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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. 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. North Korea's actions follow the reported 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 claims that it has nuclear weapons and that it has completed reprocessing of 8,000 nuclear fuel rods. U.S. officials in 2004 stated that North Korea probably had reprocessed most or all of the fuel rods and may have produced 6-8 atomic bombs from them.

The main objective of the Bush Administration is to secure the dismantling of North Korea's plutonium and uranium-based nuclear programs. Its strategy has been: (1) terminating the Agreed Framework; (2) withholding any U.S. reciprocal measures until North Korea takes visible steps to dismantle its nuclear programs and makes concessions on other military issues; (3) assembling an international coalition to apply diplomatic and economic pressure on North Korea; and (4) planning for future economic sanctions and military interdiction of North Korea shipping and air traffic through a Proliferation Security Initiative. 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. China, Russia, and even South Korea increasingly have expressed support for North Korea's position in six party talks. China has facilitated six party talks, but the talks have made little progress.

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 annual delivery to North Korea of 500,000 tons of heavy oil and the construction in North Korea of two light water nuclear reactors.

Most Recent Developments

North Korea entered 2005 by continuing to refuse to agree to another meeting of the six party talks on the nuclear issue. U.S. Members of Congress who visited North Korea in January 2005 said that North Korean officials stated that Pyongyang would agree to meet; but they gave no timetable. North Korea has demanded preconditions for attending another meeting, including an end to U.S. "hostile policies," U.S. acceptance of North Korea's "reward for [nuclear] freeze proposal," and agreement of the six parties to take up the recently revealed nuclear activities of South Korean scientists. North Korean media commentary throughout November and December 2004 boasted of Pyongyang's strong position in the six party talks and the weakness and isolation of the Bush Administration. These boasts received some support by open Chinese and South Korean criticisms of the Bush Administration's position in the talks. South Korean President Roh Moo-hyun gave major policy speeches in Los Angeles and Europe in November 2004, sharply criticizing the Bush Administration, rejecting any pressure on North Korea, defending North Korea's assertion that it needed a "nuclear deterrent" in view of its perception of a threat from the United States, and describing North Korea's "reward for freeze" proposal as "a considerably positive proposal." Bush Administration officials asserted that the six party talks needed to make progress in 2005. However, they gave no indication of a strategy to change the complexion of the talks, and they remained silent toward the Chinese and South Korean criticisms. Japan remained supportive of the U.S. position, but Tokyo threatened to impose sanctions against North Korea after North Korea turned over alleged remains of two kidnapped Japanese that turned out to be bogus on DNA examination. The Bush Administration reportedly counseled Japan to refrain from sanctions because of possible damage to the six party talks.

Background and Analysis

The Second Bush Administration and the Six Party Talks

The Bush Administration faces a difficult situation in the six party talks over the North Korean nuclear issue. North Korea has established a dominant position in the talks, and the U.S. position has weakened despite the Bush Administration's settlement proposal of June 23, 2004. North Korea has secured support from other participants in the talks for its core "reward for freeze" proposal and for its repeated denials that it has a secret uranium enrichment nuclear program. North Korea has been able to obstruct the talks since July 24, 2004, when the North Korean Foreign Ministry denounced the U.S. June 23 proposal as a "sham proposal." Since then, North Korea has refused to attend another meeting, has demanded that the United States accept its proposals and cease its "hostile policies," and has demanded that the six party talks take up recently disclosed South Korean nuclear activities.

There appear to be several reasons why the Administration's June 23 proposal did not weaken North Korea's position in the talks and strengthen the U.S. position. The positions of the other governments in the talks (China, South Korea, Japan, and Russia) appear to have encouraged North Korea to adopt negative tactics in response to the June 23 proposal. Since the proposal was issued, the other governments have not endorsed it or spoken favorably of it. The statements of the Chinese and South Korean foreign ministers during Secretary Powell's visit in late October 2004 were implied criticisms of the proposal, which Powell tried to defend in response. The other governments, too, have not criticized North Korea's "reward for freeze" proposal. China and Russia have expressed support for some elements of it; and they have voiced skepticism toward the Bush Administration's claim that North Korea has a secret uranium enrichment program. The other governments also have not criticized the negative tactics that North Korea adopted in late July through the U.S. presidential election. China has continued to make payoffs to North Korea (money, food, and oil) to get North Korea to agree just to attend six party meetings; such payoffs probably encourage North Korea to believe that it can receive such benefits without having to adopt positive positions at the meetings themselves.

The Bush Administration did not have an effective post-June 23 follow-up strategy to promote its proposal into a position of a basis for negotiations in the talks. U.S. officials visiting East Asia said little of the proposal publicly until the Chinese and South Korean rebuffs to Secretary Powell, and they apparently did not pressure officials of the other participating governments to endorse it.

The Administration faces five key issues regarding the future of the talks and policy toward North Korea. One is whether North Korea will agree to another meeting. But equally important is the issue of the price of getting North Korea to attend another meeting; i.e., will North Korea received another round of payoffs from China? A third key issue is North Korean behavior at any future meetings; will North Korea persist in denying a uranium enrichment program and in demanding acceptance of its "reward for freeze" proposal? Fourth, the Bush Administration will have to decide how to treat North Korea's demand that the six party talks take up the South Korean nuclear activities, which the International Atomic Energy Agency (IAEA) is investigating. A fifth potentially crucial issue is U.S. policy decisions if there no further six party meetings or if future meetings produce no movement toward a satisfactory settlement. There reportedly is sentiment in the Bush Administration that the United States should adopt coercive measures, including the interdiction of North Korean sea and air traffic in accordance with the Proliferation Security Initiative, which the United States and a number of other countries adopted in 2003. However, the Administration gives priority to Iraq and the Middle East over North Korea; this could influence it to take no active measures in 2005 to bring the nuclear to a point of decision.

Background to the Six Party Talks

The Bush Administration asserted on October 16, 2002, that North Korea had revealed to U.S. Assistant Secretary of State James Kelly in Pyongyang on October 5, 2002, that it had a secret nuclear weapons program based on uranium enrichment. 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 reportedly began a secret uranium enrichment program in the early 1990s with the assistance of Pakistan. North Korea provided Pakistan with intermediate-range ballistic missiles in the late 1990s, apparently as part of the deal.

The initial U.S. response was to secure a decision by the Korean Peninsula Energy Development Organization (KEDO) in November 2002 to end shipments of heavy oil to

North Korea, which had been carried out under the U.S.-North Korean Agreed Framework of 1994. By their own admission, Bush Administration officials were surprised by the intensity of North Korea's moves in late December 2002 to re-start plutonium-based nuclear facilities at Yongbyon and expel officials of the International Atomic Energy Agency (IAEA) placed there under the Agreed Framework to monitor the shutdown. North Korea re-started the five megawatt nuclear reactor shut down under the Agreed Framework. North Korea also announced that it would re-start the plutonium reprocessing plant that operated up to 1994, and it later asserted that it had reprocessed 8,000 nuclear fuel rods, which had been in storage since 1994, into nuclear weapons grade plutonium (U.S. intelligence reportedly has been unable to verify the exact state of reprocessing but U.S. officials stated in late 2004 that North Korea probably had reprocessed most or all of the 8,000 fuel rods and might have produced four to six atomic bombs). North Korea 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.

After October 2002 North Korea issued several threats including a resumption of long-range missile tests, the proliferation of nuclear materials to other countries, and the testing of a nuclear weapon. Re-starting the Yongbyon facilities opens up a possible North Korean intent or option to stage a "breakout" of its nuclear program by openly producing nuclear weapons through reprocessing the 8,000 fuel rods. According to estimates by nuclear experts and reportedly by U.S. intelligence agencies, if North Korea reprocessed the fuel rods, as it claims, it could produce four to six atomic bombs. Such a nuclear breakout would diminish considerably any prospect of ending North Korea's nuclear program diplomatically. Production of weapons-grade plutonium also would add substance to North Korea's threat to export nuclear materials. (See CRS Report RS21391, North Korea's Nuclear Weapons: How Soon an Arsenal?)

The Six Party Talks

Bush Administration Policy. The Administration's policy since October 2002 is based on two views within the Administration. First, President Bush has voiced profound distrust of North Korea and its leader, Kim Jong-il. Second, there are divisions over policy toward North Korea among factions within the Bush Administration. An influential coalition has consisted 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, has been 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.

The Administration's proposal of June 23, 2004 at the six party plenary meeting was the first U.S. proposal since the talks began in April 2003. The proposal called for a quick dismantlement of North Korea's plutonium and uranium enrichments programs following a three month "preparatory period." During the preparatory period, North Korea would declare its nuclear facilities and materials, freeze their operation, allow effective international inspections, including a return of the IAEA, and negotiate the steps to be taken in dismantlement. In return, South Korea and Japan would supply North Korea with heavy oil. North Korea would receive a "provisional multilateral security assurance" from the United States and the other participants in the six party talks. The United States and North Korea would begin talks over U.S. economic sanctions and North Korea's inclusion on the U.S. list of terrorist-supporting countries. The participants in the talks also would begin a study of North Korea's energy needs. After North Korea completed dismantlement, it would receive a permanent security guarantee, and permanent solutions to its energy problems would be undertaken. The Administration's policy on the nuclear issue has contained three elements: (1) a demand for an immediate North Korean commitment to dismantlement, (2) the avoidance of direct negotiations with North Korea until North Korea accepts dismantlement, and (3) the isolation of North Korea internationally. The Administration called on North Korea to commit to and take concrete measures to realize the "complete, verifiable, irreversible dismantlement" of its nuclear programs, both the plutonium program and the secret uranium enrichment program. This demand has become known as "CVID." The Administration also asserts that North Korea must follow procedures similar to those being implemented by Libya, which has revealed details of its weapons of mass destruction and has turned over the weapons and related materials to the United States, other governments, and the International Atomic Energy Agency (IAEA). The Bush Administration eschewed substantive bilateral negotiations with North Korea. The Administration stated that it would discuss ways to improve U.S.-North Korean relations only after North Korea accepts CVID and takes concrete measures to implement it.

Administration officials have spoken often since early 2003 about the objective of "isolating" North Korea. There are two components of the Administration's isolation goal. One is to isolate North Korea from any diplomatic support from other governments over the nuclear issue and create a bloc of governments demanding that North Korea accept CVID. The second component is the creation of a broad coalition of governments willing to impose economic sanctions on North Korea if North Korea rejects CVID. In May 2003, President Bush proposed a Proliferation Security Initiative (PSI) aimed at interdicting exports of weapons of mass destruction and illegal drugs by proliferator countries. The United States and over ten other countries are planning measures to interdict North Korean sea and air traffic. 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 shipments of missiles and other weapons to the Middle East and South Asia. The aim of the PSI would be to constrict sharply North Korean foreign exchange earnings, which are a major source of sustenance to the North Korean political elite and the North Korean military. Advocates of the PSI believe that such financial pressure could produce internal pressures within the regime that would result in either a North Korean capitulation to U.S. demands or the collapse of the Pyongyang regime. The Administration is pressuring several countries to cease purchases of North Korean missiles.

In early 2003, the Administration proposed multilateral talks as the diplomatic focus. After a U.S.-North Korea-China meeting in April 2003, an agreement was reached for six party talks, including China, South Korea, Russia, and Japan. Three plenary sessions of six party talks were held in August 2003, February 2004, and June 2004; a six party working group meeting was held in May 2004. The Administration has viewed several roles for the six party talks. The talks help the Administration avoid bilateral negotiations with North Korea. At the six party meetings, the Administration limited direct contact with North Korean delegates, stressing that it would not discuss substantive issues until North Korea commits to CVID. U.S. negotiators at the six party talks were constrained to speaking from a limited script stressing CVID. They refused to answer questions from North Korean delegates concerning the U.S. position on the nuclear issue. This changed slightly at the June 2004 meeting. U.S. delegates met with North Korean counterparts reportedly for nearly two hours.

The Administration also views the six party talks as giving it a vehicle to secure support from China, South Korea, Japan, and Russia — North Korea's immediate neighbors — for the U.S. demand that North Korea agree to total dismantlement of its nuclear programs. U.S. officials have spoken of creating a five versus one situation in the six party talks, thus isolating North Korea. This in turn would lay the groundwork for the participation of China, South Korea, Japan, and Russia in sanctions against North Korea if North Korea rejected CVID — sanctions through the United Nations Security Council and/or the Proliferation Security Initiative. Throughout 2003, Administration officials expressed a view that North Korea would isolate itself through its provocative actions in reopening its plutonium nuclear program and its threats to proliferate nuclear materials and test nuclear weapons and missiles. The *Far Eastern Economic Review* of September 11, 2003, cited two U.S. officials as asserting that "it's worse now for North Korea than it has been — this isolation" and that "we're letting them dig their own grave." U.S. officials were "convinced that Pyongyang's [provocative] statements [at the August six party meeting] were pushing its opponents closer together."

The Administration has placed special emphasis on China's role in the six party talks. U.S. officials praise China's role in hosting the meetings in Beijing. They state that China should exert diplomatic pressure on North Korea to accept CVID. Some Administration officials express the view that China can be persuaded to join the United States in sanctions against North Korea even to the extent of creating an internal crisis within the North Korean regime. The importance of China is pointed up by the mutual defense treaty China has with North Korea and China's role in supplying North Korea with an estimated 90 % of its oil and 40% of its food.

However, from the start of multilateral talks, the other participants have voiced criticisms of the Administration's positions. China, Russia, and South Korea have criticized the Administration for not negotiating directly with North Korea, and they have urged the Administration to propose detailed settlement proposals on the nuclear issue. They have asserted that the Administration should spell out the reciprocal measures it would take if North Korea agreed to dismantle its nuclear programs. China, Russia, and South Korea issued no positive pronouncements toward the U.S. June 23, 2004, proposal. The Chinese and South Korean foreign ministers told Secretary of State Colin Powell in October 2004 that the Administration needed to formulate new, "creative" proposals. They also have expressed opposition to economic sanctions, and only Japan has joined the PSI. Moreover, by the beginning of 2004, the Administration faced a sophisticated North Korean diplomatic strategy, which changed the atmosphere of the six party talks to one more favorable to North Korea.

North Korea's Counter-Strategy. In the summer of 2003, in the wake of the perceived U.S. military victory in Iraq and negative international reactions to North Korea's restarting of the plutonium program and threats, the North Korean leadership appeared worried that they faced international isolation and much heavier U.S. pressure. From that point, there has emerged a multifaceted North Korean diplomatic strategy backed by a concerted propaganda campaign aimed primarily at strengthening Pyongyang's position in the six party talks and weakening the U.S. position. A lead component of North Korea's strategy has been to threaten that it would abandon the six party talks, thus playing on the psychological fears of the other parties. After each of the Beijing meetings, North Korea criticized the meetings, criticized the U.S. position, and warned that it saw no usefulness in the meetings and likely would not participate further. North Korea also apparently has employed this threat to demand that China, the host of the talks, provide it with financial subsidies and increased shipments of food and oil as "payment" for North Korean agreement to attend future sessions of the six parties in Beijing.

But with these repeated threats, North Korea has made a series of proposals: first, a formal U.S.-North Korean non-aggression pact, later modified to a formal U.S. guarantee that the United States would not attack North Korea; second, a long-term "freeze" of North Korea's plutonium program; and third, retention by North Korea of a "peaceful" nuclear program. North Korean proposals also have called for extensive concessions by the United States and Japan, including removal of North Korea from the U.S. list of terrorist-supporting states, supply of electricity, several billion dollars in "compensation" from Japan, restoration of shipments of heavy oil and construction of the two light water nuclear reactors under the 1994 Agreed Framework, and an end to U.S. economic sanctions and U.S. interference in North Korea's economic relations with other countries. North Korea also has demanded that the U.S. end its "hostile policy," a pronouncement that Pyongyang uses to change the content and scope of its demands.

While purposefully keeping its proposals vague regarding content and its own obligations, North Korea has engaged in a concerted propaganda campaign to promote its proposals. Propaganda, aimed especially at South Korea, Russia, and China has asserted that a U.S. guarantee of non-aggression is necessary to prevent the Bush Administration from carrying out a plot to stage an "Iraq-like" unilateral attack. Pyongyang's propaganda organs have contended that a "freeze"of plutonium facilities is a logical "first stage" in a settlement process. The propaganda organs have employed enticing captions, such as "simultaneous actions," "action versus action," "simultaneous package deal," "bold concessions," and "non-interference in our economic development." Russian and Chinese doubts toward the U.S. claim indicates a success of North Korea's denial strategy.

Another element in North Korea's counter-strategy has been a campaign to deny that it has a uranium enrichment (HEU) program. From the summer of 2003, North Korean propaganda organs have escalated steadily denials of an HEU program and denials that North Korean officials admitted to an HEU program to Assistant Secretary of State James Kelly in October 2002. North Korean officials have stressed this denial to visiting foreign delegations. North Korean propaganda organs have compared U.S. claims of an HEU program to the perceived erroneous U.S. claims of weapons of mass destruction in Iraq, and they have demanded that the United States provide evidence of its claim.

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. They are the facilities covered by the 1994 U.S.-North Korean Agreed Framework The key installations are:

- **An atomic reactor, with a capacity of about 5 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. Experts believe that the reactor can produce enough material for six kilograms of weapons-grade plutonium annually.

- **Two larger (estimated 50 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. However, since North Korea re-opened the plutonium program in early 2003, reports indicate that construction on the larger reactors has not been resumed.

- **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 agencies reportedly detected North Korean preparations to restart the plutonium reprocessing plant in February and March 2003. According to press reports, the CIA estimated in late 2003 that North Korea had reprocessed some of the 8,000 fuel rods. In January 2004, North Korean officials showed a U.S. nuclear expert substances, which he concluded was reprocessed weapons-grade plutonium.

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 Jong-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 at least 1996. Hwang Jang-yop, a Communist Party secretary who defected in 1997, has testified that North Korea and Pakistan agreed in the summer of 1996 to trade North Korean long-range missile technology for Pakistani uranium enrichment technology. Other information date North Korea-Pakistan cooperation to 1993. 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." The CIA estimated publicly in December 2002 that North Korea could produce two atomic bombs annually through uranium enrichment beginning in 2005; other intelligence estimates reportedly project a bomb producing capability between 2005 and 2007. Administration officials have stated that they do not know the locations of North Korea's uranium enrichment program, but U.S. intelligence agencies reportedly have extensive information on North Korea's accelerated overseas purchases of equipment and materials for the uranium enrichment program since early 1999.

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. Japan's *Sankei Shimbun* newspaper reported on August 6, 2003, that North Korea and Iran were negotiating a deal for the export of the long-range Taepodong-2 missile to Iran and the joint development of nuclear warheads. U.S. officials reportedly told

Japanese counterparts in July 2003 that North Korea was close to developing nuclear warheads for its missiles. They claimed in September 2003 that North Korea had developed a more accurate, longer-range intermediate ballistic missile that could reach Okinawa and Guam (site of major U.S. military bases) and that there was evidence that North Korea had produced the Taepo-dong 2 that could reach Alaska, Hawaii, and the U.S. west coast. Reports in mid-1994 indicated that North Korea was close to completing underground missile bases for the advanced intermediate range missiles.

These projections led the Clinton Administration to press North Korea for new 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 rejected North Korea's demand for $1 billion but offered a lifting of U.S. economic sanctions. 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. President Clinton formalized the lifting of key economic sanctions against North Korea in June 2000. North Korea continued the moratorium, but it appears to have used Pakistan and Iran as surrogates in testing intermediate range missiles based on North Korean technology. (See CRS Report RS21473, North Korean Ballistic Missile Threat to the United States.)

State of Nuclear Weapons Development

A CIA statement of August 18, 2003, estimated "that North Korea has produced one or two simple fission-type nuclear weapons and has validated the designs without conducting yield-producing nuclear tests." The initial estimate of one or two nuclear weapons is derived primarily from 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. 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.

South Korean and Japanese intelligence estimates reportedly were 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 two or three atomic bombs.

Russian 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* on 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." 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.

According to press reports in late 2002, the CIA concluded that North Korea accelerated its uranium enrichment program in the 1999, 2000, and 2001. According to *U.S. News and World Report*, September 1, 2003, the CIA estimated that North Korea could produce a uranium-based atomic weapon by the second half of 2004.

Diplomatic Background to the Agreed Framework and Amending Agreements

North Korea signed the Nuclear Non-Proliferation Treaty (NPT) in 1985. 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 that 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. According to former Defense Secretary William Perry, the Pentagon also developed a contingency plan to bomb the Yongbyon nuclear facilities if North Korea began to reprocess the 8,000 fuel rods into weapons-grade plutonium. 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.

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 was a U.S. commitment to provide North Korea with a package of nuclear, energy, economic, and diplomatic benefits; in return North Korea would halt the operations and infrastructure development of its nuclear program. The Agreed Framework committed North Korea to "freeze its graphite-moderated reactors and related facilities" with the freeze 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 committed 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 was 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 was 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 predicted a much later date. North Korean obstructionism and provocative military acts toward South Korea and bureaucratic problems resulted in some of the delay; but U.S. officials have acknowledged off the record that the Clinton Administration was in no hurry to move the project along. The laying of the foundation for the LWRs occurred in August 2002.

Oil at No Cost. Prior to the construction of light water reactors, the Agreed Framework committed the United States to provide North Korea 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. North Korea complained loudly that these measures failed to meet the commitment stated in the Agreed Framework. 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. Since then, North Korea has not met with any American firms to talk about trade and/or investment opportunities and has rejected an offer from the American Chamber of Commerce in Seoul to send a business delegation to Pyongyang.

U.S. Nuclear Security Guarantee. Article III of the Agreed Framework states that "Both sides will work together for peace and security on a nuclear-free Korean peninsula." Under that heading, it states, "The U.S. will provide formal assurances to the DPRK against the threat or use of nuclear weapons by the U.S." While the language is not totally clear on the timing of the U.S. delivery of a formal nuclear security guarantee, it seems to imply that this would come when North Korea had dismantled its nuclear program or at least had advanced dismantlement to a considerable degree.

North Korean Obligations Beyond the Freeze of the Nuclear Program

North Korea's immediate obligation was to freeze its existing nuclear installations. The Agreed Framework alluded to certain other obligations for Pyongyang. Ambassador Gallucci and other Clinton

Administration officials were more specific in describing these. They 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 contained 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 stated: "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 North Korea must 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 omitted reference to special inspections.

The Agreed Framework stated, "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 new North Korean nuclear program would fall immediately under the IAEA-North Korea safeguards agreement and that North Korea must place it 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 violated 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 under IAEA monitoring and a North Korean promise not to reprocess plutonium from the rods. It also provided 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." North Korea's proposal at the 2003 Beijing talks in effect would continue the linkage between dismantlement and completion of the light water reactors. The Bush Administration wants dismantlement much earlier in a settlement process.

Role of Congress

Congress voiced 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; in 2000, he said that he could not certify that North Korea was not engaged in uranium enrichment. President Bush notified Congress in March 2002 that he could not certify that North Korea was abiding by the Agreed Framework, but he waived restricting money for KEDO. 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 considered and approved Administration requests for funds to finance implementation, including the heavy oil shipments.

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, 2003 (H.J.Res. 2) appropriated $5 million for KEDO. The Administration did request funding for KEDO in FY2004 and FY2005.

For Additional Reading

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.*