

GAO

Report to the Chairman, Committee on  
Energy and Natural Resources, U.S.  
Senate

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October 1996

# NUCLEAR NONPROLIFERATION

## Implications of the U.S./North Korean Agreement on Nuclear Issues



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United States  
General Accounting Office  
Washington, D.C. 20548

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Resources, Community, and  
Economic Development Division

B-272530

October 1, 1996

The Honorable Frank H. Murkowski  
Chairman, Committee on Energy  
and Natural Resources  
United States Senate

Dear Mr. Chairman:

North Korea is suspected of having produced material usable for manufacturing nuclear bombs. On October 21, 1994, the United States and North Korea concluded an agreement known as the “Agreed Framework” to address the threat posed by North Korea’s nuclear program and to otherwise diffuse the tensions that have existed on the Korean Peninsula since the period of the Korean War.<sup>1</sup> Under the agreement, the United States made a commitment to, among other things, create an international consortium of member countries—the Korean Peninsula Energy Development Organization (KEDO)—to replace North Korea’s graphite-moderated reactors with light-water reactors. In exchange, North Korea agreed to, among other things, stop operating and constructing its reactors and related facilities and eventually dismantle them. The light-water reactors are preferred over graphite-moderated reactors because, in part, they do not produce materials as easily used to make nuclear weapons.<sup>2</sup>

This report responds to your request that we determine whether (1) the Agreed Framework is a nonbinding political agreement, (2) the United States could be held financially liable for a nuclear accident at the North Korean reactor site, (3) North Korea has obligated itself to pay the cost of upgrading its existing electricity power distribution system, and (4) the agreement is being implemented consistent with the applicable laws governing the transfer of U.S. nuclear components, materials, and technology.

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<sup>1</sup>“Agreed Framework Between the United States of America and the Democratic People’s Republic of Korea [DPRK],” commonly known as North Korea.

<sup>2</sup>Reactors require a substance called a “moderator” to achieve a nuclear chain reaction. The type of moderator used varies, depending on the plant’s design. North Korea uses graphite as the moderator for its reactors, whereas water is used in light-water reactors. Graphite-moderated reactors are more useful for producing plutonium-239—the most desirable isotope for making nuclear weapons. The fuel rods in light-water power reactors stay in the reactors longer, creating spent fuel with higher concentrations of other isotopes that, according to the Department of State, make the material (1) more dangerous to handle because of high levels of radiation and (2) more difficult to produce bombs with predictable yields.

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## Results in Brief

The Agreed Framework can be properly described as a nonbinding political agreement. Therefore, its pledges—including those involving financial outlays—are not legally enforceable. Agreements of this type do not require the Congress's prior involvement or approval and, as we have suggested in the past, can have the effect of pressuring the Congress to appropriate money to implement an agreement with which it had little involvement. According to the Department of State, the United States executed a nonbinding agreement because it would not have been in the country's interest to legally obligate itself to provide the reactors and interim energy to North Korea.

Our analysis of the existing nuclear liability protections confirms that the foundation of KEDO's risk protection program is in place. KEDO is aware that further steps need to be taken and, as a result, plans to obtain additional protections to ensure that KEDO and its members are fully shielded from possible liability claims. Without knowing the contents of these future protections, it is not possible to fully assess the adequacy of the liability protection that will be provided to KEDO and its members. Nevertheless, our assessment of the liability provisions in the KEDO and supply agreements and KEDO's intention to secure additional protections, suggests that KEDO and its members—including the United States—will be adequately protected against nuclear damage claims from North Korea and third-party countries. Finally, according to KEDO, it will not ship any fuel assemblies to North Korea or allow the reactors to be commissioned unless and until KEDO and its members consider that all aspects of the risk protection program are in place.

North Korea's existing electricity transmission and distribution system (power grid) will need to be modernized to distribute the electricity generated by the two light-water reactors being provided. Upgrading the power grid could cost as much as \$750 million. Thus far, no party has obligated itself to pay for the upgrade. The United States and KEDO maintain that North Korea is responsible; however, North Korea has not yet legally obligated itself to pay. This circumstance leaves open the possibility that, in the future, North Korea could exert pressure on others to pay for upgrading the grid.

The Departments of State and Energy have taken steps to carry out the requirements of the Atomic Energy Act of 1954, as amended. It is too early to say whether the United States and North Korea will need to conclude an agreement for cooperation—as set forth in the act—because decisions have not yet been made about what, if anything, the United States will

supply for the reactors. Nevertheless, an agreement appears likely because a U.S. firm currently supplies a major component for the reactors that are to be delivered. State is prepared for the possibility that an agreement will be needed and has already secured North Korea's commitment to execute one if it becomes necessary. The Department of Energy is also complying with the act's requirement to authorize the transfers of U.S. reactor technology abroad. In fact, the five authorizations it has granted so far contain additional safeguards to address the concerns about technology transfers to North Korea.

## Background

North Korea has several nuclear facilities that, collectively, have the potential to produce nuclear fuel for weapons. Most are located at Yongbyon, 60 miles north of Pyongyang. The major installations include (1) a 5-megawatt electric (MW<sub>(e)</sub>) research reactor, (2) two larger reactors that were under construction—a 50-MW<sub>(e)</sub> reactor in Yongbyon and a 200-MW<sub>(e)</sub> reactor at Taechon, and (3) a plutonium reprocessing facility.<sup>3</sup>

The 5-MW<sub>(e)</sub> research reactor was constructed in the 1980s and is thought to be capable of producing about 7 kilograms of plutonium annually. The two reactors under construction were expected to yield another 200 kilograms of plutonium annually—enough plutonium for about 50 atomic bombs per year.<sup>4</sup> The reprocessing facility separates weapons-grade plutonium-239 from the reactor's spent fuel. The reactor facilities reportedly were not attached to a power grid, increasing concern that the facilities were intended to produce material for making nuclear weapons rather than for producing electricity.

Under the Agreed Framework, North Korea made a commitment to, among other things, (1) remain a party to the Nuclear Non-Proliferation Treaty—a treaty aimed at preventing the spread of nuclear weapons; (2) freeze the operation and construction of its graphite-moderated reactors and related facilities, including the reprocessing plant, and eventually dismantle them; and (3) cooperate with the United States to safely store and dispose of the spent fuel in its possession. In return for these concessions, the United States agreed to, among other things, create an international consortium of member countries to (1) replace North Korea's graphite-moderated reactors with a light-water reactor project by

<sup>3</sup>When the Agreed Framework was concluded, the two larger reactors were expected to be completed in the mid-1990s.

<sup>4</sup>In January 1994, the Department of Energy reported that, depending on the technology used, as little as four kilograms of plutonium is sufficient to manufacture a nuclear bomb.

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a target date of 2003 and (2) supply North Korea with energy—heavy oil for heating and electricity production—pending the completion of the first light-water reactor. (App. I provides additional information about the contents of the agreement.)

According to State and other administration sources, the agreement to replace North Korea's 5-MW(e) reactor and the two larger reactors under construction was needed because, unlike light-water reactors, the North Korean reactors and related nuclear facilities were particularly well suited to produce nuclear materials. In addition, if the two nuclear reactors had been completed, North Korea would have vastly increased the amount of nuclear material in its possession. Finally, North Korea was believed to be doubling its plutonium separation capacity. (App. II provides a chronology of events preceding the Agreed Framework, including information on North Korea's suspected reprocessing activities.)

On March 9, 1995, the United States, Japan, and the Republic of Korea (South Korea) founded KEDO to finance and supply the reactors (the "light-water reactor project") and interim energy.<sup>5</sup> On December 15, 1995, KEDO and North Korea concluded negotiations on an agreement for supplying the project (supply agreement).<sup>6</sup>

The supply agreement obligates KEDO to provide two light-water reactors—each with a generating capacity of about 1,000 MW(e)—to North Korea. The reactors will be an advanced version of a design of U.S. origin and technology currently under construction in South Korea. The agreement specifies that KEDO will finance the cost of the project—expected to exceed \$4 billion—and that North Korea will repay the interest-free loan over an extended period.<sup>7</sup>

The supply agreement authorizes KEDO to select a prime contractor to carry out the project. KEDO selected the Korea Electric Power Corporation—the South Korean, partially state-owned utility with

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<sup>5</sup>"Agreement on the Establishment of the Korean Peninsula Energy Development Organization." This agreement is hereafter described as the "KEDO agreement." Through the end of August 1996, six other countries—Australia, Canada, Chile, Finland, Indonesia, and New Zealand—had joined KEDO. Efforts continue to recruit additional KEDO members and, according to the State Department, Argentina, Brazil, and France are expected to become members soon.

<sup>6</sup>"Agreement on Supply of a Light-Water Reactor Project to the Democratic People's Republic of Korea Between the Korean Peninsula Energy Development Organization and the Government of the Democratic People's Republic of Korea."

<sup>7</sup>KEDO receives funds through contributions from members and nonmembers. South Korea and Japan are expected to provide the majority of the funds needed for the light-water reactor project.

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experience in the construction, operation, and maintenance of nuclear power plants. Preliminary construction at the reactor site is expected to begin in the fall of 1996 at Sinpo, North Korea. See figure 1 for a map identifying Sinpo and other relevant North Korean sites.

Figure 1: Sinpo and Other Relevant North Korean Sites





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## The Agreed Framework Can Be Properly Characterized as a Nonbinding Political Agreement

The Agreed Framework can be properly described as a nonbinding political agreement. The Agreed Framework's broad pledges—as later implemented in more defined, binding agreements—and the subsequent actions of the parties suggest that both the United States and North Korea regarded the Agreed Framework as a nonbinding, preliminary arrangement.

Officials at State said that the United States executed a nonbinding political document because it would not have been in the United States' interest to accept an internationally binding legal obligation to provide the reactors and interim energy to North Korea. Instead, they said that the United States wanted the flexibility to respond to North Korea's policies and actions in implementing the Agreed Framework—flexibility that binding international agreements, such as a treaty, would not have provided.

According to State, its position that the agreement is nonbinding is supported by (1) the agreement's language and form, which are not typical of binding international agreements, and (2) the fact that neither side has since acted in a manner that is inconsistent with such an understanding. In connection with the language used in the Agreed Framework, State maintains that the most important indicator of the parties' intent is the absence of the word “agreed” and the use, instead, of the word “decided” in the agreement's preamble.<sup>8</sup>

In our view, the language of the Agreed Framework is not entirely clear about the intent of the United States and North Korea to establish a nonbinding political agreement. Nevertheless, the agreement's tone and form and, particularly, the subsequent actions of the United States and North Korea suggest that the Agreed Framework was intended to be a nonbinding international agreement. The agreement consists of four general pledges, all of which are consistent with the kind of broad declaration of goals and principles that characterize nonbinding international agreements.<sup>9</sup> Furthermore, the agreement omits provisions—such as provisions on the process for amending the agreement and for resolving disputes—that would normally be included in a binding agreement.

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<sup>8</sup>The preamble of the agreement states that “[t]he United States and the DPRK [North Korea] decided to take the following actions for the resolution of the nuclear issue.”

<sup>9</sup>App. I provides information about the agreement, including its four general pledges.

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The subsequent actions by the United States and North Korea also suggest that the Agreed Framework was intended to be a nonbinding, preliminary arrangement. In a joint press statement on June 13, 1995, at Kuala Lumpur, Malaysia, the two countries reaffirmed their “political commitments to implement the . . . Agreed Framework.” Of greater significance was the conclusion of both the KEDO and supply agreements—two binding international agreements that implement the Agreed Framework’s provisions for supplying the reactors and interim energy to North Korea.

Executing nonbinding international agreements like the Agreed Framework does not require prior congressional involvement or approval and, as we have suggested in the past, can have the effect of pressuring the Congress to appropriate moneys to implement an agreement with which it had little involvement.<sup>10</sup> For the North Korean project, this issue is complicated by the political importance of the agreement and the existence of the KEDO and supply agreements—neither of which received formal congressional approval. Taken together, these binding international agreements—described in very concrete and specific terms—effectively incorporate the Agreed Framework’s provisions for supplying the reactors and energy to North Korea.

If the Agreed Framework had been structured as a treaty or some other form of binding international agreement, its pledges would have established legally binding commitments, under both international law and the domestic law of the United States. It would also have been subjected to greater formal congressional oversight. (App. III provides our full analysis on the structure of the Agreed Framework, including our analysis of the structure’s impact on (1) the legal enforceability of the agreement and (2) congressional oversight.)

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## Existing and Planned Nuclear Liability Protections Appear Adequate

According to KEDO, it places a high priority on protecting the present and future members of KEDO against the risk of nuclear liability that may arise from North Korea’s light-water reactor project. As a result, KEDO developed a “comprehensive risk management program” to protect itself and its member countries. The foundation of the risk management program is contained in the KEDO and supply agreements. Over time, KEDO plans to negotiate additional protections to fully shield itself and its members from the risk of nuclear liability. Without knowing the contents of these future protections, it is not possible to fully assess the adequacy of the liability protection that will be provided to KEDO and its members. Nevertheless,

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<sup>10</sup>See 59 Comp. Gen. 369, 372 (1980).

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the provisions already negotiated and KEDO's plan to secure additional protections, suggest that KEDO and its members will be adequately protected. Moreover, according to KEDO, it will not ship any fuel assemblies to North Korea or allow the reactors to be commissioned unless and until KEDO and its members consider that all aspects of the risk management program are in place.

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## Protections Against North Korean Nuclear Claims

The supply and KEDO agreements contain a number of protections that are intended to preclude North Korea from making claims against KEDO or KEDO members for damages from a nuclear incident. The principal protection requires North Korea to set up a legal mechanism for satisfying all claims brought within North Korea. The supply agreement also contains a provision precluding North Korea from bringing claims against KEDO for any nuclear damage or loss, and both the supply and KEDO agreements contain a general limitation-of-liability provision that appears to cover nuclear damage.

The principal protection in the supply agreement requires North Korea to “ensure that a legal and financial mechanism is available for satisfying claims brought within North Korea for damages from a nuclear incident.”<sup>11</sup> Consistent with international practice, the agreement specifies that “[t]he legal mechanism shall include the channeling of liability in the event of a nuclear incident to the operator on the basis of absolute liability.”<sup>12</sup> North Korea must also ensure that the operator—a North Korean entity—is able to satisfy potential claims for nuclear damage. North Korea has not yet enacted legislation—referred to as channeling legislation—satisfying its responsibilities under the Agreed Framework. In the next few years, KEDO intends to help North Korea draft the required legislation and to monitor North Korea's efforts to establish the financial mechanism for paying possible nuclear damage claims.

The supply agreement also contains a second provision that precludes North Korea from bringing any nuclear damage or loss claims against KEDO and its contractors and subcontractors. The scope of this provision is broad and, according to KEDO, covers claims for nuclear damage caused both before and after the reactors have been turned over to North Korea.

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<sup>11</sup>As used in the supply agreement, a “nuclear incident” is “any occurrence or series of occurrences having the same origin, which causes nuclear damage.”

<sup>12</sup>The practice of “channeling liability” to the operator of a nuclear plant is commonly used in the field of nuclear liability. The practice requires a nuclear plant operator to assume full liability for all damage resulting from a nuclear incident.

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A third provision explicitly states that North Korea shall seek recovery solely from the property and assets of KEDO for any claims arising (1) under the supply agreement or (2) from any actions of KEDO and its contractors and subcontractors. Correspondingly, the KEDO agreement contains a general limitation-of-liability provision which specifies that the members of KEDO are not liable for the actions or obligations of KEDO.

Taken together, the described provisions appear to bar North Korea from making any nuclear claims against KEDO's member countries—including the United States—in North Korean courts. However, none of the existing provisions explicitly precludes claims by North Korean nationals or North Korean nongovernmental entities. According to KEDO, it intends to ensure that the channelling legislation, to be enacted by North Korea, protects KEDO and its members from possible claims from these sources.

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### Protections Against Nuclear Claims Made by Third Parties

The largest concern of KEDO and its members may be the nuclear damage claims brought by third parties in courts and tribunals outside of North Korea. Unlike the Paris and Vienna Conventions—the principal international conventions on third party nuclear liability—which include provisions limiting the jurisdiction for hearing claims to the courts in the country where the nuclear incident occurs, the supply agreement does not preclude claims from being brought in jurisdictions outside of North Korea.

It is generally recognized that a country is liable for damage caused to the environment of another country. Thus, once North Korea assumes control over the reactors, North Korea and the operator of the reactors would likely become the primary targets of claims for nuclear damage incurred outside of the country. Nevertheless, lawsuits could also be brought against KEDO and its members. To address this possibility, the supply agreement requires North Korea to (1) enter into an agreement for indemnifying KEDO and (2) secure nuclear liability insurance or other financial security to protect KEDO and its contractors and subcontractors from any claims by third parties resulting from a nuclear incident at the North Korean reactors. Also, as discussed earlier, the KEDO agreement contains a general limitation-of-liability provision that appears to cover nuclear damage liability for lawsuits brought outside of North Korea.<sup>13</sup>

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<sup>13</sup>Furthermore, as discussed in appendix IV, if a foreign court entertains a nuclear damage claim against the United States, the United States could assert the defense of “sovereign immunity” as a bar to the court’s hearing the claim.

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The provision requiring indemnification and insurance protections is intended to provide KEDO with adequate protection against suits brought in courts outside of North Korea. Even so, as the provision is written, the indemnity and insurance protections extend only to KEDO and its contractors and subcontractors and not, specifically, to KEDO's members. Thus, it is not clear that these protections would cover possible awards by foreign courts against individual KEDO members, including the United States. Furthermore, the supply agreement does not address the extent of the indemnity and insurance protections that North Korea must provide, leaving questions about whether North Korea will be required to indemnify KEDO (1) for the entire amount of any damage awards obtained in foreign courts or for some fixed, lesser amount and (2) if North Korea's insurance and other financial security do not cover all claims.

KEDO is aware of these issues and, as a result, plans to build upon the foundation of the existing coverage to fully shield KEDO and its members from possible nuclear liability claims by third parties. For example, in a future agreement—termed a “protocol”—KEDO intends to ensure that the specific indemnity and insurance protections that it negotiates also extend to KEDO's members.<sup>14</sup> In addition, according to KEDO, the protocol will establish the level of indemnity protection to be provided—an amount which, at a minimum, will be consistent with international norms. KEDO also plans to negotiate additional liability, indemnification, and insurance protections in its future contracts with contractors and subcontractors. According to KEDO, it will neither ship any fuel assemblies to the North Korea nor allow the reactors to be commissioned “[u]nless and until KEDO and its members consider that all aspects of the risk management program are in place.”

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## Potential Liability During Testing of the Reactors

KEDO also plans to address potential liabilities that could arise from the operation of the reactors during the test period—before North Korea assumes control of them.<sup>15</sup> KEDO contends that the radiological effects of any discharges or omissions would be minimal, unlikely to give rise to substantial claims, and, in all likelihood, limited to North Korea. While KEDO views its potential liability as minimal, it still wants to ensure that it is never the “operator” of the reactors because it lacks the technological capability to perform the tests and because it wants to avoid the potential liabilities that could flow to the “operator” under the channeling legislation. Thus, KEDO plans to structure the arrangements for testing the

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<sup>14</sup>KEDO expects to begin negotiations on the agreement with North Korea in early 1997.

<sup>15</sup>Under the supply agreement, KEDO is responsible for testing the reactors.

reactors so that another party—such as North Korea or a KEDO contractor—will operate the reactors during the test period. While the respective views of these entities is not known, it seems unlikely that another party would assume the responsibility for testing the reactors without being compensated by KEDO. (App. IV provides our full analysis of the nuclear liability issue.)

## Questions Remain About North Korea's Obligation to Pay for Upgrading Its Electricity Power Grid

North Korea's existing electricity transmission and distribution system is inadequate to handle the electricity that would be generated by two new 1,000-MW(e) light-water reactors. As a result, much of North Korea's existing equipment will need to be replaced or modernized before the reactors can be used. According to State, the upgrade could include the replacement or modernization of substations and transformers, transmission towers, and high-voltage cables. State estimates that the cost of the upgrade could reach \$750 million.

None of the agreements concluded to date creates a legal obligation to pay for the grid upgrade.<sup>16</sup> The State Department and KEDO maintain that North Korea is responsible;<sup>17</sup> however, North Korea has not yet legally obligated itself to pay. State and KEDO point to a December 15, 1995, letter from KEDO to North Korea as evidence of their view that North Korea is responsible. The letter—attached to the supply agreement—pledges KEDO's nonfinancial assistance to North Korea “in its own [North Korea's] efforts to obtain through commercial contracts . . . such power transmission lines and substation equipment as may be needed to upgrade the DPRK [North Korean] electric power grid.” According to State, the letter was (1) requested by North Korea, (2) drafted in consultation with North Korea, and (3) accepted in conjunction with the signing ceremony for the supply agreement—factors that, in State's view, constitute North Korea's acknowledgement of its responsibility for paying for the grid upgrade. Nevertheless, State agrees that North Korea did not sign the letter and that North Korea has not legally obligated itself to pay for the upgrade. This leaves open the possibility that, in the future, North Korea could exert pressure on others to pay for the grid upgrade.

<sup>16</sup>The supply agreement specifies that North Korea is legally obligated to provide a stable supply of electricity for the commissioning of the two light-water reactors. This obligation is unrelated to the issue of upgrading the power grid for its later use in distributing electricity generated by the reactors. According to State, KEDO did not formally seek North Korea's legal commitment to upgrade the power grid because it would have been illogical for North Korea to owe KEDO a legal duty to upgrade its own grid.

<sup>17</sup>According to a State Department official who participated in the negotiations, North Korea persistently sought KEDO's agreement to provide the grid upgrade, but KEDO consistently refused.

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## Implementation of the Agreed Framework Is Consistent Thus Far With Applicable U.S. Laws

The Atomic Energy Act of 1954, as amended (the act), specifies the requirements for the peaceful transfer of U.S. nuclear equipment, materials, and technology abroad.<sup>18</sup> Thus far, both State and the Department of Energy (DOE) have complied with their statutory obligations under the act. In fact, the five authorizations granted by DOE so far contain additional safeguards to address the concerns about the technology transfers to North Korea.

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## An Agreement for Cooperation Will Be Negotiated If Needed

The act requires the United States to execute an agreement for peaceful nuclear cooperation with a recipient nation or group of nations before exporting major reactor components or nuclear materials. It is too early to say whether an agreement for cooperation between the United States and North Korea will be required because decisions about what, if anything, the United States will supply for the reactors have not yet been made. These uncertainties are likely to exist until at least the spring of 1997, when arrangements for supplying some of the equipment may be negotiated. Nevertheless, an agreement appears likely because a U.S. firm, Combustion Engineering, Inc., supplies the coolant pumps—a major reactor component—for the light-water reactors. State is prepared for the possibility that an agreement will be needed and, as part of the Agreed Framework, has already secured a commitment from North Korea to execute one if it becomes necessary.<sup>19</sup> (App. V provides information about the (1) reactors expected to be supplied to North Korea, including information about possible U.S. transfers of major reactor components, and (2) statutory requirements governing such transfers.)

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## DOE's Authorizations for Technology Transfers Are Proceeding According to Applicable Requirements

The act precludes any U.S. person from directly or indirectly producing special nuclear material outside of the United States unless authorized by either an agreement for cooperation or the Secretary of Energy. According to DOE officials, DOE considers all transfers of nuclear technology, including training, as having the potential to result in the production of special nuclear materials, thus triggering the act's requirements. Because the United States does not have an agreement for cooperation with North

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<sup>18</sup>Act of Aug. 30, 1954, 68 Stat. 921. The act was amended by the Nuclear Non-Proliferation Act of 1978, Pub. L. 95-242, 92 Stat. 120.

<sup>19</sup>Similarly, the supply agreement between KEDO and North Korea states, “[i]n the event that U.S. firms will be providing any key nuclear components, the U.S. and the DPRK [North Korea] will conclude a bilateral agreement for peaceful nuclear cooperation prior to the delivery of such components.”

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Korea, transfers of technology must be authorized by the Secretary of Energy.<sup>20</sup>

DOE's regulations provide for two types of authorizations—general and specific.<sup>21</sup> DOE permits U.S. nuclear power reactor technology to be transferred to most countries under a general authorization.<sup>22</sup> Similar technology transfers to North Korea and 47 other countries, however, must be specifically authorized.

Under DOE's regulations for a specific authorization, the Secretary of Energy will approve an application if the Secretary determines—with the concurrence of State and after consulting the Arms Control and Disarmament Agency, the Nuclear Regulatory Commission (NRC), the Department of Commerce, and the Department of Defense—that the proposed activity would not be “inimical” to the interests of the United States. In making the determination, the Secretary must evaluate whether (1) the United States has an agreement for nuclear cooperation with the recipient country; (2) the country is a party to the Nuclear Non-Proliferation Treaty; (3) the country has a full-scope safeguards agreement with the International Atomic Energy Agency (IAEA)<sup>23</sup> and, if not, whether the country has accepted IAEA's safeguards on the proposed activity; (4) other nonproliferation controls or conditions may be applicable to the proposed activity; (5) the proposed U.S. activity is relatively significant; (6) comparable assistance is available from other sources; and (7) other factors exist that may bear upon the political, economic, or security interests of the United States, including U.S. obligations under international agreements or treaties.

Through August 1996, five U.S. companies, including Combustion Engineering, Inc., had requested DOE's authorization to work on the North Korean project. Combustion Engineering, Inc.'s August 9, 1995, request to DOE indicated that because the North Korean reactors would be based on the company's technology, the company expected to be involved in most phases of the project's management, design, manufacture, supply, training,

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<sup>20</sup>State and DOE officials use the term “technology transfer” to refer to activities that could result in the production of special nuclear material.

<sup>21</sup>The procedures for granting the authorizations are detailed in part 810 of DOE's regulations (10 C.F.R.). As a result, the authorizations are generally called “part 810 authorizations.”

<sup>22</sup>South Korea received Combustion Engineering, Inc.'s reactor technology under a general authorization.

<sup>23</sup>IAEA is an international organization affiliated with the United Nations that, among other things, is responsible for safeguarding nuclear facilities to ensure that nuclear material is not diverted for military or other nonpeaceful purposes.



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and plant construction. The four other U.S. companies requested DOE's authorization to perform a wide range of architectural and engineering services and overall management support on behalf of KEDO, its contractors, and subcontractors.<sup>24</sup>

DOE evaluated each of the requests, as required by its regulations, and subsequently forwarded the analyses, together with its recommendations on the proposed conditions for the transfers, to the applicable U.S. agencies. State concurred with DOE's recommendations—the only concurrence required.<sup>25</sup>

The Secretary approved each of the authorizations, subject to numerous conditions. Specifically, before any transfer, the United States must receive North Korea's assurances that (1) any technology transferred by the U.S. company would be used only for peaceful nuclear power generation purposes and not for any military or explosive purpose; (2) neither the transferred technology nor the equipment based on it will be retransferred to another country without the prior consent of the U.S. government; and (3) North Korea will place the light-water reactors under IAEA's safeguards.

DOE also specified a number of conditions applicable to the U.S. companies. Specifically, they must (1) ensure that the technology transferred by the companies is limited to that necessary for the licensing and safe operation of the reactors (and not technology that would enable North Korea to design or manufacture either reactor components or fuel) and (2) provide written quarterly reports to DOE on their activities in support of the project and, whenever requested by DOE, brief DOE and other U.S. government agencies on their activities. DOE limited each of the authorizations to a period of 5 years, renewable by DOE in the light of experience and the circumstances at that time.

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<sup>24</sup>The other U.S. companies are Raytheon Engineers and Constructors, Sargent & Lundy, Stone & Webster Engineering Corporation, and Duke Engineering & Services, Inc. KEDO selected Duke Engineering & Services, Inc., as its technical support contractor in July 1996.

<sup>25</sup>The other agencies also responded favorably. NRC also commented on a number of related matters. For example, NRC stressed the importance of timely and continuing actions by the United States and others to assist North Korea in developing a sound safety culture for the project. NRC also stressed its strong support for the resolution of outstanding questions about the amount of nuclear material in North Korea's possession and the need for full safeguards inspections by IAEA. Finally, NRC expressed concern about possible U.S. exports of reactor fuel and major reactor components and noted that the process of negotiating and obtaining legislative approval for an agreement for cooperation between the United States and North Korea "could raise significant [unspecified] difficulties. . . ." According to the official who manages DOE's authorization process, NRC's comments are typical of those it generally offers in its replies to DOE. The Department of Defense did not comment on any of the proposed authorizations.

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Thus far, DOE has complied with its statutory and regulatory requirements for granting the authorizations. In addition, the conditions imposed on the authorizations indicate that DOE has sought additional safeguards to address the concerns about possible transfers of U.S. nuclear technology to North Korea. For example, the five authorizations granted so far specify that DOE will suspend the authorizations if either the United States or North Korea “abrogates” the Agreed Framework or related agreements. The authorizations also specify additional reporting requirements for the transfers.<sup>26</sup> Finally, DOE’s caution about the scope of any technology that may be transferred by the companies is intended to provide an additional safeguard for the proposed transfers.

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## Observations

It is essential that KEDO not commission the reactors until full and adequate liability protections are in place for KEDO and its members. If these protections are not in place and an accident occurs at the North Korean reactor site, the United States—as the leading proponent of the project—and, perhaps, to a lesser extent, Japan and South Korea, could be subjected to strong political and humanitarian pressure to pay nuclear damage claims. KEDO recognizes the importance of securing full and adequate protection and has committed not to deliver the fuel and commission the reactors until KEDO and its members are fully protected. We believe that it is vital for the Congress to monitor KEDO’s future efforts in this area, including KEDO’s (1) assistance to North Korea in developing the channeling legislation and (2) efforts to secure full and adequate indemnity and insurance to protect against claims in countries other than North Korea.

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## Agency Comments

We provided copies of this report to State, DOE, and KEDO for their review and comment. We met with State Department officials, including an attorney from the Office of the Legal Advisor and the Chief of the Agreed Framework Division, Office of Korean Affairs. While State generally agreed with the report’s conclusions, the officials provided detailed comments on the presentation and content of the report. DOE agreed with our findings and conclusions related to its authorizations of technology transfers to North Korea. We incorporated the agencies’ comments, as well as suggestions for improving clarity, as appropriate. We sought KEDO’s views. However, a spokesperson for KEDO indicated that KEDO could not provide comments in the time available.

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<sup>26</sup>DOE’s regulations require a U.S. company to submit a detailed report of its activities within 30 days of beginning activities covered by the authorization. Quarterly reports and periodic briefings are not required. However, the regulations permit DOE to request additional information.

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## Scope and Methodology

To obtain information for this report, we reviewed and analyzed the Agreed Framework; the KEDO and supply agreements; applicable U.S. laws, regulations, and federal cases; and relevant international agreements and cases. We also interviewed cognizant officials from State, DOE, NRC, KEDO, and Combustion Engineering, Inc. (A detailed description of our work is provided in app. VI.) We conducted our work from April through September 1996 in accordance with generally accepted government auditing standards.

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As agreed with your office, we plan no further distribution of this report until 30 days from the date of this letter. At that time, we will send copies to the appropriate congressional committees, the Secretaries of State and Energy, the Executive Director of KEDO, and other interested parties. We will also make copies available to others upon request.

If you have any questions, please call me at (202) 512-6543. Major contributors to this report are listed in appendix VII.

Sincerely yours,



Bernice Steinhardt  
Associate Director, Energy,  
Resources, and Science Issues

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**Abbreviations**

DOE	Department of Energy
DPRK	Democratic People’s Republic of Korea
GAO	General Accounting Office
IAEA	International Atomic Energy Agency
KEDO	Korean Peninsula Energy Development Organization
LWR	light-water reactor
MW(e)	megawatt electric
NPT	Nuclear Non-Proliferation Treaty
NRC	Nuclear Regulatory Commission

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# The Content of the Agreed Framework

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The Agreed Framework between the United States and the Democratic People's Republic of Korea (North Korea), dated October 21, 1994, sets forth a number of actions intended to address the nuclear issue on the Korean Peninsula. The actions are expressed in the form of four broad pledges. Specifically, the countries agreed to

- “cooperate to replace the DPRK’s [North Korea’s] graphite-moderated reactors and related facilities with light-water reactor (LWR) power plants,”
- “move toward full normalization of political and economic relations,”
- “work together for peace and security on a nuclear-free Korean peninsula,” and
- “work together to strengthen the international nuclear non-proliferation regime.”

The agreement describes each of the broad pledges in further detail. The first broad pledge describes (1) the United States’ agreement to organize, under its leadership, an international consortium to finance and supply the reactors and alternative energy to North Korea and (2) North Korea’s reciprocal pledges to, among other things, freeze its nuclear program.<sup>1</sup> As specified in the agreement, the arrangements for the reactors and energy will be in accordance with President Clinton’s October 20, 1994, letter to the Supreme Leader of North Korea. The letter states that the President will use the “full powers” of his office to facilitate the arrangements for (1) financing and constructing the reactors and (2) funding and implementing the supply of interim energy. If the reactors are not completed or the energy is not provided—for reasons beyond the control of North Korea—the President agreed to use the “full powers” of his office, to the extent necessary, to provide both, subject to the approval of the U.S. Congress. The President conditioned all of the assurances on North Korea’s continued implementation of the policies described in the Agreed Framework.

In connection with the countries’ second broad pledge, the United States and North Korea agreed to (1) reduce barriers on trade and investment by January 21, 1995; (2) open liaison offices in each other’s capital following the resolution of consular and other technical issues; and (3) upgrade bilateral relations to the ambassadorial level once progress was made on (unspecified) issues of concern to each side.

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<sup>1</sup>This section of the agreement also provides details about the scope of the project. For example, the agreement specifies that the reactors will have a total generating capacity of approximately 2,000-megawatt electric (MW(e)) and that they will be provided by a target date of 2003.

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For the third pledge, the United States agreed to provide formal assurances to North Korea against the threat or use of nuclear weapons by the United States. In return, North Korea agreed to consistently take steps to implement the North-South Joint Declaration on the Denuclearization of the Korean Peninsula and to engage in a dialogue with South Korea.<sup>2</sup>

Finally, under the last pledge, North Korea agreed to remain a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and to allow the implementation of its agreement with the International Atomic Energy Agency (IAEA) for safeguarding its nuclear materials (nuclear safeguards agreement), as required by the treaty. Specifically, North Korea agreed—pending the conclusion of the contract for supplying the reactors and energy—to allow IAEA to continue the inspections needed for IAEA’s continuity of safeguards at the facilities not subject to the freeze. Once the contract is concluded, North Korea agreed to allow IAEA to make additional inspections at these facilities. North Korea also agreed to comply fully with its IAEA safeguards agreement when a significant portion of the reactor project is completed but before it receives delivery of key nuclear reactor components.

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<sup>2</sup>North Korea and South Korea signed a “Joint Declaration on the Denuclearization of the Korean Peninsula” on Dec. 31, 1991. Under the agreement, the parties pledged, among other things, not to (1) “test, produce, receive, possess, deploy or use nuclear weapons” or (2) possess nuclear reprocessing and uranium enrichment facilities. The parties also agreed to allow mutual inspections of their nuclear facilities subject to procedures to be negotiated between the parties.

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# Chronology of Key Events Related to the North Korean Nuclear Issue

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## Mid-1950s<sup>1</sup>

North Korea began developing its nuclear program. The rationale for the program was scientific research and the production of radioactive isotopes for medical and industrial uses.

## 1974

North Korea joined IAEA.

## 1980s

North Korea began operating a 5-MW(e) research reactor and a “radiochemical laboratory”—North Korea’s term for its plutonium reprocessing plant—in Yongbyon. North Korea also began constructing two larger reactors—a 50-MW(e) reactor in Yongbyon and a 200-MW(e) reactor at Taechon.<sup>2</sup>

## December 1985

North Korea signed the NPT, which, among other things, obligated North Korea to negotiate an agreement with the IAEA for safeguarding the nuclear materials in its possession.

## 1989

North Korea shut down its 5-MW(e) reactor for between 70 to 100 days. Sources believe that North Korea removed and later reprocessed the fuel, separating up to 13 kilograms of weapons-grade plutonium usable for producing nuclear bombs. (The suspected diversion was, among other things, inferred from a subsequent laboratory analysis of materials collected during IAEA’s inspections that began in 1992.)

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<sup>1</sup>The following chronology was compiled primarily from Congressional Research Service reports and briefs and journal articles. The chronology is included to describe the key events preceding the Agreed Framework. We attempted to reconcile inconsistencies between the sources; however, we did not independently verify the information in this appendix. Further, while the State Department provided comments on a draft of this report, State did not take a position about the accuracy of the text.

<sup>2</sup>The existing 5-MW(e) reactor is thought to be capable of producing about 7 kilograms of plutonium annually. When completed, the two reactors under construction were expected to produce about 200 kilograms of plutonium annually.



1990 and 1991

North Korea ran the 5-MW<sub>(e)</sub> reactor at low levels for about 30 days in 1990 and about 50 days in 1991. Such low levels of operation create the technical possibility that fuel could have been removed and subsequently reprocessed. However, U.S. experts consider this unlikely.

April 12, 1991

The Defense Minister for the Republic of Korea (South Korea) stated that South Korea might launch a commando attack on Yongbyon if North Korea continued with the construction of the 50-MW<sub>(e)</sub> reactor there.

Late 1991

The United States withdrew all nuclear weapons from South Korea, thereby removing one rationale that North Korea had used to delay signing its safeguards agreement with IAEA.

December 31, 1991

North Korea and South Korea signed a “Joint Declaration on the Denuclearization of the Korean Peninsula.” They pledged, among other things, not to (1) test, produce, receive, possess, deploy or use nuclear weapons or (2) possess nuclear reprocessing and uranium enrichment facilities. The parties also agreed to allow mutual inspections subject to procedures to be negotiated between them.

Early January 1992

High-level officials from the United States and North Korea met to discuss the range of issues affecting the countries’ relations, including the nuclear issue.

January 30, 1992

North Korea signed a safeguards agreement with IAEA. The agreement called for IAEA to inspect the nation’s nuclear facilities after ratification by North Korea’s legislative body.

April 10, 1992

The IAEA/North Korea safeguards agreement became effective.

May 4, 1992

North Korea submitted its declaration of nuclear materials to IAEA, as required by IAEA's safeguards agreements. According to the declaration, North Korea had seven sites and about 90 grams of plutonium in its possession that were subject to IAEA's inspections. According to North Korea, the nuclear material resulted from its reprocessing of 89 defective fuel rods in 1989.

May 1992

IAEA began inspections to verify the correctness and completeness of North Korea's declaration.<sup>3</sup>

July 1992

An IAEA inspection team collected information that subsequently resulted in the disclosure of discrepancies in North Korea's declaration of nuclear materials. Instead of reprocessing spent fuel from 89 damaged fuel rods on just one occasion, IAEA concluded that North Korea has probably reprocessed spent fuel on three to four occasions since 1989. Additional inspections revealed further inconsistencies in North Korea's declaration.

Late 1992

IAEA informally requested that it be given access to two additional sites—located in the Yongbyon nuclear complex—that it suspected of housing nuclear waste. North Korea allowed IAEA to visually inspect one of the sites but denied any access to the other.

February 9, 1993

IAEA invoked the "special inspections clause" of its safeguards agreement with North Korea, indicating that it wanted to inspect two sites that North

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<sup>3</sup>IAEA conducted numerous inspections to verify the completeness of North Korea's declaration between about mid-1992 and early 1993. IAEA inspectors also placed seals and other safeguards on equipment and buildings at North Korea's declared nuclear sites.

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**Appendix II**  
**Chronology of Key Events Related to the**  
**North Korean Nuclear Issue**

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Korea had not declared and that IAEA suspected had a bearing on the history of North Korea's nuclear program.

February 1993

North Korea denied IAEA access to the two undeclared sites. North Korea said that the sites were military installations with no connection to its nuclear program.

February 22, 1993

At a meeting of the IAEA board, the members were shown U.S. aerial surveillance photographs and a chemical analysis of data collected by IAEA inspectors. The evidence reportedly (1) confirmed the existence of a nuclear waste dump—long denied by North Korea—and (2) disclosed discrepancies in North Korea's declaration of the nuclear materials in its possession.

March 12, 1993

North Korea announced its intention to withdraw from the NPT, effective June 12, 1993. The announcement elevated what was viewed as a serious proliferation threat into a major diplomatic confrontation between the United States and North Korea.

April 1, 1993

IAEA declared that North Korea was not adhering to its safeguards agreement with IAEA and, consequently, that IAEA could no longer guarantee that North Korea's nuclear material was not being diverted for nonpeaceful purposes.

April 8, 1993

In a statement to the media, the President of the United Nations Security Council welcomed all efforts to resolve the impasse that had arisen between North Korea and IAEA. The President encouraged IAEA to continue, among other things, its consultations with North Korea for a proper settlement of the nuclear verification issue.

April 22, 1993

The United States indicated its readiness to participate in high-level negotiations with North Korea to help resolve the crisis caused by North Korea's refusal to abide by the NPT. The U.S. objectives for the talks were to get North Korea to (1) remain in the NPT and come into compliance with its NPT obligations, which require full inspections at its nuclear facilities, and (2) carry out its December 1991 denuclearization accord with South Korea.<sup>4</sup>

May 1993

The United Nations Security Council passed a resolution requesting North Korea (1) to allow IAEA inspections and (2) not to withdraw from the NPT.

IAEA sent inspectors to (1) verify that there had been no further diversion of nuclear material and (2) maintain monitoring equipment that IAEA had previously installed at North Korea's declared nuclear facilities.

June 2-11, 1993

The United States and North Korea held their first round of high-level talks in New York. On June 11, 1993, hours before North Korea's withdrawal from the NPT would have become effective, the United States and North Korea issued a joint statement in which North Korea agreed to "suspend" its withdrawal from the NPT for as long as it "considers necessary." North Korea also agreed to the full and impartial application of IAEA's safeguards. The United States granted assurances against the threat and use of force, including nuclear weapons, and a promise of "non-interference" in North Korea's internal affairs. The United States subsequently stated that (1) North Korea must accept IAEA inspections to ensure the continuity of the safeguards, (2) forgo reprocessing, and (3) allow IAEA to be present when it refueled its 5-MW(e) reactor.

July 1993

Speaking before U.S. military forces deployed in South Korea, President Clinton reportedly said that if North Korea developed and used nuclear,

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<sup>4</sup>The move followed South Korea's Apr. 15, 1993, decision to allow U.S./North Korean negotiations. (Prior to that time, the United States and South Korea had insisted upon negotiations between North and South Korea to resolve the nuclear issue before the United States would engage in broad, comprehensive talks with North Korea.)

weapons, “we would quickly and overwhelmingly retaliate. It would mean the end of their country as they know it.”

July 14-19, 1993

The U.S. and North Korean delegations held a second round of high-level negotiations in Geneva, Switzerland. Both sides reaffirmed the principles of the June 11, 1993, joint statement. As part of the final resolution of the nuclear issue, the United States said that it was willing to explore options for replacing North Korea’s graphite-moderated reactors and related facilities with light-water reactors.

August 1993

North Korea limited the operations of an IAEA inspection team that had been sent to (1) replace film and batteries in cameras and (2) check seals installed by IAEA in 1992. North Korea reportedly required that the team work at night with flashlights.

Fall 1993

IAEA requested North Korea to allow greater access to its facilities. North Korea denied the request. In reaction to North Korea’s rebuffs of the IAEA, the United States refused to schedule a third negotiating session with North Korea. Instead, North Korean and U.S. officials held low-level meetings at the United Nations in October and November 1993.

Early November 1993

IAEA’s Director General delivered a report to the United Nations which stated that if IAEA inspectors were not permitted to revisit North Korea’s nuclear facilities, IAEA could no longer verify the IAEA/North Korea safeguards agreement.

November 1993

On November 11, 1993, North Korea proposed that the United States and North Korea negotiate a “package solution” to the nuclear weapons issue. The United States subsequently accepted North Korea’s proposal in principle. However, the United States required that North Korea, among other things, allow IAEA full access to North Korea’s seven declared facilities so that IAEA could maintain its “continuity of safeguards.”

December 3, 1993

In mid-level talks at the United Nations, North Korea offered to restore IAEA's access to five of its declared sites so that IAEA could change the film and batteries in the cameras monitoring North Korea's activities at the sites.

Late 1993

The U.S. Central Intelligence Agency and the Defense Intelligence Agency estimated that North Korea had separated about 12 kilograms of plutonium—enough for one to two nuclear bombs.<sup>5</sup>

December 1993

IAEA's Director General warned that safeguards on North Korea's declared installations and materials could no longer provide a meaningful assurance of peaceful use. However, he said that the integrity of IAEA's safeguards could be restored if inspections were reinstated.

December 29, 1993

North Korea and the United States reached a tentative understanding about IAEA's inspections of North Korea's declared facilities. Sources indicate that the understanding shifted negotiations toward talks between North Korea and the IAEA.

Early January 1994

North Korea announced that IAEA inspectors would be allowed to visit all seven of its declared nuclear facilities. (The two suspected—

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<sup>5</sup>The estimates vary of both the (1) amount of plutonium in North Korea's possession and (2) number of nuclear weapons that could be manufactured from the material. South Korean, Japanese, and Russian intelligence estimates of the amount of plutonium separated, for example, are reported to be higher—7 to 22 kilograms, 16 to 24 kilograms, and 20 kilograms, respectively—than the reported U.S. estimate of about 12 kilograms. At least two of the estimates are said to be based on the assumption that North Korea removed fuel rods from the 5-MW(e) reactor and subsequently reprocessed the fuel during slowdowns in the reactor's operations in 1990 and 1991. The variations in the estimates about the number of weapons that could be produced from the material depend on a variety of factors, including assumptions about (1) North Korea's reprocessing capabilities—advanced technology yields more material—and (2) the amount of plutonium it takes to make a nuclear weapon. Until Jan. 1994, the Department of Energy (DOE) estimated that 8 kilograms would be needed to make a small nuclear weapon. Thus, the United States' estimate of 12 kilograms could result in one to two bombs. In January 1994, however, DOE reduced the estimate of the amount of plutonium needed to 4 kilograms—enough to make up to three bombs if the U.S. estimate is used and up to six bombs if the other estimates are used.

undeclared—sites were still off-limits.) North Korea justified the limited inspections on the basis that its action to withdraw from the NPT in June 1993 had exempted it from the inspection requirements applicable to other NPT members.

#### January 1994

The Director of the Central Intelligence Agency estimated that North Korea may have produced one or two nuclear weapons.<sup>6</sup>

#### Early 1994

North Korea and IAEA conducted negotiations on the details of IAEA's inspections pursuant to the December 29, 1993, "tentative" U.S./North Korean understanding.

#### Late January 1994

The United States announced that it would deploy additional Patriot missile batteries, Apache helicopters, and advanced counter-artillery radar in South Korea.

#### February 15, 1994

North Korea agreed in writing to a limited inspection of all of its declared nuclear sites in accordance with a checklist of procedures prepared by IAEA.<sup>7</sup> The checklist specified that IAEA would, among other things, take samples from a "glove box" connected to the reprocessing facility and perform gamma ray scans of the facility. According to IAEA, the procedures were needed to restore IAEA's continuity of knowledge at the declared sites.

#### February 25, 1994

The United States and North Korea issued a statement, entitled "Agreed Conclusions," which specified, among other things, that the inspections would proceed consistent with the timing and manner agreed to between North Korea and IAEA on February 15, 1994. The statement also announced

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<sup>6</sup>See the related discussion under the heading "Late 1993."

<sup>7</sup>At that time, IAEA was expected to report to the United Nations Security Council that the continuity of its inspections program in North Korea had completely broken down.

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**Appendix II**  
**Chronology of Key Events Related to the**  
**North Korean Nuclear Issue**

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U.S./North Korean intentions to begin a third round of negotiations in March 1994.<sup>8</sup>

March 3-14, 1994

IAEA resumed inspections. The inspectors proceeded without incident at several locations but encountered problems at the reprocessing plant, where they were precluded from (1) entering certain portions of the plant and (2) performing activities—such as taking samples from reprocessing equipment and conducting a gamma ray scan of the reprocessing facility—that North Korea had agreed to on February 15, 1994.<sup>9</sup>

March 15, 1994

IAEA terminated inspections after North Korea barred the inspectors from taking samples at key locations in its plutonium reprocessing plant. The March 1994 inspection reportedly indicated that North Korea had (1) resumed construction on the second reprocessing line in the facility, (2) constructed new connections between the old and new reprocessing lines, and (3) broken seals on previously tagged reprocessing equipment.

March 20, 1994

The United States announced that it would not participate in the third round of U.S./North Korean high-level negotiations scheduled for March 1994. Instead, the United States said it would refer the results of the aborted IAEA inspection to the United Nations Security Council for action.

March 21, 1994

IAEA indicated, once again, that it could no longer ensure that North Korea's nuclear materials were not being diverted for nonpeaceful purposes.

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<sup>8</sup>The agreement concluded working-level talks that had begun in Aug. 1993.

<sup>9</sup>According to one source, the access problems occurred in response to a “log-jam” in the negotiations between the United States and North Korea. North Korea allowed the inspections to resume in the spring of 1994.



March 30, 1994

The U.S. Secretary of Defense warned publicly that the United States intended to stop North Korea from developing a substantial arsenal of nuclear weapons, even at the cost of another war on the Korean Peninsula.

Early April 1994

The United Nations Security Council decided to request that North Korea allow IAEA to complete its inspections.

April 4, 1994

President Clinton ordered the establishment of a Senior Policy Steering Group on Korea to coordinate all aspects of the U.S. policy on the nuclear issue on the Korean Peninsula.

May 3, 1994

President Clinton publicly offered a “hand of friendship” to North Korea if it pledged not to develop nuclear weapons. In a speech to the National Press Club, the U.S. Secretary of Defense outlined the two choices available to North Korea: continue its nuclear program and face the consequences—including the possibility of war—or drop the program and accept economic aid and normal relations with the United States and its allies.

Mid-May 1994

Workers began removing the spent fuel from the 5-MW(e) reactor in violation of North Korea’s safeguards agreement with IAEA and IAEA’s previous instructions informing North Korea that IAEA inspectors would need to sample, segregate, and monitor the fuel rods to preserve evidence of past plutonium production. North Korea refused to comply but allowed two inspectors to watch the fuel-removal process. IAEA informed North Korea that the removal of fuel without proper safeguards constituted “a serious violation” of the safeguards agreement.

The United States offered to hold the long-deferred third series of high-level talks to consider the entire range of issues related to the Korean peninsula, including the economic, diplomatic, and other benefits that North Korea could receive in return for reversing its decision to withdraw from the NPT. The talks were conditioned on North Korea’s willingness to

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**Appendix II**  
**Chronology of Key Events Related to the**  
**North Korean Nuclear Issue**

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allow IAEA to monitor the refueling operation and to safeguard the fuel rods already removed.

May 21, 1994

North Korea agreed to meet with IAEA inspectors to discuss ways to preserve the fuel rods that North Korea was removing from its 5-MW(e) reactor in order to permit a future assessment of the reactor's operating history.

End of May 1994

North Korea rejected IAEA's proposal for preserving the fuel rods. South Korea responded by putting its military on a higher state of alert.

May 28, 1994

Following a failure of negotiations aimed at subjecting the refueling operation to international safeguards, IAEA's Director General reported to the United Nations Secretary General that the agency was quickly losing its ability to verify the amount of North Korea's past production of plutonium.

May 30, 1994

The President of the United Nations Security Council, on behalf of the Council members, urged North Korea "to proceed with the discharge operations at the five megawatt [5-MW(e)] reactor in a manner which preserves the technical possibility of fuel measurements, in accordance with IAEA's requirements." In deference to China, the statement did not include a direct threat of economic sanctions.

June 3, 1994

IAEA's Director General told the United Nations Security Council that North Korea had removed all but 1,800 of the 8,000 fuel rods in the 5-MW(e) reactor and that by mixing them up, North Korea had made it impossible to reconstruct the operating history of the reactor.

Early June 1994

IAEA members voted to exempt North Korea from receiving IAEA technical assistance—a benefit accorded IAEA members. North Korea responded by quitting IAEA and threatening to expel the IAEA inspectors.<sup>10</sup>

The United States announced that it intended to pursue global economic sanctions against North Korea if it did not allow IAEA inspectors to examine the spent fuel rods removed from the 5-MW(e) reactor in Yongbyon. North Korea responded that it would treat such sanctions as an act of war.

June 5, 1994

The Secretary of Defense confirmed that the United States had built up its troops in South Korea.

June 15, 1994

The U.S. Ambassador to the United Nations announced that the United States would begin consultations with other countries to implement sanctions against North Korea.

June 15-18, 1994

Former President Carter visited Pyongyang, North Korea. While there, Kim Il Sung—the North Korean leader at that time—offered to freeze North Korea’s nuclear program in return for the resumption of high-level talks between the United States and North Korea. Under the proposal, IAEA would be allowed to (1) monitor the fuel rods in the spent fuel pond and (2) engage in some routine monitoring of North Korea’s other nuclear facilities to maintain IAEA’s continuity of safeguards at the sites. However, the issue of North Korea’s past production of plutonium would be deferred.

June 21, 1994

The United States offered to (1) resume high-level talks with North Korea and (2) suspend its efforts to have the United Nations impose sanctions on North Korea once the talks were under way. At about the same time, North Korea took steps to follow up on pledges it had made to former President

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<sup>10</sup>North Korea’s withdrawal from IAEA did not affect its obligations under the NPT.

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**Appendix II**  
**Chronology of Key Events Related to the**  
**North Korean Nuclear Issue**

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Carter. Specifically, North Korea extended the visas for IAEA inspectors and proposed a date for a summit with South Korea.

June 27, 1994

The United States and North Korea announced that their negotiations would resume on July 8, 1994.

July 8-10, 1994

The United States and North Korea began a third round of negotiations to discuss, among other things, a proposal by the North Korean leader to freeze North Korea's nuclear program. The negotiations—held in Geneva—terminated prematurely because of the death of North Korea's leader on July 8, 1994.

August 5-14, 1994

The United States and North Korea resumed the Geneva negotiations interrupted by the death of Kim Il Sung. The negotiations reportedly explored North Korea's willingness to abandon its graphite-moderated reactors in return for a U.S. commitment to, among other things, make arrangements for supplying North Korea with light-water reactors.

August 12, 1994

The United States and North Korea issued an "Agreed Statement" describing "elements [that] should be part of a final resolution of the nuclear issue" in North Korea, including (1) a freeze on North Korea's nuclear program in exchange for light-water reactors and interim energy supplies and (2) movement toward the full normalization of political and economic relations.

September 10, 1994

The United States and North Korea held simultaneous working-level meetings in Berlin and Pyongyang to discuss plans for replacing North Korea's reactors with light-water reactors and establishing liaison offices in each other's capitals.

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**Appendix II**  
**Chronology of Key Events Related to the**  
**North Korean Nuclear Issue**

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September 23, 1994

The third round of high-level negotiations between the United States and North Korea resumed in Geneva.

October 21, 1994

The United States and North Korea concluded the “Agreed Framework,” an agreement intended to produce an overall settlement of the nuclear issue on the Korean Peninsula. In conjunction, the United States provided an October 20, 1994, letter from President Clinton to Kim Jong Il—the Supreme Leader of North Korea. The letter stated, among other things, that the President would use “the full powers” of his office to facilitate the arrangements for the financing and construction of the light-water reactor project and for the funding and implementation of interim energy supplies. (See app. I for information about the (1) agreement’s content and (2) President’s letter to the Supreme Leader of North Korea.)

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# The Agreed Framework Can Be Properly Characterized as a Nonbinding Political Agreement

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The Case-Zablocki Act of 1972<sup>1</sup> requires the Secretary of State to transmit to the Congress, for notification rather than approval purposes, any international agreement—other than a treaty<sup>2</sup>—to which the United States is a party as soon as practicable after the agreement has entered into force but no later than 60 days thereafter. The act was intended to establish a procedure for regularly informing the Congress about the foreign affairs activities of the executive branch.<sup>3</sup> The act specifically authorizes the Secretary of State to determine if a particular U.S. undertaking constitutes an international agreement.

Neither the Case-Zablocki Act nor its legislative history provides concrete guidance about which international agreements must be submitted to the Congress. Not long after the act's passage, Senator Case requested the Department of State to clarify the types of agreements covered by the act. The State Department replied that the act "is intended to include every international agreement other than a treaty brought into force with respect to the United States . . . regardless of its form, name or designation, or subject matter."<sup>4</sup>

In 1981, the State Department issued regulations describing, among other things, its criteria for assessing whether a U.S. undertaking constitutes an international agreement within the context of the act.<sup>5</sup> According to State's regulations, an undertaking constitutes an international agreement if (1) the parties to the agreement intend the undertaking to be legally binding; (2) it involves a "significant" arrangement or undertaking;<sup>6</sup> (3) the

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<sup>1</sup>U.S.C. § 112b.

<sup>2</sup>Treaties do not need to be included within the act's coverage since the U.S. Constitution requires treaties to be submitted to the Senate for approval.

<sup>3</sup>The Senate Foreign Relations Committee described the legislation as "an effective means of dealing with the prior question of secrecy and of asserting the obligation of the executive to report its foreign commitments to Congress." S. Rep. No. 591, 92d Cong., 2d Sess. 5 (1972). The House Foreign Affairs Committee described the legislation as "a step toward restoring a proper working relationship between the Congress and the executive branch in the area of foreign affairs." H.R. Rep. No. 1301, 92d Cong., 2d Sess. 2 (1972).

<sup>4</sup>Senate Comm. on Foreign Relations, Treaties, and Other International Agreements: The Role of the United States Senate, S. Prt. No. 53, 103rd Cong., 1st Sess. 178 (1993).

<sup>5</sup>22 C.F.R. §181.

<sup>6</sup>According to the regulations, significant arrangements or undertakings are those that (1) are of political significance, (2) involve substantial U.S. grants or loans, (3) constitute a substantial commitment of funds that extend beyond a fiscal year or would be a basis for requesting new appropriations, and (4) involve continuing and/or substantial cooperation in the conduct of a program or activity.

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**Appendix III**  
**The Agreed Framework Can Be Properly**  
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language describing the undertaking is precise and specific; and (4) it necessitates the involvement of two or more other parties.

State's regulations also provide for the consideration of the agreement's form—specifically, the extent to which a U.S. agreement follows the structure, or form, customarily used in international agreements. A failure to use the customary form for international agreements constitutes evidence of the parties' intent not to be bound by the arrangement. However, an agreement's form may not be relevant if the agreement's content and context reveal that the parties actually intended to create a binding international agreement.<sup>7</sup>

Consistent with State's regulations, several authorities on international law have suggested that the intent of the countries involved is the critical factor in determining whether a particular arrangement establishes either a nonbinding political agreement or a legally binding international agreement.<sup>8</sup> Because countries are generally reluctant to explicitly state in an international agreement that the agreement is nonbinding or that it lacks legal force, inferences about the parties' intent must be drawn from, among other things, (1) the language used in the agreement; (2) the subsequent actions or statements of the parties; and (3) the negotiating history, to the extent that an agreement is ambiguous.<sup>9</sup> Agreements containing general goals or broad declarations of principles are usually considered too indefinite to create enforceable obligations.<sup>10</sup>

Department of State officials said that both the United States and North Korea intended the Agreed Framework to be a political arrangement that would not create binding legal obligations under international law. State officials said that the United States executed a nonbinding political agreement because it would not have been in the United States' interest to accept an internationally binding legal obligation to provide nuclear reactors and alternative energy to North Korea. Instead, they said that the United States wanted the flexibility to respond to North Korea's policies and actions in implementing the Agreed Framework—flexibility that a

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<sup>7</sup>22 C.F.R. §181.2.

<sup>8</sup>1 O'Connell, *International Law* 205 (2d ed. 1970); Schachter, *The Twilight Existence of Nonbinding International Agreements*, 71 *Am. J. of Int. Law* 296 (1977).

<sup>9</sup>Schachter, above, at 296-98; Vienna Convention on the Law of Treaties, art. 31, 1155 U.N.T.S. 331; Restatement (Third) Foreign Relations Law of the United States, § 325(1), comment a and n.1 (hereinafter, Restatement of Foreign Relations).

<sup>10</sup>Schachter, above, at 298-99.

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binding international agreement, such as a treaty, would not have provided.

According to State Department officials, the Department provided the text of the Agreed Framework to the Congress informally rather than under the Case-Zablocki Act because it considered the arrangement to be a nonbinding political agreement that did not meet all of the criteria established for notifying the Congress. Specifically, although the Agreed Framework (1) necessitates the involvement of two or more parties and (2) involves a significant undertaking, it does not satisfy State's three other criteria.<sup>11</sup> According to State, its position that the agreement is nonbinding is supported by (1) the agreement's language and form, which are not typical of binding international agreements, and (2) the fact that neither side has since acted in a manner that is inconsistent with such an understanding.<sup>12</sup>

In connection with the language used in the Agreed Framework, State maintains that the most important indicator of the parties' intent, concerning the document's legal status, is the choice of the phrase introducing the document's operative clauses. Specifically, the parties used the phrase "decided to take the following actions" instead of the word "agreed."<sup>13</sup> State says that its treaty experts carefully chose this language because the word "decided" is routinely used in connection with nonbinding political agreements (e.g., the Nuclear Suppliers Group Guidelines, the Missile Technology Control Regime), whereas the word "agreed" is used before the operative clauses when the intent is to create a legally binding agreement. State also notes that the language of the operative clauses generally does not create specific commitments, but rather general objectives toward which the two sides are working. Such general language is typical of political agreements. According to State, the language of the Agreed Framework was specifically crafted on the basis of the precedents established in other nonbinding political accords, in a

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<sup>11</sup>The three other criteria involve assessments about (1) the parties' intention that the undertaking be legally binding, (2) the extent to which the language describing the agreement is precise and specific, and (3) the extent to which an agreement follows the customary form used for international agreements.

<sup>12</sup>The Department has used similar nonbinding agreements in the past to address problems of considerable importance when a legally binding agreement was thought to be inappropriate, including documents creating the Nuclear Supplier Group, the Missile Technology Control Regime, the Australia Group, and the Organization for Security and Cooperation in Europe, as well as the Helsinki Accords, the Moscow Declaration of January 1994, and the 1994 Trilateral Statement by the Presidents of the United States, Russia and the Ukraine.

<sup>13</sup>The pertinent part of the preamble of the agreement states that "[t]he United States and the DPRK [North Korea] decided to take the following actions for the resolution of the nuclear issue."



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manner that leaves no ambiguity whatsoever as to the intent of the two sides to create a nonbinding political agreement.

While we appreciate State's position, in our view, the language of the Agreed Framework is not entirely clear about the intent of the United States and North Korea to establish a nonbinding political agreement. Although several of the agreement's provisions contemplate the need for future agreements,<sup>14</sup> others are expressed in more concrete and even directive language. For example, the Agreed Framework specifies that the United States, through a consortium, "will make arrangements to offset the energy foregone due to the freeze of the DPRK's [North Korea's] graphite-moderated reactors and related facilities, pending completion of the first LWR [light water reactor] unit." Furthermore, a subsection describing this responsibility states that "[a]lternative energy will be provided in the form of heavy oil for heating and electricity production" and that "[d]eliveries of heavy oil will begin within three months of the date of [the Agreed Framework] and will reach a rate of 500,000 tons annually, in accordance with an agreed schedule of deliveries." Finally, the agreement does not explicitly discuss the parties' intentions, and we are not aware of anything in the negotiating history of the agreement that clearly delineates the parties' intentions.<sup>15</sup>

Nevertheless, the Agreed Framework's tone and form, and particularly the subsequent actions of the United States and North Korea, suggest that the Agreed Framework was not intended to be a binding international agreement. The agreement consists of four general pledges, all of which are consistent with the kind of broad declaration of goals and principles that characterize nonbinding international agreements.<sup>16</sup> Furthermore, as pointed out by the State Department, the agreement omits provisions that would normally be included in a binding agreement. The omitted provisions include a provision on the agreement's entry into force and the process for amending the agreement and for resolving disputes.

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<sup>14</sup>One example is the United States' pledge to provide the reactors and interim energy. The agreement states that the United States will make its "best efforts to secure the conclusion of a supply contract with the DPRK [North Korea] within 6 months of the date of the [Agreed Framework]." Similarly, both parties agreed to hold talks on the (1) provision of alternative energy, (2) replacement of North Korea's graphite-moderated reactors with the light-water reactors, and (3) the storage and ultimate disposal of North Korea's spent fuel "as soon as possible" after the agreement was signed.

<sup>15</sup>To our knowledge, there are no documents, side agreements, or letters written contemporaneous with, or prior to, the Agreed Framework that would demonstrate that North Korea intended the agreement to be nonbinding. State maintains that the agreement clearly expresses the parties' intent to establish a nonbinding agreement and that, as a result, there is no need to refer to the agreement's negotiating history for interpretation.

<sup>16</sup>App. I provides information about the agreement, including its four general pledges.

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The subsequent actions by the United States and North Korea also suggest that the Agreed Framework was intended to be a nonbinding, preliminary arrangement. In a joint press statement on June 13, 1995, at Kuala Lumpur, Malaysia, the two countries reaffirmed their “political commitments to implement the . . . Agreed Framework.” Although this appears to be a clear expression of the parties’ intent, the statement alone may not be of major significance since it was made nearly 8 months after the agreement was signed and communicated informally. Of greater significance was the conclusion of two binding international agreements between (1) the United States, South Korea, and Japan establishing the Korean Peninsula Energy Development Organization (KEDO) and (2) KEDO and North Korea for supplying the reactors and alternative energy.<sup>17</sup> Taken together, these binding international agreements—described in concrete and specific terms—effectively incorporate the Agreed Framework’s provisions on providing the reactors and alternative energy to North Korea.<sup>18</sup>

In view of the above, we believe that the Agreed Framework can properly be described as a nonbinding political agreement. We are also mindful of the broad authority accorded the executive branch in the area of foreign affairs<sup>19</sup> and believe that the State Department’s determination that the Agreed Framework is a nonbinding political agreement is a proper exercise of that authority. As noted earlier, the Case-Zablocki Act specifically authorizes the Secretary of State to determine if a particular U.S. undertaking constitutes an international agreement.

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<sup>17</sup>The Agreed Framework refers to the KEDO/North Korean agreement as the “supply contract.”

<sup>18</sup>The KEDO and supply agreements did not receive formal congressional approval. State submitted the KEDO agreement to the Congress for notification purposes, as required by the Case-Zablocki Act. The supply agreement; however, was not submitted because the United States is not a party to that agreement.

<sup>19</sup>United States v. Curtiss-Wright Export Corp., 299 U.S. 304, 319-20 (1936).

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## **Impact of Structuring the Agreed Framework as a Nonbinding Political Agreement**

As a nonbinding political agreement, the Agreed Framework's pledges and agreements are not legally enforceable.<sup>20</sup> Moreover, the Agreed Framework did not have to be transmitted to the Congress under the Case-Zablocki Act. However, given the agreement's political importance and the fact that most of its provisions have been incorporated into binding international agreements, the agreement's broad pledges could have the effect of pressuring the Congress to appropriate moneys to implement an agreement with which the Congress had little involvement.<sup>21</sup> Nevertheless, funding for the Agreed Framework is essentially a congressional matter, and disagreements about any of its particulars can be expressed through conditions and limitations on the activity's appropriations. Indeed, for fiscal year 1996, the Congress established conditions on the provision of funds for KEDO that require the President to make certain determinations about the light-water reactor project and to certify the determinations in writing to the appropriations committees.<sup>22</sup> The Congress can also enact resolutions or bills expressing its position on the Agreed Framework and, for areas within its authority, enact legislation that would supersede the provisions with which it disagrees.<sup>23</sup>

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<sup>20</sup>President Clinton's October 20, 1994, letter of assurance to the Supreme Leader of North Korea also is not legally binding. The letter offers only the President's pledge to "facilitate arrangements" for the light-water reactor project and the interim energy. Furthermore, the President's more specific pledge to implement the project and provide interim energy—if not implemented for reasons beyond North Korea's control—is subject to the approval of the U.S. Congress. (App. I provides additional information about the President's letter of assurance.)

<sup>21</sup>The President's letter of assurance of October 20, 1994, might also have this effect. See 59 Comp. Gen. 369, 372 (1980), which discusses a proposed agreement between the United States and Australia to indemnify Australia for damages arising from a hurricane seeding project. GAO suggested that the proposed agreement could pressure the Congress to appropriate funds if damage occurred. See also Fisher, Congressional Research Service Memorandum on the Agreed Framework with North Korea 5 (Feb. 8, 1995).

<sup>22</sup>Pub. L. No. 104-107, 110 Stat. 721-22.

<sup>23</sup>Restatement of Foreign Relations, § 303, comment j.

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## **Impact of the Agreed Framework Had It Been Structured as a Treaty or Other Binding International Agreement**

If the Agreed Framework had been structured as a treaty or some other form of binding international agreement,<sup>24</sup> it would have been subjected to greater formal congressional oversight. Under the U.S. Constitution,<sup>25</sup> treaties must be approved by a two-thirds majority of the Senate. Such scrutiny could have led to the rejection of the Agreed Framework,<sup>26</sup> consent with added conditions,<sup>27</sup> or unconditional consent. If the Agreed Framework had been considered another form of binding international agreement, it would have been subject to the Case-Zablocki Act.

As a treaty or formal international agreement approved by the United States and North Korea, the Agreed Framework would have been regarded as having established legally binding commitments, under both international and domestic law. Therefore, it could be subject to interpretation by U.S. courts. However, even if the Agreed Framework was considered part of the domestic law of the United States, the Congress could still—within its constitutional authority—enact legislation superseding the agreement’s provisions, including legislation imposing funding restrictions.<sup>28</sup> For example, the Congress could choose not to fund the light-water reactor project, even in the face of a binding international commitment to do so.

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<sup>24</sup>In the United States, such an agreement would be considered an executive agreement. The President’s authority to conclude these agreements is based on various provisions in the U.S. Constitution. Restatement of Foreign Relations, § 303, comment g.

<sup>25</sup>U.S. Const. art. II, § 2, cl. 2.

<sup>26</sup>This is more correctly characterized as the Congress’s withholding of its consent, since the actual ratification of a treaty is a function of the President.

<sup>27</sup>The Senate cannot amend a treaty or enter reservations to it itself; however, the Senate can give its consent to a treaty on condition that the treaty be modified. Although the President need not fulfill these conditions, he cannot ratify the treaty unless the Senate’s conditions are met. Restatement of Foreign Relations, § 303, n.3.

<sup>28</sup>Restatement of Foreign Relations, § § 115; 303, comment j.

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According to KEDO, it places a high priority on protecting the present and future members of KEDO against the risk of liability for nuclear incidents that may arise from the light-water reactor project in North Korea. As a result, KEDO developed a “comprehensive risk management program” to protect itself and its member countries from such risk. According to KEDO, the foundation of this protective program is contained in the agreement establishing KEDO (KEDO agreement) and the agreement between KEDO and North Korea for supplying the reactors (supply agreement). Over time, KEDO plans to negotiate additional protections which, it believes, will fully shield KEDO and its members from the risk of nuclear liability. Among other things, KEDO plans to (1) ensure that KEDO is not designated the “operator” of the reactors; (2) obtain adequate indemnity protection and the best insurance coverage available for both nuclear and conventional risks;<sup>1</sup> (3) obtain widespread recognition throughout the international community of KEDO’s independent legal status and, consequently, the limited liability of its members; and (4) provide safe and reliable plants.

Our analysis of the existing nuclear liability protections confirms that the foundation of KEDO’s protection program is in place. KEDO is aware that additional steps need to be taken and, as a result, plans to build upon the foundation of its existing coverage to fully shield KEDO and its members from possible liability claims. Without knowing the contents of future agreements and contracts between KEDO and other project participants, it is not possible to fully assess the adequacy of the liability protections that will be provided to KEDO and its members. Nevertheless, our assessment of the liability provisions in the KEDO and supply agreements and KEDO’s plan to secure additional protections, suggests that KEDO and its members—including the United States—will be adequately protected against nuclear damage claims from North Korea and third-party countries. Finally, according to KEDO, it will neither ship any fuel assemblies to North Korea nor allow the reactors to be commissioned “[u]nless and until KEDO and its members consider that all aspects of the risk management program are in place.”

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<sup>1</sup>The conventional liabilities are nonnuclear in nature and include injuries to workers and damage to equipment. Consistent with the standard practice of the nuclear industry, KEDO informed us that the protections against conventional liabilities will be included in its policies with insurance providers and in its contracts with the Korea Electric Power Corporation and other contractors and subcontractors. Our analysis is limited to the topic of nuclear liability.

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## **Protections Against North Korean Nuclear Claims Appear Sufficient**

The supply and KEDO agreements contain a number of protections that are intended to preclude North Korea from making claims against KEDO or KEDO members for damages from a nuclear incident. The principal protection requires North Korea to set up a legal mechanism for satisfying all claims brought within North Korea. The supply agreement also contains a provision precluding North Korea from bringing claims against KEDO for any nuclear damage or loss, and both the supply and KEDO agreements contain a general limitation-of-liability provision that appears to cover nuclear damage.

The principal protection in the supply agreement requires North Korea to “ensure that a legal and financial mechanism is available for satisfying claims brought within North Korea for damages from a nuclear incident.”<sup>2</sup> Consistent with international practice, the agreement specifies that “[t]he legal mechanism shall include the channeling of liability in the event of a nuclear incident to the operator on the basis of absolute liability.”<sup>3</sup>

In this connection, North Korea must also ensure that the operator—a North Korean entity—is able to satisfy potential claims for nuclear damage.<sup>4</sup>

North Korea has not yet enacted legislation, referred to as “channeling legislation,” to establish its legal and financial mechanism for implementing its responsibilities under the Agreed Framework. In the next few years, KEDO intends to help North Korea draft the required legislation

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<sup>2</sup>Article XI, section 1 of the supply agreement. As used in the supply agreement, a “nuclear incident” is “any occurrence or series of occurrences having the same origin, which causes nuclear damage.” The definition derives from the Vienna Convention on Civil Liability for Nuclear Damage, 16197 U.N.T.S. 266-67 (1977).

<sup>3</sup>The practice of “channeling liability” to the operator of a nuclear plant is commonly used in the field of nuclear liability. The practice requires a nuclear plant operator to assume full liability for all damage resulting from a nuclear incident. This responsibility is consistent with those described in the two principal international agreements on third-party liability for nuclear accidents. Specifically, the Paris Convention of 1960 and the Vienna Convention of 1963 state that the operator of a nuclear installation is absolutely liable, regardless of fault, for all damage caused by a nuclear incident. In addition to the provision imposing absolute liability on the operator, the Paris and Vienna Conventions also contain provisions (1) limiting the amount of the operator’s liability, (2) establishing limited rights of recourse for operators, (3) requiring operators to maintain insurance or other financial security covering liability for nuclear damage, and (4) generally limiting jurisdiction of suits to the courts in the country where the nuclear incident occurs. (13706 U.N.T.S. 266-70; 16197 U.N.T.S. 268-72.) The United States, Japan, South Korea, and North Korea are not parties to these conventions. Consequently, none are bound by the conventions’ provisions.

<sup>4</sup>Under article XI, section 5 of the supply agreement, the legal mechanism may provide a right of recourse for the reactors’ operator if the damage is caused by (1) the gross negligence of the person suffering the nuclear damage or (2) intentional acts.

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and to monitor North Korea's efforts to establish the financial mechanism for paying possible nuclear damage claims.

The supply agreement also contains a second provision that precludes North Korea from bringing any nuclear damage or loss claims against KEDO and its contractors and subcontractors.<sup>5</sup> The scope of this provision is broad and, according to KEDO, covers claims for nuclear damage caused both before and after the reactors have been turned over to North Korea. Third, the supply agreement explicitly states that North Korea shall seek recovery solely from the property and assets of KEDO for any claims arising (1) under the supply agreement or (2) from any actions of KEDO and its contractors and subcontractors.<sup>6</sup> Correspondingly, the KEDO agreement states that “[n]o member shall be liable, by reason of its status or participation as a Member, for acts, omissions, or obligations of the Organization.”<sup>7</sup>

Taken together, the described provisions appear to bar North Korea from making any nuclear claims against KEDO's member countries—including the United States—in North Korean courts.<sup>8</sup> However, none of the existing provisions explicitly precludes claims by North Korean nationals or North Korean nongovernmental entities. According to KEDO, it intends to ensure that the channelling legislation, when enacted by North Korea, will protect KEDO and its members from possible claims from these sources.<sup>9</sup>

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<sup>5</sup>Article XI, section 3, of the supply agreement.

<sup>6</sup>Article IV, section 10, of the supply agreement.

<sup>7</sup>Article XIII, section (b), of the KEDO agreement.

<sup>8</sup>These provisions would also appear to bar North Korea from making claims outside of North Korea.

<sup>9</sup>According to the Department of State, the channeling legislation, when enacted, will preclude North Korea from bringing suits either inside or outside North Korea.

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## **Planned Protections Against Nuclear Claims by Third Parties Also Appear Sufficient**

The largest concern of KEDO and KEDO's members may be nuclear damage claims brought by third parties in courts and tribunals outside of North Korea. Unlike the Paris and Vienna Conventions—the principal international conventions on third-party nuclear liability—which include provisions limiting the jurisdiction for hearing claims to the courts in the country where the nuclear incident occurs, the supply agreement does not preclude claims from being brought in jurisdictions outside of North Korea.<sup>10</sup>

Although there does not appear to be any clear principle of international customary law governing the extent of a country's liability for nuclear damage, it is generally recognized that a country is liable for damage caused to the environment of another country.<sup>11</sup> Thus, once North Korea assumes control over the reactors, North Korea and the operator of the reactors would likely become the primary targets of claims for nuclear damage incurred outside of the country. Nevertheless, lawsuits could also be brought against KEDO and its members. To help address this possibility, the supply agreement requires North Korea to (1) enter into an agreement for indemnifying KEDO and (2) secure nuclear liability insurance or other financial security to protect KEDO and its contractors and subcontractors from any third-party claims in any court or forum resulting from a nuclear incident from the North Korean reactors.<sup>12</sup> Also, as discussed earlier, the KEDO agreement contains a general limitation-of-liability provision which specifies that KEDO members are not liable for the actions or obligations of KEDO.<sup>13</sup> This provision also appears to cover nuclear damage liability for lawsuits brought outside of North Korea.

The provision requiring indemnification and insurance is intended to provide KEDO with adequate protection against suits brought in courts outside of North Korea. Even so, as the provision is written, the indemnity and insurance protections extend only to KEDO and its contractors and

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<sup>10</sup>Because the supply agreement is an agreement between KEDO and North Korea, it could not bind third-party countries. A State Department official told us that the international community is currently negotiating a "supplementary funding convention" that will link the international conventions on nuclear liability. The official expects that the supplementary convention will include a provision limiting jurisdiction for hearing claims to the courts of the country in which a nuclear reactor is located. Assuming that such a provision is enacted and ratified by North Korea, any country that is a party to this convention and that is damaged by a nuclear incident in North Korea would have to bring its claims in North Korea.

<sup>11</sup>Trail Smelter Case (United States v. Canada), 3 R. Int'l. Arb. Awards 1905 (1941); The Corfu Channel Case (United Kingdom v. Albania), 1949 I.C.J. 4. See Oxhorn, The Norms of Nuclear Accidents after Chernobyl, 8 J. Nat. Resources & Env'tl. L. 391-93 (1992-93).

<sup>12</sup>Article XI, section 2, of the supply agreement.

<sup>13</sup>Article XIII, section (b), of the KEDO agreement.



subcontractors, not specifically, to KEDO's members.<sup>14</sup> Thus, it is not clear that these protections would cover possible awards by foreign courts against individual KEDO members, including the United States. Furthermore, the supply agreement does not address the extent of the indemnity and insurance protections that must be obtained, leaving questions about whether North Korea will be required to indemnify KEDO (1) for the entire amount of any damage awards obtained in foreign courts or for some fixed, lesser amount and (2) if North Korea's insurance and other financial security do not cover all claims.

In addition to the indemnity and insurance protections that the United States will have as a member of KEDO, even if a foreign court entertained a nuclear damage claim against the United States, the United States could assert the defense of "sovereign immunity"<sup>15</sup> as a bar to the court's hearing the claim.<sup>16</sup> Moreover, consistent with choice of law principles, a foreign court could choose to apply North Korean law in nuclear damage claim actions. As discussed earlier, this would be the prospective channeling legislation that, with few exceptions, would make the North Korean operator absolutely liable for nuclear damages.

The issue of whether KEDO's members could be found liable in foreign courts for KEDO's activities depends, in large part, on whether KEDO would be recognized as (1) a separate international entity with its own "legal personality" or (2) an entity of the United States, the Republic of Korea (South Korea), and Japan—the three original KEDO members. If the former, presumably lawsuits would be directed exclusively against KEDO; but if the latter, lawsuits could be directed against individual KEDO members.

According to the International Court of Justice, an international organization is viewed as having a separate legal personality or identity from its creators if the organization (1) is capable of possessing and

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<sup>14</sup>According to the State Department, extending the indemnification and insurance requirements to KEDO's members would not have been consistent with KEDO's status as an independent entity. State maintains that KEDO's member countries will be adequately protected from liability by KEDO's independent status, by protections in the KEDO and supply agreements, and by the defense of sovereign immunity. This appendix addresses each of these topics.

<sup>15</sup>Under the principle of sovereign immunity, a "sovereign"—such as a country—cannot be sued in its own courts or in any other court without its consent. The United States generally considers itself immune from claims arising out of governmental activities, but not from those arising from "activities of a kind carried on by private persons . . . notably commercial activities." Restatement (Third) Foreign Relations Law of the United States, § 451 and 451, comment a (hereinafter, Restatement of Foreign Relations).

<sup>16</sup>Even if a foreign court awarded a judgment against the United States, the United States could assert, either in a foreign or domestic court, that it should not be enforced. Restatement of Foreign Relations, introductory note to pt. IV, ch. 5, § 451, comment a, 454.

asserting international rights and duties, (2) has its own organizational structure, and (3) cannot discharge its functions without a separate legal identity.<sup>17</sup> In this connection, one authority on international law has written that when the legal personality of an international organization is questioned, some of the issues that must be addressed are whether the organization (1) was set up by countries for an independent activity related to the functioning of the international community; (2) has specific functions that are consistent with the realization of that purpose; and (3) is independent of the directions of the organization’s member countries.<sup>18</sup>

Much of the contents of the KEDO agreement suggest that KEDO was intended to be an international organization with a separate and distinct legal personality. First, the agreement was concluded by the United States, Japan, and South Korea for the purpose of carrying out the light-water reactor project—a project arguably of importance to the international community. Second, each of the original KEDO members has equal representation on KEDO’s Executive Board—the body authorized to carry out KEDO’s functions—and the agreement contemplates that additional countries may become members.<sup>19</sup> Third, the agreement clearly anticipates the involvement of other countries and international entities to carry out the light-water reactor project.<sup>20</sup> For example, the agreement authorizes KEDO to (1) receive funds from other countries; (2) coordinate with public entities—including countries and national and international institutions; and (3) conclude agreements, contracts, and other arrangements with international organizations for the purpose of implementing the project. Finally, the agreement

- provides that the executive director—KEDO’s chief administrative officer and his staff—shall (1) “not seek or receive instructions from any government or from any other authority external to the Organization” and (2) “refrain from any action that might reflect on their position as international officials responsible only to the Organization;”
- calls upon “[e]ach Member . . . to respect the exclusively international character of the responsibilities of the Executive Director and the staff . . . ;” and

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<sup>17</sup>Reparation for Injuries Suffered in the Service of the United Nations, 1949 I.C.J. 174, 179; Restatement of Foreign Relations, § 223.

<sup>18</sup>1 O’Connell, International Law 98 (2d ed. 1970).

<sup>19</sup>The United States, Japan, and South Korea each have one member on KEDO’s Executive Board. Through the end of August 1996, six other countries—Australia, Canada, Chile, Finland, Indonesia, and New Zealand—had joined KEDO. Efforts continue to recruit additional KEDO members, and according to the State Department, Argentina, Brazil, and France are expected to become members soon.

<sup>20</sup>Article III of the KEDO agreement.

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- confers on KEDO functions that are characteristic of an entity with a separate legal personality. For example, the agreement states that KEDO “shall possess legal capacity, and, in particular, the capacity to: (1) contract; (2) lease or rent real property; (3) acquire and dispose of personal property; and (4) institute legal proceedings.”<sup>21</sup>

Taken together, the provisions in the KEDO agreement provide strong support that KEDO is an international organization with separate legal status. We reach this conclusion notwithstanding that certain aspects of the KEDO agreement suggest the contrary. First, unlike the work of many international organizations, KEDO’s purpose is specific, intended to be relatively short-lived, and, as reflected in the Agreed Framework, substantially initiated by one party—the United States.<sup>22</sup> Moreover, although the supply agreement between KEDO and North Korea specifically recognizes KEDO as an international organization with an identity separate from its members, North Korea—the principal beneficiary of the reactor project—is the only other party to that agreement. Furthermore, while other countries can join KEDO, they cannot become members of KEDO’s Executive Board.<sup>23</sup> And, finally, the KEDO agreement does not state that (1) KEDO is intended to be an international organization with a separate legal personality or (2) the agreement is to be governed by international law.<sup>24</sup>

The argument that KEDO could be viewed as essentially a U.S. entity is also supported by KEDO’s personnel structure. The KEDO agreement confers broad authority on KEDO’s executive director to carry out KEDO’s activities.<sup>25</sup> The executive director is currently a United States citizen, and if a replacement is needed, the new executive director would likely be a United States citizen.<sup>26</sup> Furthermore, U.S. citizens occupy almost half of

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<sup>21</sup>The three provisions are in article VIII of the KEDO agreement.

<sup>22</sup>According to State, KEDO and KEDO’s purpose were defined by the United States, Japan, and South Korea in the KEDO agreement as well as through close consultations during negotiations on the Agreed Framework.

<sup>23</sup>According to State, KEDO may amend the KEDO agreement to allow other KEDO members to join KEDO’s Executive Board. Such an amendment would require the written agreement of KEDO’s three original members.

<sup>24</sup>State says that the charters of many international organizations do not explicitly state that they are international organizations and that agreements between states are presumed to be governed by international law absent a provision to the contrary, 22 C.F.R. § 181.2(1).

<sup>25</sup>Article VIII of the KEDO agreement.

<sup>26</sup>This is consistent with the understanding in the Agreed Framework that the “U.S. will organize under its leadership an international consortium to finance and supply the light-water reactor project.”

the high-level positions in KEDO's organizational structure.<sup>27</sup> The supply agreement also specifies that the architectural and engineering firm that KEDO will use to oversee the light-water reactor project will be a U.S. firm.<sup>28</sup>

On balance, we believe that the reasons for finding KEDO to be an international organization with separate and distinct legal status from its members outweigh the reasons to the contrary. As a result, we believe that foreign courts should uphold KEDO's status as an independent entity and, thus, not allow suits against individual KEDO members—including the United States. Nevertheless, we cannot predict how foreign courts would decide—a caveat that also applies to the general limitation-of-liability provision in the KEDO agreement. As discussed earlier, this provision precludes the liability of KEDO's members for the actions of KEDO. However, foreign courts in those countries that are not bound by the KEDO agreement could choose not to apply the protection for nuclear damage claims.<sup>29</sup> This issue could be significant, for example, in suits brought in the People's Republic of China and Russia—third-party countries that would appear to be the most likely to suffer damage from a nuclear incident in North Korea.

KEDO recognizes that it must build upon the foundation of coverage already provided in the supply and KEDO agreements to fully shield itself and its members from possible third-party nuclear liability claims. As a result, in a future agreement—termed a “protocol”—KEDO intends to ensure that the specific indemnity and insurance protections that it negotiates are also extended to KEDO's members.<sup>30</sup> In addition, according to KEDO, the protocol will establish the level of indemnity protection to be provided—an amount

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<sup>27</sup>The KEDO agreement provides for two deputy executive directors—one from South Korea and the other from Japan. Three of the seven high-level positions below the level of deputy executive director are occupied by U.S. citizens. According to the State Department, KEDO's personnel structure is consistent with its status as an international organization, as the top 10 positions (including the executive director and the two deputy directors) are held by four United States citizens, three Japanese citizens, and three South Korean citizens.

<sup>28</sup>Article IV, section 2, of the supply agreement.

<sup>29</sup>As a general matter, countries do not have to recognize the legal personality of an international organization if (1) they are not a member of the organization, (2) the organization has few members, or (3) the organization is regional in scope and the country does not belong to that region. Restatement of Foreign Relations, § 223, comment e. To date, we are not aware of any countries—other than North Korea and the nine current KEDO members, primarily through their membership in KEDO—that have recognized KEDO's independent status. In this regard, the United States has specifically recognized KEDO as an international organization under the International Organizations Immunities Act, 22 U.S.C. § 288.

<sup>30</sup>KEDO expects to begin negotiations on the agreement with North Korea in early 1997.

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which, at a minimum, will be consistent with international norms.<sup>31</sup> Finally, KEDO plans to negotiate additional liability, indemnification, and insurance protections in its future contracts with contractors and subcontractors. According to KEDO, “[u]nless and until KEDO and its members consider that all aspects of the risk management program are in place, KEDO will not ship any fuel assemblies to the DPRK [North Korea] or allow commissioning of the LWR [light-water reactor] plants—without which there can be no possibility of nuclear liability for KEDO, or for its members.”

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## **KEDO Also Plans to Address Other Sources of Potential Nuclear Liability**

At least two other sources of potential nuclear liability could affect the United States as a KEDO member. These include liability for nuclear damage occurring before the transfer of the reactors to North Korea and from nuclear waste disposal activities in North Korea.<sup>32</sup>

First, KEDO is responsible for overseeing the light-water reactor project prior to transferring the completed reactors to North Korea. KEDO’s obligations include (1) ensuring that the design, manufacture, construction, testing, and commissioning of the light-water reactor plants are done safely and (2) testing the reactors before North Korea’s takeover.<sup>33</sup> KEDO recognizes that a nuclear incident could occur during the reactors’ commissioning and testing period. However, it contends that the radiological effects of any discharges or omissions would be minimal, unlikely to give rise to substantial claims, and, in all likelihood, limited to North Korea.

The supply agreement does not specifically deal with nuclear liabilities arising before the reactors are transferred to North Korea. However, as discussed earlier, the agreement prohibits North Korea from bringing any nuclear damage or loss claims against KEDO—a prohibition that KEDO and

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<sup>31</sup>KEDO also plans to negotiate a protection in the protocol that would specifically prevent North Korea from using the defense of sovereign immunity to avoid its responsibilities for providing indemnity and insurance protections. However, the State Department considers the additional protection unnecessary because, in its view, the indemnity and insurance protections required under the supply agreement will apply regardless of whether North Korea asserts sovereign immunity in lawsuits in foreign courts.

<sup>32</sup>Under Annex 1, section 9, of the supply agreement, KEDO is also responsible for providing nuclear fuel for the reactors’ initial loading—a responsibility that could expose it to liability if an accident occurs in transporting the fuel to North Korea. However, such an accident is not likely to involve a nuclear liability. According to KEDO, it intends to address this potential liability in its contracts with fuel suppliers and transporters.

<sup>33</sup>Article X, sections 1 and 2, and Annex 1, section 7, of the supply agreement.

State believe covers such liabilities.<sup>34</sup> KEDO still wants to ensure that it is never the “operator” of the reactors since it lacks the technical capability to perform the testing and because it wants to avoid potential liabilities that could flow to the “operator” under the channeling legislation. Thus, KEDO plans to structure the arrangements for the reactors’ testing so that North Korea, a North Korean entity, or a KEDO contractor is the operator during the testing period. While the respective views of these entities is not known, it seems unlikely that another party would assume the responsibility for testing the reactors without being compensated by KEDO.

A second area of potential liability involves the disposal of nuclear waste. As specified in the Agreed Framework,<sup>35</sup> North Korea is primarily responsible for the safe storage and disposal of radioactive wastes and spent fuel—the by-product of the reactors. As a result, in the event of nuclear damage outside of North Korea, North Korea would likely be the primary target for damage claims. However, the agreement also requires KEDO to cooperate with North Korea to ensure the safe storage and disposition of the light-water reactors’ spent fuel—a role that could expose KEDO and its members to liability.<sup>36</sup> According to KEDO, its authority under the supply agreement to require North Korea to relinquish ownership of the nuclear waste from the light-water reactors and to transport the fuel out of North Korea, as well as the future agreement between KEDO and North Korea on the safe disposal of the waste, will allow KEDO to structure the waste disposal arrangements to avoid any liability on the part of KEDO. This protocol is not expected to be negotiated for several years.

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## Information on Other Nuclear Liability and Safety-Related Requirements

The following sections provide information on other nuclear liability and safety-related requirements in the supply agreement.

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<sup>34</sup>Article XI, section 3, of the supply contract. As discussed earlier, the scope of the provision is broad and, according to KEDO, covers claims for nuclear damage both before and after the reactors have been turned over to North Korea.

<sup>35</sup>Article X, section 3, of the supply contract.

<sup>36</sup>Consistent with our earlier discussion, KEDO’s members could also be subject to liability in suits brought in foreign courts. Nevertheless, in State’s view, cooperation of this kind does not create such a risk.

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**North Korea's Participation  
in Nuclear Liability  
Conventions and the  
Enactment of Laws  
Establishing a Nuclear  
Liability Regime**

To the best of our knowledge, North Korea is not currently a party to any existing international conventions on nuclear liability. Furthermore, although the supply agreement requires North Korea to ensure that a legal and financial mechanism is available for satisfying nuclear claims brought within North Korea, to our knowledge, North Korea has not yet (1) established this mechanism nor (2) enacted domestic legislation on nuclear liability.

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**Responsibilities for  
Monitoring, Verifying, and  
Approving the Safe  
Operations of the Reactors  
and for Qualifying Plant  
Operators**

North Korea is responsible for (1) the safe operation and maintenance of the light-water reactors, (2) ensuring appropriate physical and environmental protections, and (3) cooperating with KEDO for the safe storage and disposal of radioactive waste, including spent fuel, in accordance with a set of codes and standards equivalent to those of the IAEA and the United States.<sup>37</sup> The supply agreement also requires North Korea to implement appropriate nuclear regulatory standards and procedures to ensure the safe operation and maintenance of the light-water reactors.

The supply agreement also imposes monitoring and reviewing responsibilities.<sup>38</sup> Specifically, after the completion of the light-water reactors, KEDO and North Korea are required to conduct safety reviews to ensure the reactors' safe operation and maintenance. North Korea must provide the necessary assistance to enable expeditious reviews and give due consideration to the results of such reviews.<sup>39</sup> In the event of a nuclear emergency or accident, North Korea must permit immediate access to the site and provide information to KEDO personnel so that they can determine the extent of safety concerns and provide safety assistance.

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<sup>37</sup>Article X of the supply agreement. Also, Article I, section 3.

<sup>38</sup>Article X of the supply agreement.

<sup>39</sup>In a separate letter to the supply agreement, dated Dec. 15, 1995, North Korea pledged that the safety reviews would be conducted on an annual or biennial basis and that the schedule of safety reviews would be specified in a separate agreement between North Korea and KEDO before North Korea takes over the first light-water reactor.

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KEDO must provide a comprehensive training program,<sup>40</sup> including a full-scope reactor simulator, which is standard nuclear industry practice.<sup>41</sup> The details of the training program are to be specified in a future agreement between KEDO and North Korea.

Consistent with standard nuclear industry practice, KEDO must also provide any technical support services that KEDO deems necessary for the operation and maintenance of the light-water reactors for 1 year after each reactor's completion. North Korea must provide qualified operators trained by KEDO to participate in the commissioning of the reactors.

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## Nuclear Safety During the Design, Construction, and Operation of the Reactors

KEDO is responsible for ensuring that the design, manufacture, construction, testing, and commissioning of the light-water reactors are in compliance with nuclear safety and regulatory codes and standards equivalent to those of the IAEA and the United States.<sup>42</sup> A KEDO official told us that KEDO's contract with the Korea Electric Power Corporation will obligate the contractor to design and construct the reactors in compliance with these codes and standards.

KEDO is also responsible for the design and implementation of a quality assurance program in accordance with the codes and standards of the IAEA and the United States.<sup>43</sup> The quality assurance program must include appropriate procedures for the design, materials, manufacture and assembly of equipment and components, and quality of construction.<sup>44</sup> KEDO must also guarantee that the major components provided by the contractors and subcontractors will be new and free from defects in design, workmanship, and material for 2 years after completion, but no longer than 5 years after the date of shipment of the reactors' major components. Furthermore, KEDO must guarantee that the civil construction work for the reactors will be free of defects in design, workmanship, and

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<sup>40</sup>Article VII and Annex 1 of the supply agreement. Furthermore, on Dec. 15, 1995, KEDO agreed to pay the reasonable travel and ground transportation expenses incurred by North Korean delegations during training at mutually agreed-on locations outside of North Korea.

<sup>41</sup>A full-scope reactor simulator is used to train nuclear power plant operators. The simulator duplicates the actual plant's control room, with all the indicators and controls arranged as they appear in the actual plant. The simulators also include computer programs capable of imitating the plant's systems and operations, giving trainees hands-on experience in operating the nuclear plant.

<sup>42</sup>Article X of the supply agreement.

<sup>43</sup>Article VI of the supply agreement.

<sup>44</sup>KEDO must provide North Korea with appropriate documentation on the quality assurance program, and North Korea shall have the right to participate in the implementation of the program. Details in this area are expected to be negotiated in a future agreement between KEDO and North Korea.



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**Appendix IV**  
**Existing and Planned Nuclear Liability**  
**Protections Appear Adequate**

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material for 2 years after completion. Finally, consistent with the nuclear industry's standard practice, KEDO must guarantee the fuel for the initial loading for each of the reactors.

North Korea also has safety responsibilities. Once KEDO completes the site survey, North Korea must issue a site takeover certificate granting KEDO permission to begin the preliminary work at the site. Following that—and before beginning the site's excavation—North Korea's nuclear regulatory authority must issue a construction permit to KEDO. The nuclear regulatory authority must also issue a commissioning permit that is based on its review of the final safety analysis report before KEDO can load the reactors' fuel. Finally, to support North Korea's issuance of an operating permit to the operator, KEDO must provide the results of the nuclear commissioning tests and the operator training records to North Korea.<sup>45</sup>

Prior to the shipment of any fuel assemblies to North Korea, North Korea must observe the provisions of several international conventions—the Convention on Nuclear Safety, the Convention on Early Notification of a Nuclear Accident, the Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency, and the Convention on the Physical Protection of Nuclear Material.<sup>46</sup> Furthermore, North Korea must (1) apply IAEA's safeguards to the reactors and any nuclear material transferred, used, or produced pursuant to the supply agreement and (2) provide effective physical protection, in accordance with international standards, for the reactors and these nuclear materials.<sup>47</sup>

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<sup>45</sup>KEDO must provide North Korea with the safety analysis reports and the necessary information, including information on the codes and standards, and other documents that KEDO deems necessary for North Korea to make the required determination.

<sup>46</sup>Article X of the supply agreement. The conventions specify the principles and practices related to the safe operation of nuclear reactors and related matters.

<sup>47</sup>Article XIII of the supply agreement.

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# An Agreement for Cooperation Is Not Yet Needed, but State Plans to Negotiate an Agreement if Necessary

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The Atomic Energy Act of 1954, as amended, (the act) requires the United States to execute an agreement for cooperation with a recipient nation or group of nations before exporting major U.S. reactor components or nuclear materials abroad.<sup>1</sup> It is too early to say whether the United States and North Korea will need to conclude an agreement for nuclear cooperation because the decisions about what, if anything, the United States will supply for the reactors have not yet been made. These uncertainties are likely to exist until at least 1997, when arrangements for supplying some of the equipment may be negotiated. Nevertheless, an agreement appears likely because a U.S. firm currently supplies a major component for the reactors expected to be supplied to North Korea.

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## Information About the Reactors to Be Supplied to North Korea

The supply agreement between KEDO and North Korea specifies that the reactors will be the “advanced version of U.S.-origin design and technology currently under production.” The referenced reactor—known as the Korean standard nuclear power plant—has two coolant loops and a generating capacity of about 1,000 MW(e). Reactors of this type are currently being built at South Korea’s Ulchin 3 and Ulchin 4 nuclear plants for the Korea Electric Power Company, the state-run utility and prime contractor for the light-water reactor project.

The Korean standard nuclear power plant is based on a U.S. design that was transferred to South Korea by Combustion Engineering, Inc.—a U.S. company. Beginning in 1987, Combustion Engineering, Inc., transferred its “System 80” reactor design technology, such as its technical documents and computer codes, and has since worked with South Korea in modifying the reactor’s design to meet South Korea’s particular needs, including differences in South Korea’s geology and topography. The resulting reactor combines Combustion Engineering, Inc.’s “System 80” technology with several advanced features of the company’s “System 80 +” reactor technology.<sup>2</sup>

South Korea manufactures most of the equipment needed for its reactors. However, it relies on Combustion Engineering, Inc., to manufacture and supply a large portion of the equipment for its reactors’ nuclear steam

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<sup>1</sup>Act of Aug. 30, 1954, 68 Stat. 921. The act was amended by the Nuclear Non-Proliferation Act of 1978, Pub. L. 95-242, 92 Stat. 120.

<sup>2</sup>“System 80” is a licensed U.S. reactor design used in the three operating Palo Verde nuclear plants owned by the Arizona Public Service Co. “System 80+” is an advanced version of “System 80.” The Nuclear Regulatory Commission (NRC) approved the final design for “System 80+” in July 1994 and expects to certify the new reactor for use in the United States soon.

supply system,<sup>3</sup> including reactor coolant pumps—a major reactor component. The company supplies its reactor equipment and technology under subcontracts with South Korean entities, including the Korea Heavy Industries & Construction Co., Ltd., and the Korea Atomic Energy Research Institute.

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## **An Agreement for Cooperation Is Not Yet Needed, but State Plans to Negotiate One if It Becomes Necessary**

Section 123 of the act provides that the United States must execute an agreement for peaceful nuclear cooperation before major reactor components or nuclear materials may be exported from the United States.<sup>4</sup> As discussed, Combustion Engineering, Inc., manufactures and supplies coolant pumps—a major component—for the standard South Korean reactor. If South Korea contracts with Combustion Engineering, Inc., for this component for the North Korean reactors, an agreement for nuclear cooperation between the United States and North Korea will be needed.

Under the act, agreements for cooperation must include the terms, conditions, duration, nature, and scope of the cooperation. The act sets forth nine requirements that must be met in an agreement for cooperation.<sup>5</sup> Specifically, the cooperating party must agree to

- safeguard all transferred items as long as the items remain under the control of the cooperating party;
- apply full-scope IAEA safeguards;<sup>6</sup>
- use any items transferred solely for peaceful purposes;
- return any transferred items if requested by the United States (if the recipient detonates a nuclear explosive device or terminates or violates an agreement providing for IAEA's safeguards);

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<sup>3</sup>The nuclear steam supply system is the combination of all systems needed to produce the steam that drives a reactor's turbine generator for the production of electricity. The nuclear steam supply system includes the reactor, its control and cooling systems, and other reactor equipment that is intended to prevent or mitigate the consequences of a nuclear accident. The remaining equipment in a nuclear power plant is termed "balance of plant." South Korea manufactures its nuclear steam supply equipment under licenses with Combustion Engineering, Inc.

<sup>4</sup>Major components include reactor pressure vessels, reactor coolant pumps, and complete reactor control rod systems. Nuclear materials (fuels) are source materials (including uranium or thorium), special nuclear material (plutonium, uranium-233, or certain enriched uranium), and related byproducts.

<sup>5</sup>The act does not list diplomatic relations as a requirement for an agreement between the United States and a recipient country. However, with respect to the North Korean project, the Agreed Framework anticipates establishing liaison offices between the countries in the near future and full diplomatic relations "as progress is made on issues of concern to each side."

<sup>6</sup>In the early 1960s, IAEA established an inspection program based on a system of technical measures, referred to as safeguards, designed to detect the diversion of significant quantities of nuclear material.

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**Appendix V**  
**An Agreement for Cooperation Is Not Yet**  
**Needed, but State Plans to Negotiate an**  
**Agreement if Necessary**

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- transfer any U.S. nuclear items to a third country only if it obtains the prior approval of the United States;
- maintain adequate physical security over the transferred items;
- provide the United States with a right of consent over reprocessing, enrichment, and alteration in form or content;
- provide the United States with a right of consent over how certain specified nuclear materials will be stored; and
- provide the United States with guaranties and consents applicable to sensitive nuclear technology.<sup>7</sup>

The act requires that any proposed agreement for cooperation be negotiated by the Secretary of State, with the technical assistance and concurrence of the Secretary of Energy and in consultation with the Director of the Arms Control and Disarmament Agency and the NRC. The Secretaries of State and Energy are responsible for jointly submitting the proposed agreement to the President. The proposed agreement is to be accompanied by a Nuclear Nonproliferation Assessment Statement—prepared by the Arms Control and Disarmament Agency—which, among other things, must analyze the consistency of the agreement with the act’s requirements.<sup>8</sup>

If the proposed agreement is approved by the President, the act requires him to submit the agreement to the appropriate committees of the Congress, along with a written determination that the proposed agreement will promote, not constitute an unreasonable risk to, the country’s common defense and security.<sup>9</sup>

The need for a future agreement between the United States and North Korea has not yet been resolved because of uncertainties about whether

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<sup>7</sup>“Sensitive nuclear technology” involves enrichment, reprocessing, and heavy water production technologies. The reactors to be provided to North Korea do not involve these technologies. Consequently, this requirement would not be applicable to this project.

<sup>8</sup>42 U.S.C., § 2153(a).

<sup>9</sup>The act provides two review periods for congressional consideration. The first period lasts for not less than 30 days of a continuous session of the Congress and contemplates consultation between the Congress and the President concerning the consistency of the proposed agreement with statutory requirements. The second period is for 60 days of a continuous session of the Congress, during which specified committees hold hearings and recommend whether the agreement should be approved or disapproved. In the past, the two periods of congressional review routinely have been telescoped into one 90-day period of continuous session, a practice consistent with the legislative history of the provision. If the Congress finds that the agreement is consistent with the law, it becomes effective after the expiration of the 90-day period unless the Congress passes, and enacts, a joint resolution of disapproval. Agreements that do not meet all statutory requirements must be submitted with a presidential exemption for noncomplying provisions and can enter into force only if the Congress adopts a joint resolution of approval.

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**Appendix V**  
**An Agreement for Cooperation Is Not Yet**  
**Needed, but State Plans to Negotiate an**  
**Agreement if Necessary**

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the Korea Electric Power Company or other South Korean nuclear entities, such as the Korea Heavy Industries & Construction Co., Ltd., will contract with Combustion Engineering, Inc., for the supply of major reactor components.<sup>10</sup> These uncertainties are likely to remain until at least the spring of 1997, when Combustion Engineering, Inc., officials hope to receive a request to supply the major reactor components for the project.<sup>11</sup> According to these officials, a request is needed soon because of the long lead time—about 3 years—for manufacturing the components.

An agreement for cooperation will be required if Combustion Engineering, Inc., exports a major reactor component for the project. The Department of State is prepared for this possibility and, as part of the Agreed Framework, has already secured North Korea's commitment to execute one if it becomes necessary.<sup>12</sup> Specifically, the Agreed Framework states, “[a]s necessary, the U.S. and the DPRK [North Korea] will conclude a bilateral agreement for cooperation in the field of peaceful uses of nuclear energy.”<sup>13</sup>

If an agreement is executed, according to State, it would not seek to waive any of the statutory requirements for an agreement for cooperation.<sup>14</sup> However, State said that it would need to seek a waiver of section 129 of the act if a U.S. company seeks to transfer major equipment for the light-water reactor project pursuant to an agreement for cooperation with North Korea. That section of the act prohibits U.S. exports of major reactor components, nuclear materials, or sensitive nuclear technology to any country—such as North Korea—that has, among other things,

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<sup>10</sup>Uncertainties also exist about whether the United States will supply nuclear materials for the project. We were unable to determine when the issue of fuel supply will be resolved.

<sup>11</sup>The contract between KEDO and the Korea Electric Power Company for supplying the reactors is not expected until the first quarter of 1997. Subcontracting supplier arrangements, including a possible contract to Combustion Engineering, Inc., would be negotiated later.

<sup>12</sup>According to State, an agreement for cooperation between the United States and North Korea will also be needed if the United States exports U.S. nuclear materials and/or major components for the project through some third country, such as South Korea.

<sup>13</sup>Similarly, the supply agreement between KEDO and North Korea states, “[i]n the event that U.S. firms will be providing any key nuclear components, the U.S. and DPRK [North Korea] will conclude a bilateral agreement for peaceful nuclear cooperation prior to the delivery of such components.” The agreement also includes numerous North Korean assurances addressing most of the recipient-country guarantees required under the act.

<sup>14</sup>The act allows the President to exempt an agreement for cooperation from containing any of the nine requirements if he determines that inclusion of the requirement would be seriously prejudicial to the achievement of the U.S. non-proliferation objectives or otherwise jeopardize the country's common defense and security. The President cannot, however, waive the statutory requirement for an agreement for cooperation.

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**Appendix V**  
**An Agreement for Cooperation Is Not Yet**  
**Needed, but State Plans to Negotiate an**  
**Agreement if Necessary**

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materially violated an IAEA safeguards agreement.<sup>15</sup> According to State, it will neither seek to waive section 129 nor bring into force an agreement for cooperation until North Korea has complied fully with its IAEA safeguards agreement, as called for in the Agreed Framework.<sup>16</sup> In connection with an agreement for cooperation, State also noted that since any transfers of major U.S. reactor components would not occur for many years, the United States would have time to assess North Korea's performance and decide whether an agreement should be concluded.<sup>17</sup>

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<sup>15</sup>Section 129 of the act allows exports that would otherwise be prohibited if the President determines that the "cessation of such exports" would seriously prejudice U.S. nonproliferation objectives or jeopardize the nation's common defense and security. If the President makes such a determination with respect to North Korea, he must forward the determination and a report to the Congress. The determination takes effect unless the Congress, within 60 days of continuous session, adopts a concurrent resolution disapproving the determination. (App. II provides information about North Korea's past safeguards violations.)

<sup>16</sup>According to the State Department, it is possible that, for timing purposes, an agreement would be concluded and submitted to the Congress for consideration with a condition that the agreement would not come into force until North Korea has complied fully with its IAEA safeguards agreement.

<sup>17</sup>The Agreed Framework specifies that North Korea must "come into full compliance with its safeguards agreement with the IAEA" after a significant portion of the project is completed, but before the delivery of the key nuclear components. According to the available estimates, if the project continues, this event will occur in about 4-1/2 years.

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# Scope and Methodology

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To determine whether the Agreed Framework is a nonbinding political arrangement, we reviewed and analyzed the contents of the Agreed Framework; the agreement establishing KEDO; and the supply agreement between KEDO and North Korea; relevant U.S. laws, including the Case-Zablocki Act and its legislative history; congressional reports on the act; and State's regulations for assessing when a U.S. undertaking constitutes an international agreement under the act. We also reviewed and analyzed constitutional requirements for treaties; the texts of other U.S. international agreements; reports of international authorities describing, among other things, the factors in assessing whether an agreement is nonbinding; the text and legislative history of the Congress's fiscal year 1996 appropriation for the North Korean project; and the President's October 20, 1994, letter of assurance to the Supreme Leader of North Korea.

In addition, we interviewed cognizant State Department officials to discuss State's criteria for determining when to structure international arrangements as treaties, other forms of binding international agreements or nonbinding political arrangements, and State's rationale for structuring the Agreed Framework as it did. We used information obtained from these sources to evaluate how the Agreed Framework's structure affects (1) the legal enforceability of the agreement and (2) congressional oversight. We also used this information to assess how these areas would have been affected if the Agreed Framework had been structured as a binding international agreement, such as a treaty.

To determine whether the United States could be held financially liable for a nuclear accident involving the North Korean light-water reactors, we reviewed and analyzed the KEDO and supply agreements; congressional hearings; international conventions on nuclear liability, including the Paris Convention of 1960 and the Vienna Convention of 1963; relevant decisions by international, foreign, and U.S. courts as well as the views of authorities on international nuclear liability; documentation describing KEDO's "comprehensive risk management program;" and evaluations of KEDO and member state liability, including an assessment by an international authority on nuclear liability. We also conducted extensive interviews with cognizant State and KEDO officials to discuss the adequacy of existing nuclear liability protections, future actions that could affect the issue of nuclear liability, and KEDO's plan to secure additional protections. Finally, we reviewed State's reply to the Committee's August 14, 1995, letter to State on this topic and factored State's responses into our analyses, as appropriate.

To determine whether the United States is responsible for the cost of upgrading North Korea's existing power grid, we reviewed and analyzed the contents of the supply agreement and reports from congressional hearings related to the issue of the grid upgrades. We also interviewed State and KEDO officials about the results of past negotiations with North Korea on the topic and their positions on who is responsible for paying for the upgrades.

Finally, to determine whether the Agreed Framework is being implemented consistent with the applicable laws governing the transfer of U.S. nuclear components, materials, and technology, we reviewed and analyzed the Agreed Framework; the supply agreement; applicable U.S. laws—including the Atomic Energy Act of 1954, as amended by the Nuclear Non-Proliferation Act of 1978; the related legislative histories of these acts; relevant regulations governing the transfers; and KEDO's request for proposals for a technical support contractor. We also reviewed and analyzed the authorizations granted by the Department of Energy (DOE) for transferring U.S. reactor technology for the North Korean project, including the U.S. companies' requests for the DOE authorization, DOE's analysis of the requests, and the views of other agencies about the proposed transfers. In addition, we reviewed the contents of DOE's authorizations for U.S. technology transfers to other countries requiring a special authorization.

We also interviewed State and DOE attorneys as well as the official responsible for administering DOE's process for authorizing U.S. technology transfers. Furthermore, we contacted officials at the Nuclear Regulatory Commission, KEDO, and Combustion Engineering, Inc., to obtain their views on possible U.S. exports for the project.<sup>1</sup> Finally, we reviewed responses to the Committee's August 14, 1995, and February 1, 1996, letters to State and DOE, respectively, on this topic and incorporated the agencies' responses into our analyses, as appropriate.

As agreed with the office of the Chairman of the Senate Committee on Energy and Natural Resources, in a subsequent review we will address, among other things, (1) the status of the implementation of the Agreed Framework's various provisions, including progress on bilateral issues of concern between the United States and North Korea; (2) the costs associated with the agreement; and (3) how procurements will be handled.

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<sup>1</sup>We had also planned to contact the Korea Electric Power Corporation—the prime contractor for the project—to discuss the likelihood of U.S. exports for the project. However, due in part to ongoing negotiations between KEDO and the corporation, we were unable to obtain a contact there.



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