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North Korea's Nuclear Weapons Program

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SUMMARY

North Korea's decisions to restart nuclear installations at Yongbyon that were shut down under the U.S.-North Korean Agreed Framework of 1994 and withdraw from the Nuclear Non-Proliferation Treaty create an acute foreign policy problem for the United States. North Korea's major motive appears to be to escalate pressure on the Bush Administration to negotiate over Pyongyang's proposed non-aggression pact and/or a new nuclear agreement that would provide new U.S. benefits to North Korea. However, re-starting the Yongbyon facilities opens up a possible North Korean intent to stage a "nuclear breakout" of its nuclear program and openly produce nuclear weapons within six months. North Korea's actions follow the disclosure in October 2002 that North Korea is operating a secret nuclear program based on uranium enrichment and the decision by the Korean Peninsula Energy Development Organization (KEDO) in November 2002 to suspend shipments of heavy oil to North Korea. North Korea claimed in April 2003 that it had nuclear weapons and that it had nearly completed reprocessing of 8,000 nuclear fuel rods.

The main elements of Bush Administration policy are (1) terminating the Agreed Framework; (2) no bilateral negotiations with North Korea until it satisfies U.S. concerns over its nuclear program; (3) assembling an international coalition to pressure North Korea; and (4) proposing multilateral talks involving North Korea and other countries, possibly under United Nations auspices; (5) warning and planning for future economic sanctions against North Korea; and (6) warning North Korea not to reprocess nuclear weapons-grade plutonium, including asserting that "all options are open," including military options. China, South Korea, and Russia have criticized the Bush Administration for not negotiating directly with North Korea, and they voice opposition to economic sanctions and to the use of force against Pyongyang. The Administration has placed emphasis on China as a source of pressure on North Korea.

The crisis is the culmination of eight years of implementation of the 1994 Agreed Framework, which provides for the shutdown of North Korea's nuclear facilities in return for the delivery to North Korea of 500,000 tons of heavy oil and the construction in North Korea of two light water nuclear reactors. The United States pledged to issue a nuclear security guarantee to North Korea as North Korea complied with its 1992 safeguards agreement with the International Atomic Energy Agency.

MOST RECENT DEVELOPMENTS

At talks in Beijing among the United States, North Korea, and China, North Korea reportedly admitted that it possesses nuclear weapons, and it claimed that it was close to completing the reprocessing of spent nuclear fuel into weapons grade plutonium, which would allow North Korea to produce five or six atomic weapons. North Korea also said that it would "prove" and provide a "physical demonstration" of its nuclear capabilities, suggesting a possible nuclear test. North Korea reportedly threatened to sell nuclear material to third parties. North Korea reportedly offered a detailed proposal over the nuclear issue based on restoring elements of the 1994 U.S.-North Korean Agreed Framework with dismantlement of its nuclear program as the final stage following completion of U.S. commitments to deliver energy. North Korea also reiterated its proposal for a non-aggression pact with the United States. The Bush Administration reiterated its long-standing proposal that North Korea dismantle its nuclear program in a verifiable manner and then the United States would discuss with North Korea ways to improve relations (Administration officials have referred to this as a "bold initiative"); but the Administration continued to decline to specify steps to improve relations. The Administration reportedly was divided over whether to agree to the Beijing talks; Secretary of Defense Rumsfeld reportedly circulated a memorandum proposing that the United States join with China in forcing a regime change in North Korea.

BACKGROUND AND ANALYSIS

Implications of North Korea's Actions Since October 2002

The Bush Administration disclosed on October 16, 2002, that North Korea had revealed to U.S. Assistant Secretary of State James Kelly in Pyongyang that it was conducting a secret nuclear weapons program based on the process of uranium enrichment. North Korea admitted the program in response to U.S. evidence presented by Kelly. The program is based on the process of uranium enrichment, in contrast to North Korea's pre-1995 nuclear program based on plutonium reprocessing. North Korea began a secret uranium enrichment program after 1995 reportedly with the assistance of Pakistan. North Korea provided Pakistan with intermediate range ballistic missiles in the late 1990s. The Central Intelligence Agency issued a statement in December 2002 that North Korea likely could produce two or more atomic bombs annually through uranium enrichment after 2004.

In admitting to the secret program, Vice Foreign Minister Kang Sok-ju (an important figure in the North Korean regime) declared to Kelly that North Korea also possesses "more powerful" weapons. North Korea proposed a new U.S.-North Korean negotiation of a bilateral non-aggression pact and an agreement for the United States to cease "stifling" North Korea's economy. The North Korean proposal, which Pyongyang reiterated at the Beijing talks in April 2003, asserts that these agreements would open the way for resolving the nuclear issue. Some U.S. experts, however, believe that the non-aggression pact proposal is a "smokescreen" for North Korea's long-standing proposal (since 1974) of a U.S.-North

Korean bilateral peace treaty. As stated, both proposed pacts would replace the 1953 Korean armistice, and neither would include South Korea as a participant. North Korea has long stated that a negotiation of a bilateral peace treaty would include provisions for the withdrawal of U.S. military forces from South Korea. The United States and South Korea have rejected consistently the bilateral peace agreement proposal. Some experts also believe that North Korea's demand for the cessation of U.S. "stifling" of its economy is a subterfuge for Pyongyang's demand since 1999 that the United States remove North Korea from the U.S. list of terrorist countries, thus, in effect, making North Korea eligible for financial assistance from the World Bank, the International Monetary Fund, and the Asian Development Bank.

By their own admission, Bush Administration officials were surprised by the intensity of North Korea's moves in late December 2002 to re-start nuclear facilities at Yongbyon and expel officials of the International Atomic Energy Agency placed there under the U.S.-North Korean Agreed Framework of 1994 to monitor the shutdown. North Korea announced that it would re-start the small, five megawatt nuclear reactor shut down under the Agreed Framework and resume construction of two larger reactors that was frozen under the agreement. The reactor began operating in February 2003. It also announced that it would re-start the plutonium reprocessing plant that operated up to 1994. It reportedly asserted at the Beijing talks that it had nearly completed reprocessing of spent nuclear fuel into weapons-grade plutonium (but U.S. intelligence reportedly has been unable to verify the exact state of reprocessing) It withdrew from the Nuclear Non-Proliferation Treaty (NPT) in January 2003. It justified its action by citing the U.S.-initiated cutoff of heavy oil shipments in December 2002 and by charging that the Bush Administration planned a "pre-emptive nuclear attack" on North Korea. It escalated this by accusing the Bush Administration of using the U.S. position on the nuclear issue as a mask for a U.S. Iraq-like strategy to attack North Korea.

North Korea's strategy and tactics, including its positions in the Beijing talks, appear intended to escalate pressure on the Bush Administration to negotiate over Pyongyang's proposed non-aggression pact and/or a new nuclear agreement that would provide new U.S. benefits to North Korea. Pyongyang long has emphasized "intimidation tactics" in its diplomacy; and since October 2002 it has issued other threats including a resumption of long-range missile tests and stepped-up proliferation of weapons to other countries. A more positive interpretation is that North Korea's admission of possession of nuclear weapons and its presentation of a detailed negotiating proposal at Beijing indicate that Pyongyang is interested in seeking a negotiated settlement of the nuclear issue.

However, re-starting the Yongbyon facilities opens up a possible North Korean intent or option to stage a "breakout" of its nuclear program in 2003 by openly producing nuclear weapons. The most dangerous follow-up North Korean move would be to move 8,000 stored nuclear fuel rods at Yongbyon into the plutonium reprocessing plant for the production of nuclear weapons-grade plutonium. According to estimates by nuclear experts and reportedly by U.S. intelligence agencies, if North Korea reprocesses the fuel rods, as it claimed in the Beijing talks, it would take about four months to produce weapons grade plutonium and another one or two months to produce four to six atomic bombs. Such a nuclear breakout would diminish considerably any prospect of ending North Korea's nuclear program diplomatically.

Bush Administration Policy

The Bush Administration's policy response to North Korean actions since October 2002 is based on two factors within the Administration. First, President Bush has voiced profound distrust of North Korea and its leader, Kim Jong-il. Second, there are substantial divisions over policy toward North Korea among factions within the Bush Administration. An influential coalition consists of Pentagon officials and advisers around Secretary of Defense Rumsfeld, officials of Vice President Cheney's office, and proliferation experts in the State Department and White House led by Undersecretary of State John Bolton. They reportedly oppose negotiations with North Korea, favor the issuance of demands for unilateral North Korean concessions on nuclear and other military issues, and advocate an overall U.S. strategy of isolating North Korea diplomatically and through economic sanctions and bringing about a collapse of the North Korean regime. A second faction, mainly in the State Department and White House, is led by Secretary of State Powell and is composed of officials with experience on East Asian and Korean issues. This faction believes that the Administration should attempt negotiations before adopting more coercive measures, and they reportedly doubt the effectiveness of a strategy to bring about a North Korean collapse.

These factors have impacted on policy in several ways. North Korea became a principal target in the war on terrorism because of its weapons of mass destruction and proliferation activities. The Bush Administration has shown a consistent reluctance/aversion to negotiating with North Korea. Much of its public positions on North Korea has been demands for unilateral North Korean military concessions. Within the Administration, there has been a view of North Korea as weak with the potential for collapse. Administration officials of both factions express the view that other governments should endorse the U.S. position fully. Officials, apparently from the Pentagon-Cheney office-Bolton coalition, assert that North Korean provocations will escalate to a point at which other governments will join the United States in isolating North Korea through economic sanctions.

Major positions of the Administration have been:

(1) Continuing priority to Iraq: President Bush reportedly has said that he does not want two simultaneous crises. U.S. officials say they will rely on diplomacy and expect diplomacy to run well into 2003.

(2) Progressive suspension of the Agreed Framework: Administration officials have stated that the Agreed Framework will be terminated. Statements indicate a debate with the Administration over the timing of ending it. In November 2002, the Administration's initiative led the Korean Peninsula Development Organization (KEDO, the international body administering the 1994 Agreed Framework) to suspend heavy oil shipments to North Korea – a key component of the Agreed Framework – beginning in December 2002. North Korea cited this as justification for re-starting the Yongbyon nuclear facilities. South Korea reportedly argued against the suspension, and the South Korean government (along with China and Russia) reportedly favors a resumption of oil shipments as part of a settlement with North Korea. The next decision for KEDO will be whether to continue or suspend construction of the two light water nuclear reactors promised to North Korea in the Agreed Framework. North Korea's nuclear provocations since mid-December 2002 may have made the Administration cautious about a termination of the construction of two light water nuclear reactors (LWRs) in North Korea–another key provision of the Agreed Framework.

In January 2003, the Administration decided to request of Congress $3 million dollars for the continuance of KEDO in FY 2003. Congress approved $5 million.

(3) Ambivalence toward negotiations with North Korea: Until January 7, 2003, the Administration rejected negotiation of any new agreement with North Korea over the secret nuclear program, insisting that North Korea first abide by its past nuclear agreements, which Pyongyang increasingly has violated. The Administration rejected North Korea's proposal for bilateral negotiations. On January 7, 2003, the Administration proposed a dialogue with North Korea that would not be the negotiation of a new agreement. In a communique of January 7, 2003, with Japan and South Korea, the proposal stated that "the United States is willing to talk to North Korea about how it will meet its obligations to the international community" but that "the United States will not provide quid pro quos to North Korea to live up to its existing obligations." President Bush then said that the United States might consider agricultural and energy aid to North Korea after North Korea satisfied U.S. concerns over its nuclear and military policies. Secretary of State Powell referred to a "new arrangement" with North Korea to replace the Agreed Framework. However, the President and Administration officials have declared repeatedly that the Administration will not discuss any reciprocity or benefits to North Korea until North Korea dismantles completely its nuclear program. In February 2003, the Administration began to promote a multilateral framework for negotiations. It subsequently indicated that it wanted negotiations to deal with several security issues: nuclear, missiles, other weapons of mass destruction, and conventional forces. The Administration wanted South Korea, Japan, China, and Russia included in negotiations. However, in talks with China, the Administration agreed to China's proposal for three party talks (China, North Korea, and the United States) in Beijing with the participation of other countries left undetermined. However, the Administration claimed that the Beijing meeting was not a negotiations, and it went no further than stating its public position that North Korea must dismantle its nuclear program before the United States would discuss with it ways to improve U.S.-North Korean relations.

(4) Forming an international coalition to pressure North Korea to end its nuclear program: The Administration's multilateral negotiation proposal is the latest tactical move in this strategy. The Administration has placed emphasis on China as a source of pressure on North Korea, citing China's stated support for a non-nuclear Korean peninsula. China has a mutual defense treaty with North Korea and supplies North Korea with large quantities of oil and food. China, South Korea, and Russia have withheld full support from the U.S. position, causing frustration within the Administration. Their governments criticized the Bush Administration for not conducting a diplomatic dialogue with North Korea. They criticized the idea of economic sanctions against North Korea (although Russia said in April 2003 that it could support sanctions if North Korea openly produced nuclear weapons). They all advocate that the United States offer North Korea a security guarantee in any agreement on nuclear weapons. They stated opposition to the U.S. attempt to have the U.N. Security Council formally take up the issue in early April 2003, and China blocked Security Council action. The Administration gained support/acceptance of its multilateral talks proposal from South Korea, Japan, and later Russia. However, China viewed it against the dialogue it had with North Korea since mid-February 2003. China reportedly pressured North Korea to adopt greater flexibility regarding its demand for bilateral talks with the United States, leading to the three-party Beijing talks. However, in return, China apparently made diplomatic commitments to North Korea, including support for North Korean opposition to

U.N. Security Council consideration and North Korean opposition to South Korean and Japanese participation in multilateral talks.

(5) Warning of the prospect of economic sanctions if North Korea does not end its nuclear program: The Administration reportedly has drafted plans for economic sanctions, including cutting off financial flows to North Korea from Japan and other sources and interdicting North Korean weapons shipments to the Middle East and South Asia. A number of Administration officials assert that North Korea's escalation of provocations eventually will convince other governments to support economic sanctions and thus isolate North Korea and bring about its collapse.

(6) Ambivalence concerning U.S. military options if North Korea fully activates its nuclear program: The Administration stressed in January 2003 that the United States would not attack North Korea; this was in response to North Korea's repeated charge that the United States planned a pre-emptive attack and to concerns voiced by China, Russia, and South Korea. In February 2003, Administration statements on military options focused on the growing belief that North Korea would attempt to reprocess the 8,000 spent nuclear fuel rods at Yongbyon into weapons-grade plutonium and produce five or six atomic bombs. In late 2002, Clinton Administration officials disclosed that in 1994, the Administration had approved a Pentagon plan to bomb Yongbyon to prevent reprocessing of the fuel rods. Bush Administration signals on using military force to stop reprocessing have been ambivalent; and several indicated that the Administration had not reached a firm decision whether or not to bomb North Korean nuclear installations if North Korea began reprocessing.

North Korea's Nuclear Program

Most of North Korea's plutonium-based nuclear installations are located at Yongbyon, 60 miles of the North Korean capital of Pyongyang. The key installations are:

- **An atomic reactor, with a capacity of about 5 electrical megawatts that began operating by 1987:** it is capable of expending enough uranium fuel to produce about 7 kilograms of plutonium annually — enough for the manufacture of a single atomic bomb annually. North Korea in 1989 shut down the reactor for about 70 days; U.S. intelligence agencies believe that North Korea removed fuel rods from the reactor at that time for reprocessing into plutonium suitable for nuclear weapons. In May 1994, North Korea shut down the reactor and removed about 8,000 fuel rods, which could be reprocessed into enough plutonium for 4-6 nuclear weapons. North Korea started operating the reactor again in February 2003. It claimed at the Beijing talks in April 2003 that it had nearly completed the reprocessing of the 8,000 nuclear fuel rods. U.S. intelligence sources said that they had no information that North Korea had engaged in actual reprocessing.

- **Two larger (estimated 50 electrical megawatts and 200 electrical megawatts) atomic reactors under construction at Yongbyon and Taechon since 1984:** According to U.S. Ambassador Robert Gallucci, these plants, if completed, would be capable of producing enough spent fuel

annually for 200 kilograms of plutonium, sufficient to manufacture nearly 30 atomic bombs per year.

- **A plutonium reprocessing plant about 600 feet long and several stories high:** The plant would separate weapons grade Plutonium-239 from spent nuclear fuel rods for insertion into the structure of atomic bombs or warheads. U.S. intelligence reportedly detected North Korean preparations to restart the plutonium reprocessing plant in February and March 2003. They stated that they had no information regarding North Korea's claim at the April 2003 Beijing talks that reprocessing was nearly completed.

Satellite photographs reportedly also show that the atomic reactors have no attached power lines, which they would have if used for electric power generation.

Persons interviewed for this study believe that North Korea developed the two reactors and the apparent reprocessing plant with its own resources and technology. It is believed that Kim Chong-il, the son and successor of President Kim Il-sung who died in July 1994, directs the program, and that the military and the Ministry of Public Security (North Korea's version of the KGB) implement it. North Korea reportedly has about 3,000 scientists and research personnel devoted to the Yongbyon program. Many have studied nuclear technology (though not necessarily nuclear weapons production) in the Soviet Union and China and reportedly Pakistan. North Korea has uranium deposits, estimated at 26 million tons. North Korea is believed to have one uranium producing mine.

North Korea's secret uranium enrichment program appears to date from 1995 when North Korea and Pakistan reportedly agreed to trade North Korean Nodong missile technology for Pakistani uranium enrichment technology. The Clinton Administration reportedly learned of it in 1998 or 1999, and a Department of Energy report of 1999 cited evidence of the program. In March 2000, President Clinton notified Congress that he was waiving certification that "North Korea is not seeking to develop or acquire the capability to enrich uranium." The Japanese newspaper, *Sankei Shimbun*, reported on June 9, 2000, the contents of a "detailed report" from Chinese government sources on a secret North Korean uranium enrichment facility inside North Korea's Mount Chonma. Reportedly, according to a CIA report to Congress, North Korea attempted in late 2001 to acquire "centrifuge-related materials in large quantities to support a uranium enrichment program."

International Assistance

Knowledgeable individuals believe that the Soviet Union did not assist directly in the development of Yongbyon in the 1980s. The U.S.S.R. provided North Korea with a small research reactor in the 1960s, which also is at Yongbyon. However, North Korean nuclear scientists continued to receive training in the U.S.S.R. up to the demise of the Soviet Union in December 1991. East German and Russian nuclear and missile scientists reportedly were in North Korea throughout the 1990s. Since 1999, reports have appeared that U.S. intelligence agencies had information that Chinese enterprises were supplying important components and raw materials for North Korea's missile program.

North Korea's Delivery Systems

North Korea succeeded by 1998 in developing a "Nodong" missile with a range estimated at up to 900 miles, capable of covering South Korea and most of Japan. North Korea reportedly deployed nearly 100 Nodong missiles by 2003. On August 31, 1998, North Korea test fired a three stage rocket, apparently the prototype of the Taepo Dong-1 missile; the third stage apparently was an attempt to launch a satellite. U.S. intelligence estimates reportedly concluded that such a missile would have the range to reach Alaska, Guam, and the Northern Marianas Commonwealth. Media reports in early 2000 cited U.S. intelligence findings that, without further flight tests, North Korea could deploy an intercontinental ballistic missile that would be capable of striking Alaska, Hawaii, and the U.S. west coast.

These projections led the Clinton Administration to press North Korea for a new round of talks over North Korea's missile program. In talks held in 1999 and 2000, North Korea demanded $1 billion annually in exchange for a promise not to export missiles. U.S. negotiators reportedly rejected North Korea's demand for $1 billion but offered a lifting of U.S. economic sanctions against North Korea in exchange for an agreement on missiles. This laid the ground for the Berlin agreement of September 1999 in which North Korea agreed to defer further missile tests in return for the lifting of major U.S. economic sanctions. North Korea continued the moratorium but threatened to end it after revealing its secret uranium enrichment program.

State of Nuclear Weapons Development

In August 2001, Secretary of Defense Donald Rumsfeld stated in Moscow that "North Korea possessed enough plutonium to produce two to three, maybe even four to five nuclear warheads." This was largest official U.S. estimate of the possible number of North Korean nuclear weapons. U.S. intelligence agencies had disclosed an estimate that North Korea had extracted enough plutonium from its nuclear reactor to produce one or two nuclear weapons. However, in December 2001, the U.S. National Intelligence Council issued a revised finding that "North Korea has produced one, possibly two, nuclear weapons." North Korea's approximately 70 day shutdown of the five megawatt reactor in 1989 gave it the opportunity to remove nuclear fuel rods, from which plutonium is reprocessed. However, the U.S. Central Intelligence Agency and the Defense Intelligence Agency reportedly estimated in late 1993 that North Korea extracted enough fuel rods for about 12 kilograms of plutonium — sufficient for one or two atomic bombs. The CIA and DIA apparently based their estimate on the 1989 shutdown of the five megawatt reactor. David Albright of the Institute for Science and International Security produced in 1994 a detailed study of the 1989 reactor shutdown and concluded that if North Korea removed all of the fuel rods from the reactor during the shutdown, the rods would have contained 14 kilograms of plutonium.

South Korean and Japanese intelligence estimates reportedly are higher: 16-24 kilograms (Japan) and 7-22 kilograms (South Korea). These estimates reportedly are based on the view that North Korea could have acquired a higher volume of plutonium from the 1989 reactor shutdown and the view of a higher possibility that North Korea removed fuel rods during the 1990 and 1991 reactor slowdowns. Russian Defense Ministry analyses of

late 1993 reportedly came to a similar estimate of about 20 kilograms of plutonium, enough for 2 or 3 atomic bombs.

There also is a body of analysis suggesting that North Korea could produce more nuclear weapons from a given amount of plutonium than standard intelligence estimates have believed. State Department and U.S. intelligence estimates of the plutonium/bomb production ratio are close to the IAEA standard that a non-nuclear state would need about eight kilograms of plutonium to produce a nuclear bomb. However, IAEA spokesman, David Kyd, stated in August 1994 that Agency officials have known for some time that the eight kilogram standard was too high. He said that the IAEA retained it because of the wishes of member governments.

Kyd was reacting to a report of the National Resources Defense Council. Using North Korea as a standard non-nuclear state, the report concluded that a non-nuclear state with "low technology" could produce a one kiloton bomb (a small atomic bomb but "with the potential to kill tens of thousands of people") with three kilograms of plutonium. A non-nuclear state with "medium technology" could produce a one kiloton bomb with 1.5 kilograms of plutonium.

Before the Natural Resources Defense Council released the report, the U.S. Department of Energy in January 1994 lowered its mean estimate of plutonium required for a small atomic bomb from eight to four kilograms. Secretary of Defense Perry suggested in July 1994 that, with a higher level of technology, North Korea could produce more nuclear weapons with a given amount of plutonium: "If they had a very advanced technology, they could make five bombs out of the amount of plutonium we estimate they have."

Russian and U.S. intelligence agencies also reportedly have learned of significant technological advances by North Korea towards nuclear weapons production. On March 10, 1992, the Russian newspaper Argumenty I Fakty (Arguments and Facts) published the text of a 1990 Soviet KGB report to the Soviet Central Committee on North Korea's nuclear program. It was published again by Izvestiya of June 24, 1994. The KGB report asserted that "According to available data, development of the first nuclear device has been completed at the DPRK nuclear research center in Yongbyon." The North Korean Government, the report stated, had decided not to test the device in order to avoid international detection.

Additionally, there are a number of reports and evidence that point to at least a middle range likelihood that North Korea may have smuggled plutonium from Russia. In June 1994, the head of Russia's Counterintelligence Service (successor to the KGB) said at a press conference that North Korea's attempts to smuggle "components of nuclear arms production" from Russia caused his agency "special anxiety." In August 1994, members of Germany's parliament and Chancellor Kohl's intelligence coordinator stated that they had been briefed that a German citizen arrested in May 1994 with a small amount of plutonium, smuggled from Russia, had connections with North Korea. U.S. executive branch officials have expressed concern in background briefings over the possibility that North Korea has smuggled plutonium from Russia. One U.S. official, quoted in the Washington Times, July 5, 1994, asserted that "There is the possibility that things having gotten over the [Russia-North Korea] border without anybody being aware of it." The most specific claim came in the German news magazine Stern in March 1993, which cited Russian

Counterintelligence Service reports that North Korea had smuggled 56 kilograms of plutonium (enough for 7-9 atomic bombs) from Russia.

Diplomatic Background to the Agreed Framework and Amending Agreements

In 1991, the Bush Administration took several actions aimed at securing from North Korea adherence to Pyongyang's obligations as a signatory of the Nuclear Non-Proliferation Treaty (NPT); North Korea had signed the treaty in 1985. Bush Administration actions included the withdraw of U.S. nuclear weapons from South Korea in late 1991. North Korea entered into two agreements, which specified nuclear obligations. In a denuclearization agreement signed in December 1991, North Korea and South Korea pledged not to possess nuclear weapons, not to possess plutonium reprocessing or uranium enrichment facilities, and to negotiate a mutual nuclear inspection system. In January 1992, North Korea signed a safeguards agreement with the International Atomic Energy Agency (IAEA), which requires North Korea to report all nuclear programs to the IAEA and gives the IAEA the right to conduct a range of inspections of North Korean nuclear installations and programs. In 1992, North Korea rebuffed South Korea regarding implementation of the denuclearization agreement, but it did allow the IAEA to conduct six inspections during June 1992-February 1993.

In late 1992, the IAEA found evidence that North Korea had reprocessed more plutonium than the 80 grams it had disclosed to the Agency. In February 1993, the IAEA invoked a provision in the safeguards agreement and called for a "special inspection" of two concealed but apparent nuclear waste sites at Yongbyon. The IAEA believed that a special inspection would uncover information on the amount of plutonium which North Korea had produced since 1989. North Korea rejected the IAEA request and announced on March 12, 1993, an intention to withdraw from the NPT.

The NPT withdrawal threat led to low and higher level diplomatic talks between North Korea and the Clinton Administration. North Korea "suspended" its withdrawal from the NPT when the Clinton Administration agreed to a high-level meeting in June 1993. However, North Korea continued to refuse both special inspections and IAEA regular inspections of facilities designated under the safeguards agreement. In May 1994, North Korea refused to allow the IAEA to inspect the 8,000 fuel rods, which it had removed from the five megawatt reactor. In June 1994, North Korea's President Kim Il-sung reactivated a longstanding invitation to former U.S. President Jimmy Carter to visit Pyongyang. Kim offered Carter a freeze of North Korea's nuclear facilities and operations. Kim took this initiative after China reportedly informed him that it would not veto a first round of economic sanctions, which the Clinton Administration had proposed to members of the U.N. Security Council.

The Clinton Administration reacted to Kim's proposal by dropping its sanctions proposal and entering into a new round of high-level negotiations with North. This negotiation led to the Agreed Framework of October 21, 1994. Two amending agreements were concluded in 1995: a U.S.-North Korean statement in Kuala Lumpur, Malaysia in June

and a supply contract for the provision of nuclear reactors to North Korea, concluded in December.

The Agreed Framework: Provisions, Implementation, Costs, Future Issues

U.S. Objectives: Primacy to the Freeze of North Korea's Nuclear Program

The heart of the Agreed Framework and the amending accords is a deal under which the United States will provide North Korea with a package of nuclear, energy, economic, and diplomatic benefits; in return North Korea will halt the operations and infrastructure development of its nuclear program. The Agreed Framework commits North Korea to "freeze its graphite-moderated reactors and related facilities" with the freeze to be monitored by the IAEA. Ambassador Robert Gallucci, who negotiated for the United States, stated that "related facilities" include the plutonium reprocessing plant and stored fuel rods. According to Gallucci, the freeze includes a halt to construction of the 50 and 200 megawatt reactors and a North Korean promise not to refuel the five megawatt reactor. The Agreed Framework also commits North Korea to store the 8,000 fuel rods removed from the five megawatt reactor in May 1994 "in a safe manner that does not involve reprocessing in the DPRK [North Korea]." Clinton Administration officials reportedly said that a secret "confidential minute" to the Agreed Framework prohibits North Korea from construction of new nuclear facilities elsewhere in North Korea.

Gallucci and other officials emphasized that the key policy objective of the Clinton Administration was to secure a freeze of North Korea's nuclear program in order to prevent North Korea from producing large quantities of nuclear weapons grade plutonium through the operations of the 50 and 200 megawatt reactors and the plutonium reprocessing plant at Yongbyon. Gallucci referred to the prospect of North Korea producing enough plutonium annually for nearly 30 nuclear weapons if the 50 and 200 megawatt reactors went into operation. The Administration's fear was that North Korea would have the means to export atomic bombs to other states and possess a nuclear missile capability that would threaten Japan and U.S. territories in the Pacific Ocean.

Benefits to North Korea

Light Water Nuclear Reactors. North Korea is to receive two light water reactors (LWRs) with a generating capacity of approximately 2,000 megawatts. The Agreed Framework set a "target date" of 2003. The United States is obligated to organize an international consortium arrangement for the acquisition and financing of the reactors. The Clinton Administration and the governments of South Korea, Japan, and other countries established in March 1995 the Korean Peninsula Energy Development Organization (KEDO) to coordinate the provision of the LWRs. After the groundbreaking at the reactor site in August 1997, KEDO officials changed the estimated completion date from 2003 to 2007; other experts predict a much later date. The laying of the foundation for the LWRs occurred in August 2002.

KEDO's estimated cost of the reactors is currently around $5 billion. South Korea is to supply the reactors through a South Korean company as the main contractor; and South Korea and Japan will provide most of the financing. An agreement reached by KEDO members on November 9, 1998, set South Korea's contribution at $3.22 billion, Japan's contribution at $1 billion, and the European Union's contribution at $76 million.

KEDO rejected North Korea's demand that KEDO finance modernization of North Korea's electric power grid. The cost of this has been estimated at $750 million. North Korea reissued the demand in an amended form in U.S.-North Korean talks in March 2000, calling for U.S. "compensation" for electricity shortages because the light water nuclear reactors will not be completed by 2003. It since has periodically raised the demand for electricity, as its domestic output of electricity declined substantially after 1995.

Oil at No Cost. Prior to the construction of light water reactors, the Agreed Framework commits the United States to facilitate the provision to North Korea of "alternative energy" to compensate for the freeze of nuclear facilities. The alternative energy is to be "heavy oil". In January 1995, the Clinton Administration arranged for the shipment of 50,000 metric tons of U.S. heavy oil to North Korea. This was followed by a shipment of 100,000 metric tons of oil in October 1995. Starting in October 1995, the United States is to facilitate shipments of 500,000 metric tons of heavy oil to North Korea annually until the first of the two light water reactors becomes operational. The oil shipments continued until KEDO's decision in November 2002 to cancel future shipments because of North Korea's secret uranium enrichment program.

Diplomatic Representation. The United States and North Korea announced in the Agreed Framework an intention to open liaison offices in each other's capital and establish full diplomatic relations if the two governments make progress "on issues of concern to each side." By April 1995, most technical arrangements for liaison offices were completed. However, North Korea displayed reluctance to finalize arrangements, and talks over liaison offices waned. Ambassador Gallucci asserted that a full normalization of diplomatic relations would depend on a successful resolution of non-nuclear military issues, especially the heavy deployment of North Korean conventional military forces along the demilitarized zone separating North and South Korea and North Korea's program to develop and sell to other governments longer range missiles. In October 1999, William Perry, the Administration's Special Adviser on North Korea, cited normalization of diplomatic relations as one of the benefits which the United States could offer North Korea for new agreements on nuclear and missile issues.

Lifting the U.S. Economic Embargo. The Agreed Framework specifies that within three months from October 21, 1994, the two sides will reduce barriers to trade and investment, including restrictions on telecommunications services and financial transactions. This required the Clinton Administration to relax the U.S. economic embargo on North Korea, which the Truman Administration and Congress put in place during the Korean War. On January 20, 1995, the Administration announced initial measures, including permission for telecommunications links with North Korea, permission for U.S. citizens to use credit cards in North Korea, permission for American media organizations to open offices in North Korea, permission for North Korea to use U.S. banks in financial transactions with third countries, and permission for U.S. steel companies to import magnesite from North Korea. North Korea pressed the Clinton Administration to end all economic sanctions. In U.S.-

North Korean talks in September 1999, the United States agreed to end a broader range of economic sanctions in exchange for a North Korean moratorium on future missile testing. President Clinton ordered the end of most economic sanctions in June 2000.

North Korean Obligations Beyond the Freeze of the Nuclear Program

North Korea's primary obligation is the freeze of its nuclear program. However, as the time comes for delivery to North Korea of plant and equipment for the light water reactors, the Agreed Framework alludes to certain other obligations for Pyongyang. Ambassador Gallucci and other Clinton Administration officials were more specific in describing these. They have disclosed the existence of a secret minute that the Administration and North Korea concluded in conjunction with completion of the Agreed Framework. North Korea, however, has not acknowledged such a secret minute.

Inspections and Broader Nuclear Obligations. The Agreed Framework contains a clause which the Administration claims constitutes a North Korean obligation to allow the IAEA to conduct the special inspection of the two suspected nuclear waste sites at Yongbyon in conjunction with the delivery of equipment for the light water reactors. The Agreed Framework states: "When a significant portion of the LWR [light water reactor] project is completed, but before delivery of key nuclear components, the DPRK will come into full compliance with its safeguards agreement with the IAEA, 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 DPRK's initial report on all nuclear material in the DPRK." Ambassador Gallucci contended that this binds North Korea to accept a special inspection before the key nuclear components of the first light water reactor are delivered to North Korea, if the IAEA still wishes to conduct a special inspection. However, North Korean descriptions of its obligations omit reference to special inspections.

North Korea also stated in the Agreed Framework that "The DPRK will remain a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and will allow implementation of its [1992] safeguards agreement under the Treaty." Gallucci stated in congressional testimony that the Agreed Framework did not restrict the right of the IAEA to invoke special inspections if it discovered any new North Korean nuclear activities. Gallucci said that the Agreed Framework only restricted the IAEA with respect to the two suspected nuclear waste sites and the nuclear installations and the stored fuel rods at Yongbyon and Taechon. He stressed that any North Korean nuclear program, other than the specific facilities and activities covered in the Agreed Framework, would fall immediately under the IAEA-North Korea safeguards agreement and that North Korea must place any such program under IAEA safeguards. Failure to do so, he said, would constitute a violation of the Agreed Framework. Thus, North Korea's secret uranium enrichment program violates this clause of the Agreed Framework.

In the Agreed Framework, North Korea pledged to "consistently take steps to implement the [1991] North-South Joint Declaration on the Denuclearization of the Korean Peninsula." North Korea thus extended its obligations to South Korea in the North-South denuclearization agreement to the United States. This clause of the Agreed Framework also is relevant to North Korea's secret uranium enrichment program, since the North-South denuclearization agreement specifically prohibits uranium enrichment.

Disposition of Fuel Rods from the Five Megawatt Reactor. Following Kim Il-sung's offer of a nuclear freeze to former President Carter, Administration officials stressed the importance of securing North Korean agreement to the removal to a third country of the 8,000 fuel rods which North Korea removed from the five megawatt reactor in May 1994. However, the Administration abandoned the objective of securing an immediate removal of the rods after the negotiations started in September 1994. It also gave up support for the IAEA's attempts to inspect the fuel rods in order to gain information on the amount of weapons grade plutonium that North Korea secured from the five megawatt reactor prior to 1994. The Agreed Framework provided for the storage of the rods in North Korea and a North Korean promise not to reprocess plutonium from the rods. It also provides for subsequent talks on the "ultimate disposition" of the rods.

Dismantlement of Nuclear Installations. The Agreed Framework states that "Dismantlement of the DPRK's graphite-moderated reactors and related facilities will be completed when the LWR project is completed." A State Department interpretation holds that dismantlement will begin when the first light water reactor is installed and completed when the second reactor is fully installed. South Korean government experts reportedly estimate that dismantlement of the 50 and 200 megawatt reactors will cost about $500 million but that dismantlement of the radioactive five megawatt reactor and the plutonium reprocessing plant will require a much higher cost.

Role of Congress

Congress has voiced much skepticism regarding the Agreed Framework, but its actions have given the Administration flexibility in implementing U.S. obligations. Congress has played three roles. First, there have been numerous oversight hearings. Second, Congress included in the Omnibus Appropriations bill for FY1999 (H.R. 4328) the requirement that the President certify progress in negotiations with North Korea over the nuclear, missile, and other issues before the Administration could allocate money to KEDO operations. President Clinton issued two such certifications in 1999 and 2000. President Bush notified Congress in March 2002 that he could not certify that North Korea was abiding by the Agreed Framework. H.R. 4328 also called on the President to name "a very senior presidential envoy" as "North Korea Policy Coordinator" to conduct a review of U.S. policy and direct negotiations with North Korea. This resulted in President Clinton's appointment of William Perry as a special adviser and the issuance of the Perry report in October 1999. The Bush Administration, however, terminated the senior envoy position. Third, Congress has considered and approved Administration requests for funds to finance implementation. Congress approved for fiscal years 1996, 1997, 1998, and 1999 Administration requests for $22 million, $25 million, $30 million and $35 million respectively for U.S. support of KEDO and $20 million for the encasing of 8,000 nuclear fuel rods put in storage under the Agreed Framework. For FY2000, the Administration raised its request to $55 million. Congress appropriated only $35 million, but President Clinton secured an additional $18 million, using discretionary clauses in foreign operations legislation. For FY2001, Congress appropriated the entire $55 million requested by the Clinton Administration. For FY2002, Congress approved the Bush Administration's request for $95 million.

On October 20, 1994, President Clinton sent a letter to North Korean leader, Kim Jong-il, stating that he "will use the full powers of my office" to carry out U.S. obligations

related to light water reactors and alternative energy (oil). President Clinton added that if contemplated arrangements for light water reactors and alternative energy were not completed, he would use the powers of his office to provide light water reactors and alternative energy from the United States "subject to the approval of the U.S. Congress."

In early 2003, Congress accepted the Bush Administration's proposal to continue funding the administrative costs of KEDO. The Consolidated Appropriations Act for FY2003 (H.J.Res. 2) appropriated $5 million for KEDO. In April 2003, the House of Representatives passed amendments to the Energy bill (H.R. 6) that effectively would end U.S. involvement in the construction of the light water reactors in North Korea. H.R. 6 prohibits the transfer of U.S. nuclear materials and technology to North Korea, bars other countries from transferring U.S.-based nuclear technology to North Korea, requires the U.S. delegate to KEDO to vote against approval of any foreign reactor design for North Korea, and prohibits U.S. government indemnity insurance for any U.S. company seeking to participate in the LWR project.

FOR ADDITIONAL READING

CRS Products

CRS Issue Brief IB98045. *Korea: U.S.-South Korean Relations–Issues for Congress.*

CRS Report RS21391. *North Korea's Nuclear Weapons: How Soon an Arsenal?*

CRS Report RS21473. *North Korean Ballistic Missile Threat to the United States.*

CRS Report RL31696. *North Korea: Economic Sanctions.*

CRS Report RL31785. *U.S. Assistance to North Korea.*