2002 confrontation over the HEU program, two months passed before the Agreed Framework was irreparably breached. The Framework does not specifically mention uranium enrichment, and North Korea may have thought it could leverage their work in this area to gain concessions.[a] But the United States was not biting, and on 14 November the Korean Peninsula Energy Development Organization (KEDO) announced that shipments of heavy fuel oil (HFO) to North Korea would be halted.[b] Pyongyang responded a week later by taking note of the paragraph in the Agreed Framework that linked the provision of HFO to the North's obligation to freeze its reactor and related facilities.

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On 12 December, two days after the last delivery of HFO, the Foreign Ministry announced it was immediately resuming operations at Yongbyon. IAEA seals were cut on the 22nd and reactor fuel loading began on the 26th.[54]

On 10 January, North Korea announced its final withdrawal from the NPT and by the end of June Pyongyang had completed reprocessing of spent fuel, recovering enough plutonium for four or five nuclear weapons.[55] In October, Pyongyang announced that it was changing the purpose of reprocessing the spent fuel rods from civilian needs to building a "nuclear deterrent."[56] North Korea conducted its first nuclear test on 9 October 2006.

Demise of the Agreed Framework—Predetermined?

While the confrontation over the enrichment program was the proximate cause of the breakdown of the Agreed Framework, it was far from healthy even before this final blow. An analysis published in the *Nonproliferation Review* in the fall of 1999 had already concluded that a variety of factors had "all but rendered it a dead letter."[57] In this analysis, the Agreed Framework's long-term survival was in question from the start because it decoupled North Korea's nuclear program from other political and security issues.

North Korea's continued bad behavior undercut support for the agreement in the United States and from US allies. These factors contributed to the criticism that was directed toward the Agreed Framework almost from the beginning.[58] Specific problems included:

- Funding for the HFO to compensate North Korea for "lost" energy production was always in difficulty because of congressional opposition.
- The delayed requirement for the North to come into full compliance with its safeguards obligations gave the appearance of permitting a continuing violation.
- The IAEA was unhappy with inconsistent cooperation from North Korea and its continued insistence on a "special status" under the NPT.
- Japanese and South Korea funding for LWRs was unpopular in those countries and put at risk by North Korean military threats and political tensions

a. The Framework does require that North Korea take "consistent steps" to implement the North-South Denuclearization Agreement of 1992, which declared that "the South and the North shall not possess nuclear reprocessing and uranium enrichment facilities."

b. KEDO was the international consortium the United States had agreed in the first section of the Agreed Framework to establish to assist with North Korean construction of LWRs and to provide alternative fuels in the interim.

The Intelligence Community performed admirably in many respects in its work over the years on Pyongyang's nuclear program.

- North Korea was frustrated by continued delays in provision of the LWRs, as well as continued US and South Korean military exercises.
- North Korea felt that promised economic and diplomatic benefits were slow in coming or nonexistent.

More than anything else, Pyongyang's continued belligerence and confrontational approach—designed to get the most concrete benefits from the nuclear program, one of its few assets—were fundamentally at odds with any sense that events were moving in a positive direction. The "freeze" meant that North Korea's plutonium production was not moving forward, but in an atmosphere of hostility and suspicion that was not enough.

Lessons Learned or Perennial Challenges for Intelligence Analysis

The Intelligence Community performed admirably in many respects in its work over the years on Pyongyang's nuclear program. Although North Korea was not on the radar in the early 1980s, the policy community was quickly informed when the potential of the reactor under construction in Yongbyon was identified. The IC provided key information to the IAEA and helped enable its identification of problem areas in North Korea's safeguards declaration. Collection was a particular challenge—North Korea is often described as the quintessential hard target—and there were many unknowns throughout the process, as well as a paucity of human source information.

On the analytic front, the experience suggests possibilities for improvement, most in areas that have been perennial challenges for intelligence analysis—challenges not exclusively related to North Korea.

Judging intent—a mystery, not a puzzle

Former chairman of the National Intelligence Council and intelligence scholar Greg Treverton has described the distinction between puzzles, which can be "solved" in principle if the right information is available, and mysteries, which involve political or societal issues and include judgment of intentions or likely future actions.[59]

Puzzles are often the domain of scientific and technical analysis—the assessment and estimation of foreign system capabilities or R&D programs. Most of the analysis of the early North Korean nuclear program, as described above, fits into the category of a puzzle. Reporting described the nature of the reactor and other facilities under construction and what they were capable of in terms of plutonium production.

A question of equal or greater importance for policymakers, however, was a mystery—Why is North Korea building these facilities? Does Pyongyang intend to produce nuclear weapons? These questions cannot be answered by assessing the technical features of the facilities under construction. As Treverton puts it, "Issues of this type can only be framed, not solved, and thus the logic or argument and analysis is as important as the evidence, often more so."[60]

There may well be technical aspects of a nuclear program that bear on the question of intent, but they are complex and subject to misperception. Take, for example, the question of the reprocessing facility at Yongbyon. During the late 1980s, the possibility of reprocessing at Yongbyon was often taken to be an indicator of intent to produce weapons—i.e., if Pyongyang was planning to reprocess the spent fuel from the reactor to recover plutonium, it must be that it intended to use that material to build nuclear weapons.

However, it was also known that the fuel used in the North Korea reactor—magnesium-aluminum-alloy-clad natural uranium, known as Magnox—cannot be stored indefinitely in standard cooling ponds because it corrodes over time. Therefore, the spent fuel from the North Korean reactor had to be reprocessed—it was not an option not to do so.[61] In fact—although the United States would certainly not have been comfortable with this outcome, Pyongyang might argue that under the terms of the NPT, it could legally reprocess the reactor's spent fuel as long as the separated plutonium was safeguarded and reserved for "peaceful purposes."

The inherent dual potential of the North Korean approach is further underscored by the history of British nuclear technology on which Pyongyang's was based. According to a 1986 declassified CIA document and other sources, the North Korean reactor is based on 1950s technology with a marked similarity to the British Calder Hall reactor.[62] The Calder

Hall reactor, first operated in 1956, was conceived and built to produce plutonium for military applications as well as electricity for civilian use.[63] It is impossible to separate the two purposes, and whether or not the North Korean plant was ever seen connected to an electrical grid it could still be used to support a weapons program, as the British reactor was.

When North Korea's nuclear program was in the formative stages, judging whether the intent was to develop nuclear weapons was a mystery, not a puzzle. Most of the analysis in the early years of the program, as described above, was agnostic about its purpose or noted both civil and military possibilities. This apparently changed by the end of 1991, when the program began to be characterized in definitive terms as a nuclear weapons program. The reason for the change is not made clear in the available record. What did not change, at least in the material that has been declassified, is that the intelligence product generally described programmatic details rather than factors affecting motivations or intentions—in other words, it treated the problem like a puzzle rather than a mystery.

The impact of context on judgment

One possible explanation for the evolution of the IC judgment about the purpose of Pyongyang's nuclear program is changes in the broader context of assumptions and beliefs about North Korea, nuclear proliferation, and international relations in general—the spirit of the times (Zeitgeist), if you will. At any given time, attitudes and judgments about particular developments are affected by this broader context in ways that may not be immediately apparent because they are generally unspoken, universally shared, and thus largely invisible.

One possible explanation for the evolution of the IC judgment about the purpose of Pyongyang's nuclear program is changes in the broader context of assumptions and beliefs about North Korea, nuclear proliferation, and international relations in general—the spirit of the times (zeitgeist), if you will.

In the 1980s, international relations were still seen through the prism of the Cold War contest between the United States and the USSR. To the extent that nuclear proliferation was an issue in Asia, the focus was on South Korea and Taiwan—both of which had flirted with nuclear weapons because of their doubts about US security guarantees.

North Korea was seen as a country with no technological capacity or motivation to pursue nuclear weapons. Nuclear power was seen as a more likely aspiration, albeit one the North Koreans were unlikely to achieve on their own. This set of beliefs and assumptions likely was a factor in the IC's willingness in the 1980s to allow for the possibility that Pyongyang's nuclear effort might not be aimed at weapons development.

By December 1991, the IC judgment about North Korea had hardened to the point that it was assumed not only that a nuclear weapons program existed but that Pyongyang would not agree to give it up. The change coincided with the end of the Cold War and a growing sense of isolation for North Korea. China and the Soviet Union, the North's traditional patrons, both established relationships with South Korea—leaving Pyongyang feeling beleaguered.

These geopolitical developments may have been a factor in Pyongyang's positive response to the withdrawal of US nuclear weapons from South Korea in late 1991 and the conclusion of the North-South accords in December of that year. North Korea also might have decided that its growing isolation was a reason to pursue nuclear weapons, if it had not already decided to go down that path. It is not clear from the declassified record, whether any of these developments was a factor in the shifting IC judgment on North Korea's intentions.

Any specific explanation for the shift in IC views must be speculative. Nonetheless, there are two other developments earlier in 1991 that might have contributed. After press accounts of North Korea's nuclear efforts first appeared in 1989,[64] the public discussion of the issue focused almost entirely on concern about nuclear weapons development.

The pace of press coverage increased after the first Persian Gulf war in early 1991, with an emphasis on how North Korea, not Iraq, was the real nuclear weapons threat.[65] It would be a mistake to think that intelligence analysts are not influenced by the tenor of public discussion and press coverage, even if the effect may be subliminal.

Post-1991 revelations about the extent to which the IC had underestimated Saddam Husayn's nuclear

Nonetheless, analysts—as often as not—are strongly tempted to make their judgments as definite and certain as possible— "make the call," as the expression goes.

weapons program may have been a more direct influence.[66] This failure had a large impact on the thinking of analysts, who did not want to again underestimate a foreign nuclear program. It would be a natural response to take a more critical approach to North Korea's nuclear efforts.

Polarization as a form of politicization

Greg Treverton has laid out a spectrum of politicization ranging from direct pressure from senior policy officials to a shared "mindset" whereby intelligence and policy share strong predispositions.[67] He points out that the first almost never happens, while the last is a "limiting case" in that it may be self-imposed. He defines several intermediate stages, including the "house line" on a particular subject that tends to exclude alternative views.

Politicization is a notoriously malleable concept, often used more as cudgel to discredit the opinions of others. But Treverton's conception of the "limiting case" illuminates the extent to which politicization may appear in an unexpected guise. A dictionary definition of "political" is "relating to the ideas or strategies of a particular party or group in politics." One could easily say that allowing one's view to be affected by any particular set of beliefs is a form of politicization, even if it is self-imposed. And yet, this is unavoidable at least to some extent since everyone has opinions.

Polarization may occur in the IC when organizations develop strongly opposing "house lines" that unduly color their interpretation of events. Individuals may also let strong personal views affect their analytic judgment. In the case of North Korea, strongly polarized views appeared about the time of the 1991–92 shift to the judgment that Pyongyang was pursuing nuclear weapons. Don Oberdorfer quotes President Clinton's national security advisor, Anthony Lake, as telling him that the president often received diametrically opposed estimates on North Korea from CIA and INR on the same day.[68] One wag characterized the State view as follows: "Two guys will be standing in an enormous bomb crater, and the guy from State will be saying: 'The North Koreans are trying to send us a subtle and nuanced message.'"[69] As previously noted, DIA was on the other end of the spectrum—taking a hard line and asserting that Pyongyang would violate any agreement no matter what.

When there is little or no concrete evidence to go on, there may be a temptation to offer a firm opinion anyway. It is sometimes difficult to say, "I don't know" or suggest a range of possibilities when the policymaker wants an answer. When opinions or firm views are offered that are more a product of a predisposition or assumption, that can be a form of self-politicization and should be avoided.

Analysis should provide answers, not <u>the</u> answer

Intelligence, almost by definition, addresses questions to which answers are uncertain or unknown. As Donald Rumsfeld has put it, "If it were a fact, it wouldn't be called intelligence."[70] Scholars of intelligence have argued that the most important function of estimative intelligence is the management of uncertainty—helping policymakers deal with complex situation where the correct answer is not or cannot be known.[71]

Nonetheless, analysts—as often as not—are strongly tempted to make their judgments as definite and certain as possible— "make the call," as the expression goes. This is what customers want, after all. Recipients of intelligence assessments sometimes are frustrated by excessive caveats and a litany of alternative possibilities that may be seen as "CYA." In addition, as Paul Pillar has put it, Americans have a "strong belief" that the Intelligence Community "ought to hold accurate images of the outside world."[72] So there is an expectation that intelligence analysts can and should provide the right answers, with little uncertainty.

On the North Korea question, the IC approach to conveying degrees of certainly has varied over the years. Up until about 1991, the IC did not express much, if any, confidence about the purpose of the North Korean program. There were consistent warnings about the potential for nuclear weapons development, but the possibility of peaceful use was also taken seriously. In retrospect, this even-handed approach seems overly cautious. We now know—from post–Cold War studies of Soviet and Eastern European archives—that Pyongyang was hinting to the Chinese about their interest in nuclear weapons as early as the mid-1970s.[73] According to Oberdorfer, North Korea had even directly asked China to "share the nuclear secret" shortly after the latter country's first nuclear test in 1964.[74]

One important downside of the even-handed, cautious assessment of the North Korean nuclear problem in the 1980s is that it made it easier for policymakers to ignore the problem. As long as the possibility is offered that the program was for peaceful purposes, the urgency of measures to control it is reduced. During the early years when North Korea dragged its feet on declaring its program and accepting safeguards, there was little sense of urgency in the policy community. Arguably, the IC could have and should have done more to sound alarms.

At about the same time the IC switched to a firm conclusion that North Korea had a nuclear weapons program, Pyongyang finally signed a safeguards agreement and began dealing with the IAEA. The policy community generally felt this shift in analysis was ill-timed, given North Korea's steps toward NPT compliance and engagement with the IAEA. The late 1993 NIE judging that "There was a better than even chance that North Korea had already produced one or two nuclear weapons" was even more unwelcome in policy circles. As previously mentioned, key policymakers saw the NIE as an unwelcome injection of an arbitrary assertion into the policy process, since "no one knew" whether North Korea possessed nuclear weapons. In their view, such a judgment "handed ammunition to critics of administration policy" and undermined the administration's credibility for no good reason.[75]

Is there a way to find a happy medium between "making the call"—a firm judgment that goes beyond what can be known—and offering a banal, "on the one hand, on the other hand" formulation that sheds little light?

Is there a way to find a happy medium between "making the call"—a firm judgment that goes beyond what can be known—and offering a banal, "on the one hand, on the other hand" formulation that sheds little light? Perhaps one fruitful approach would begin by spending less time reporting current developments and devoting more effort to thinking through possible future developments, how they might materialize, and what factors would affect their likelihood. Ideally, policymakers and academics would join with intelligence analysts to consider the historical context, uncertainties, and unknowns and lay out alternative future pathways that events might follow. Such a program could provide a stimulus to new thinking as well as break down the polarization that harms working relationships, inhibits creative thought, and does not serve the interests of consumers.

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