

## An Analysis of the U.S.-China Nuclear Energy Cooperation Agreement

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## NOTES AND COMMENTS

### AN ANALYSIS OF THE U.S.-CHINA NUCLEAR ENERGY COOPERATION AGREEMENT

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#### I. INTRODUCTION

On April 30, 1984, President Reagan and representatives of the People's Republic of China initialed an agreement for cooperation for the peaceful uses of nuclear energy. On July 23, 1985, Secretary of Energy John S. Herrington and China's Vice Premier Li Peng signed

the agreement.<sup>1</sup> On July 24, 1985, President Reagan sent the agreement to Congress where it remained for ninety days of continuous session before it went into effect in December, 1985.<sup>2</sup> However, the China Agreement generated a great deal of controversy regarding its compliance with U.S. non-proliferation laws.

Secretary of State George Shultz stated that the agreement is "good and sound, and fully consistent with all the provisions of our law."<sup>3</sup> Secretary Shultz also stated that the agreement with China produced significant and positive results in nuclear non-proliferation, culminating in China's joining the International Atomic Energy Agency (IAEA).<sup>4</sup>

However, some members of Congress strongly opposed the approval of the agreement. Senator John Glenn stated that "[t]he U.S.-China agreement is seriously flawed but salvageable."<sup>5</sup> Given China's prior nuclear plant in Pakistan,<sup>6</sup> Senator Alan Cranston expressed his concern with whether the agreement would be consistent with U.S. non-proliferation and national security interests. Other Senators and Congressmen were concerned with reports that China might be building a nuclear plant in Pakistan.<sup>7</sup>

Once again, the U.S. Atomic Energy Act (AEA) of 1954 was tested. Section 123 of the AEA requires nuclear safeguards and U.S. consent rights for the reprocessing of U.S.-supplied fuel.<sup>8</sup> Although the

1. The Agreement for Cooperation Between The Government of United States of America and The Government of the People's Republic of China Concerning Peaceful Uses of Nuclear Energy is provided in Appendix A.

2. In order to have prevented this agreement from going into effect, both houses of Congress were required to disapprove of the agreement. However, this did not occur. Omang, *Nuclear Pact with China Wins Senate Approval*, Wash. Post, Nov. 22, 1985, A3.

3. W. H. DONNELLY, M. MARTEL, *NUCLEAR ENERGY: CONGRESSIONAL CONSIDERATION OF THE PROPOSED AGREEMENT FOR U.S. NUCLEAR COOPERATION WITH CHINA*, (1985) (Library of Congress, Congressional Research Service Issue Brief No. IB84102) [hereinafter cited as CRS-China].

4. *See id.* The IAEA is an international organization established in 1956 with its headquarters in Vienna, Austria. The purpose of the IAEA is to provide safeguards for nonproliferation of nuclear weapons. For more information on the IAEA *see* International Atomic Energy Agency, *20 Years International Atomic Energy Agency, 1957-1977*, (1978).

5. Moffett, *Closing Loopholes in U.S.-China Nuclear Pact*, Christ. Sci. M., Oct. 9, 1985, at 2.

6. *Id.* at 1.

7. Erickson, *U.S.-China Nuclear Pact has Senators Wary*, J. COMM., Oct. 10, 1985, at A1.

8. 42 U.S.C. § 2153 (1982). *See infra* note 72 for text of Section 123 of the AEA.

1984 nuclear cooperation agreement improves U.S.-Chinese relations, it also compromises U.S. nuclear non-proliferation goals and integrity.

This note describes the nuclear policies of both China and the United States and the interrelationship between these respective policies. The note then chronologically details the negotiation process of the U.S.-China Nuclear Energy Cooperation Agreement (hereinafter Cooperation Agreement), and the Chinese negotiating techniques. Finally, the note concludes with an analysis of the controversial articles of the Cooperation Agreement, statutory compliance with the AEA, and the legal and commercial implications of the Cooperation Agreement.

## II. BACKGROUND

### A. *China's Nuclear Policy*

#### 1. *Developing Nuclear Capacity*

A major concern of the Cooperation Agreement is the compatibility of China's nuclear policy with U.S. nuclear policy. U.S. concern with China's development of nuclear weapons first began when plans for nuclear weapons development were incorporated into China's second five year plan, thus initiating the Chinese nuclear program.<sup>9</sup> Despite Mao Zedong's denouncement of the atom bomb as a "paper-tiger,"<sup>10</sup> China's nuclear program has maintained a high national priority.<sup>11</sup> While in the early 1950's China's nuclear program emphasized research, by the mid-1950's emphasis shifted to the development of strategic weapons as part of a joint Sino-Soviet effort to develop rocket and aviation technology. However, as their respective ideological differences began to manifest, the termination of Soviet technical support in 1959 forced China to rely largely on its own initiative.<sup>12</sup> China's first success in detonating an atomic bomb came on October 16, 1964,<sup>13</sup>

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9. SPECIAL HOUSE SUBCOMMITTEE ON U.S. TRADE WITH CHINA OF THE COMMITTEE ON ENERGY AND COMMERCE, CHINA'S ECONOMIC DEVELOPMENT AND U.S. TRADE INTERESTS, 99th Cong., 1st Sess. 22 (Comm. Print 99-L. 1985) [hereinafter cited as Print 99-L].

10. Shao-Chuan Leng, *China's Nuclear Policy: An Overall View*, Occasional Papers/Reprints Series in Contemporary Asian Studies, No. 1 (1984) 60, p. 1. [hereinafter cited as Leng]. The paper tiger refers to a false power.

11. Hahn, *China's Nuclear History*, CHINA BUS. REV., July-Aug. 1985, at 29 [hereinafter cited as Hahn].

12. *Id.* at 28.

13. Leng, *supra* note 10, at 2. China became the fifth international nuclear weapon club member by exploding an enriched uranium (U235) fission device. *See*

and is attributable to a combination of a group of U.S.-trained Chinese physicists and engineers,<sup>14</sup> extensive indigenous uranium supplies,<sup>15</sup> and enrichment capacity developed in the early 1950's.<sup>16</sup> China's greatest advances in nuclear technology occurred during the period of the mid-1960's through the mid-1970's. It took China less than three years to develop its first fusion test, and three years later, in 1967, China detonated a fusion device. Since 1967, China has conducted more than twenty nuclear tests ranging from hydrogen bombs to tactical weapons.<sup>17</sup>

Throughout the 1970's China's nuclear program developed in relative isolation. The research, development, and production of nuclear weapons took place at over forty sites in China.<sup>18</sup> Principal facilities included the Lopner test site in Xinjiang, five weapons factories, six nuclear reactors, and two nuclear research facilities. However, key nuclear plants near the Sino-Soviet border were reportedly dismantled in order to be hardened against nuclear attack.<sup>19</sup>

## 2. *China's Arm's Control and Non-Proliferation Policy*

In the process of developing its nuclear capability, China also considered its non-proliferation policy. China's Foreign Minister, Wu Xueqian, called for a complete prohibition and destruction of nuclear weapons.<sup>20</sup> For years the Chinese advocated total nuclear disarmament, opposing the superpowers', efforts to limit arms control.<sup>21</sup> Beijing has denounced the Strategic Arms Limitations Talks (SALT) as a "sham"

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Hahn, *supra* note 11, at 20. China took thirty-two months compared to the U.S.S.R.'s four years (1949-1953), England's five years, the United States' seven years, and France's eight years (1960-1968). See also Hsieh, *China's Nuclear Missile Programme: Regional or Intercontinental*, China Quarterly, no. 45, (Jan.-March 1971) at 85-91 [hereinafter cited as Hsieh]. See also Leng, *supra* note 10, at 2. The Chinese test used an advanced "implosion" trigger technique rather than a less sophisticated "gun barrel" technique. Hahn, *supra* note 11, at 20.

14. Hahn, *supra* note 11, at 20.

15. *Id.* Western sources have estimated China's total uranium reserves to total 800,000 tons, sufficient to run 15,000 megawatt (MW) capacity nuclear reactors for thirty years.

16. *Id.*

17. See Appendix B for China's Nuclear tests.

18. See Hahn, *supra* note 11, at 29.

19. *Id.* Other plants were placed as far as thirty meters below ground level.

20. See *id.*

21. SHAO-CHUAN LENG, *Arms Control and Disarmament in Chinese Global Policy*, in CHINA IN THE GLOBAL COMMUNITY 165 (J. Hsiung & S. Kim eds. 1980) [hereinafter cited as Hsiung].

that fueled a nuclear arms race between the United States and the U.S.S.R.<sup>22</sup> China's current arms control policy seeks assurances from the nuclear nation not to be the first user of nuclear arms.<sup>23</sup> Proceeding with its own nuclear weapons program, China's goal is to be able to respond to hostile nuclear aggression with its own nuclear weapons.

Despite China's opposition to arms control measures sponsored by the United States and the Soviet Union, China has participated in other arms control matters. China has favored the establishment of nuclear free zones or peace zones in Africa, Asia, Central Europe, the Pacific, the Mediterranean, the Middle East, and the Indian Ocean.<sup>24</sup> China signed the Tlateloco Treaty honoring the Latin American nuclear free zone. Recently, the Chinese Foreign Ministry has stated that China's dealings with other countries, including Pakistan, concerning nuclear technology were for peaceful purposes.<sup>25</sup> The same Foreign Ministry statement confirmed a nuclear cooperation agreement with Pakistan, but denied a similar relationship with Iran.<sup>26</sup>

Continuing with a more flexible arms control posture, China participated in the Special Session of the United Nations General Assembly on Disarmament in 1978.<sup>27</sup> The Chinese advanced a program for total destruction of nuclear weapons and a reduction of U.S. and Soviet conventional armaments.<sup>28</sup> Yet, China also advocated that non-nuclear states be free to develop and use nuclear energy for peaceful purposes. Finally, China called for a total prohibition and destruction of all chemical, biological, and mass destruction weapons. In addition, Beijing reiterated the nuclear free zone establishment, the withdrawal of all foreign troops, the dismantlement of foreign military bases, and the superpowers' restraint in the use of, or the threat to use, nuclear weapons against non-nuclear states.<sup>29</sup> China also participated in the Special Ses-

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22. *SALT Agreement*, Vol. 22 No. 22 BEIJING REV. 22-3; Mada, *Waltz in Vienna*, Renmin Ribao, June 24, 1979, at 6.

23. See *BREAK THE NUCLEAR MONOPOLY, ELIMINATE NUCLEAR WEAPONS*, 1-5 (1965).

24. See Hsiung, *supra* note 21, at 170-74.

25. Southerland, *China Denies It Will Give Iran Nuclear Technology*, Wash. Post, Oct. 24, 1985, at A1.

26. *Id.*

27. See Leng, *supra* note 13, at 9. This Special Session revitalized the Disarmament Commission to be composed of all U.N. members. It also replaced the Geneva Conference of the Committee on Disarmament with an enlarged committee on Disarmament as the negotiating body for global disarmament composed of all five nuclear states and thirty-five non-nuclear states. See Hsiung, *supra* note 21, at 235-6.

28. See *id.*

29. *SALT Agreement*, *supra* note 22, at 17-8.

sion of the United Nations General Assembly on Disarmament in 1982, advancing many of the same programs as it did in 1976.<sup>30</sup>

More recently, China has become increasingly active in arms control matters. In 1980 China participated as a first time regular member in the Committee on Disarmament in Geneva.<sup>31</sup> China also joined the United Nations Committee on the Peaceful Use of Outer Space,<sup>32</sup> stressing the need to prevent the militarization of outer space.<sup>33</sup> During the winter of 1983-1984, China held its first exhibition in Beijing on the peaceful uses of nuclear energy.<sup>34</sup> In January, 1984, China demonstrated its intent to become a full-fledged, internationally responsible member of the nuclear community by joining the International Atomic Energy Agency.<sup>35</sup>

The most recent pronouncement of China's non-proliferation policy came in February, 1985 from Vice-Premier Li Peng who summarized China's national and international nuclear policy as follows:

China has no intention now or in the future, of helping non-nuclear countries develop nuclear weapons China will abide by the stipulations of the IAEA and restrict nuclear cooperation with other countries to peaceful purposes only.<sup>36</sup>

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30. See Leng, *supra* note 10, at 11. China's Foreign Minister Huang Hua addressed the U.N. and advanced four disarmament proposals. First, all nuclear states should reach a non-use agreement for nuclear weapons, especially for non-nuclear countries and nuclear free zones. Second, the U.S. and U.S.S.R. should stop the development and manufacturing of nuclear weapons reducing weapons by fifty percent. Third, to advance conventional disarmament, all nations should not use conventional forces for armed intervention or aggression by withdrawing troops from foreign soil immediately. Fourth, chemical weapons and other mass destruction weapons should be prohibited. See Vol. 25 No. 28 BEIJING REV. 11, July 12, 1982.

31. Leng, *supra* note 10, at 12.

32. See U.N. Doc. A/CONF. 101/AB13 (June 16, 1981) at 3.

33. See 90 CHINA QUARTERLY 358 (June 1982).

34. See Hahn, *supra* note 11, at 30.

35. *Id.* at 31. See *supra* note 4 and accompanying text. At the twenty-ninth general conference of the Vienna-based International Atomic Energy Agency (IAEA) on September 23-27, 1985, Peking surprisingly announced that China would open some of its nuclear reactors to IAEA inspectors "at an appropriate time." China's Vice-Minister of Nuclear Industry Zhou Ping also announced that China would join the IAEA Regional Cooperative Agreement in Asia and the Pacific, the only program of its kind operated by the IAEA. This program promotes the use of isotopes and radiation in medicine, industry, agriculture, and other fields. See Chanda, *Nuclear Cooperation, Smoothing the Way, Sino-U.S. Pact Faces Easier Path Through Congress*, Far Eastern Econ. Rev., Oct. 17, 1985, at 25.

36. *Id.* Premier Zhao reiterated this policy at his famous dinner toast that covered all aspects of U.S.-China relations. The key section reads:

Regarding adherence to IAEA restrictions, China appears to be gravitating towards a more dedicated non-proliferation policy, similar to the policy of the United States.

### B. U.S. Nuclear Policy

The U.S. policy regarding nuclear cooperation with other nations is primarily covered by the Atomic Energy Act of 1954.<sup>37</sup> The Nuclear Non-Proliferation Act of 1978 (NNPA),<sup>38</sup> which amended part of the AEA, requires among other things, that there be an agreement for nuclear cooperation with any other nation before private U.S. firms will be permitted to sell sensitive nuclear technology and systems to any other nation.<sup>39</sup> The United States enacted the Non-Proliferation Act because of threats to its security interests posed by nuclear proliferation.<sup>40</sup> The purpose of the NNPA enables the United States to establish a more effective framework for international cooperation to meet the energy needs of all nations.<sup>41</sup> This international cooperation is necessary to ensure worldwide development of peaceful nuclear uses.<sup>42</sup> Furthermore, the United States will take action to ensure it meets its commitment to supply nuclear reactors to nations adhering to non-proliferation policies.<sup>43</sup>

To implement these basic nuclear policy objectives, the United States will actively pursue international controls over the transfer and

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"We are critical of the discriminatory treaty on the non-proliferation of nuclear weapons, but we do not advocate or encourage nuclear proliferation. We do not engage in nuclear proliferation ourselves, nor do we help other countries develop nuclear weapons." Tyler, *A Few Spoken Words Sealed China Atom Pact*, Wash. Post, Jan. 12, 1985, at A1, A21 col. 2.

37. Atomic Energy Act of 1954, current version at 42 U.S.C. §§ 2011-2296 (1982). For additional historical background, see C. ALLARICE & E. TRAPNELL, *THE ATOMIC ENERGY COMMISSION* (1974); R. NADER, *THE MENACE OF ATOMIC ENERGY*, (1977); Maleson, *The Historical Roots of the Legal System's Response to Nuclear Power*, 55 S. CAL. REV. 597 (1982); Quirk & Teresawa, *Nuclear Regulation: An Historical Perspective*, 21 NAT. RESOURCES J. 833 (1981).

38. Nuclear Non-Proliferation Act of 1978, 42 U.S.C. §§ 2153-2160(a)(1978). The Atomic Energy Act has been amended continually from its passage in 1946. For an excellent and detailed survey of the revisions of the Atomic Energy Act over the years, see generally Murphy & La Pierre, *Nuclear "Moratorium" Legislation in the States and the Supremacy Clause: A Case of Express Preemption*, 76 COLUM. L. REV. 392 (1976).

39. See Print 99-L, *supra* note 9, at 37.

40. 22 U.S.C. § 3201 (1982).

41. 22 U.S.C. § 3202 (1982).

42. *Id.*

43. *Id.*



use of nuclear material, equipment, and technology for peaceful purposes to prevent proliferation.<sup>44</sup> The U.S. policy also requires that it meet its commitments to supply nuclear reactors and fuel to nations adhering to effective non-proliferation policies by establishing procedures to facilitate the timely processing of requests for export licenses and other arrangements. Furthermore, the United States will encourage nations to ratify the 1968 Treaty on the Non-Proliferation of Nuclear Weapons.<sup>45</sup> Finally the U.S. policy requires cooperation with foreign nations in identifying and adapting suitable technologies for energy production and the United States will also identify alternative energy options for other nations.<sup>46</sup>

Although China's nuclear non-proliferation policy is becoming more closely aligned with the U.S. nuclear non-proliferation policy, China also maintains its goal of achieving nuclear parity with the United States.

### III. HISTORY OF THE U.S. - CHINA NUCLEAR COOPERATION AGREEMENT

An overview of the negotiation process in the Cooperation Agreement provides an account of the difficulties encountered in its formulation. Interestingly, throughout the negotiations, U.S. negotiators were sensitive to Chinese notions of sovereignty which continually overshadowed the negotiation process.<sup>47</sup> *The Washington Post* reported that the Carter Administration initiated discussions concerning nuclear cooperation with China, but these discussions were not pursued due to the perceptions and politics so soon after relations between the United States and the People's Republic of China were formally normalized in 1979.<sup>48</sup> Thus, the seeds of a controversy were planted before the Reagan Administration took office in January, 1981. The first two years of

44. 22 U.S.C. § 3201 (1982).

45. Treaty on the Non-Proliferation of Nuclear Weapons, *opened for Signature* July 1, 1968, 21 U.S.T. 483, T.I.A.S. No. 6839, 729 U.N.T.S. 161. A major objective of the non-proliferation treaty is to assure nonuse of nuclear materials for nuclear weapons manufacture. *Id.* art. III, para. 1. The treaty incorporates the IAEA safeguards to further promote these objectives. *Id.* art. III.

46. 22 U.S.C. § 3202 (1982).

47. For an analysis of Chinese negotiating styles in various circumstances see Chang, *Peking Negotiating Style: A Case Study of U.S.-PRC Normalization*, Occasional Papers/Reprints Series in Contemporary Asian Studies, No. 5 (1985) (70); L. PYE, *CHINESE COMMERCIAL NEGOTIATING STYLE* (1982).

48. Tyler, *A Few Spoken Words Sealed China Pact: Talks Stumbled on "Islamic Bomb" Project*, Wash. Post, Jan. 12, 1986, at A1.

the Reagan Administration were clouded by the question of U.S. arms sales to Taiwan, which China strongly opposed as infringing upon its sovereignty. After a joint communique defused the Taiwan issue on August 17, 1982,<sup>49</sup> China quickly requested the United States to assist in developing resources for its vast rural and urban needs. The sagging U.S. nuclear industry welcomed this demand for modernization with enthusiasm because of drastic cutbacks in new orders for nuclear power plants.<sup>50</sup>

The first U.S. inquiry occurred in late 1981 when U.S. diplomats presented the Chinese with a "model" nuclear cooperation agreement. The Chinese quickly rejected the proposal as a violation of its sovereignty because of its concern that any U.S. built nuclear power plant would be subject to international "safeguards" and strict accounting procedures designed to detect the diversion of nuclear material for the manufacture of weapons.<sup>51</sup>

U.S. officials knew that it would not be feasible to sell reactors and reactor components to China without Chinese acceptance of safeguards. In August, 1982, former Ambassador at Large, Vernon A. Walter, traveled to Beijing and unsuccessfully attempted to persuade the Chinese to accept the safeguards.<sup>52</sup>

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49. For more information on the communique see LEGISLATIVE HISTORY OF THE TAIWAN RELATIONS ACT (L. Wolff & D. Simon eds. 1982).

50. See Tyler *supra* note 48, at A1.

51. The Chinese noted indignantly that China had been a nuclear-weapon site since 1964. See *id.* Currently, China refuses to sign the 1968 Nuclear Non-proliferation Treaty which the U.S. and U.S.S.R. are both parties. The late Chinese Premier Zhou En lai stated that it was "a great conspiracy against all peace-loving countries." Ten years later the Chinese official news agency added. "The hegemonic practice of prohibiting the small and medium sized countries from developing their own nuclear weapons can deceive nobody." *Id.*

52. Walter's mission was overshadowed by U.S. intelligence reports stating that China was assisting Pakistan's clandestine nuclear program. These reports indicated the following:

(a) Chinese scientific delegations had been spending a large amount of time at a centrifuge plant in Kahuta where Pakistani scientists were trying to produce enriched uranium, which can be used to trigger a nuclear detonation.

(b) Pakistan scientists from a secret facility at Wah showed a nuclear weapon design to some Chinese physicists in late 1982 or early 1983 and sought Chinese evaluation of whether the design would yield a nuclear blast. The Chinese scientists confirmed that it would.

(c) The triggering mechanism for the Pakistani bomb designed appeared to be very similar to one China used in its fourth nuclear test, suggesting that the Chinese provided the design to Pakistan.

(d) There were also reports that China was shipping uranium to South Africa and "Heavy water" to Argentina. China refused to answer any inquiries about its long and

While in Beijing in early 1983, Secretary of State George Shultz delivered a blunt message to the Chinese that the United States would never consider entering into a nuclear cooperation agreement unless the two countries shared the same non-proliferation principles and commitments.<sup>53</sup> In an effort to lure China into joining the majority of nations dedicated to restricting the proliferation of nuclear weapons, U.S. officials dropped their safeguard demands on nuclear exports and non-proliferation policies concerning China.<sup>54</sup> Shultz then put Richard T. Kennedy, former Army officer and former Nuclear Regulatory Commission member, in charge of the revised negotiations. By July, 1983 a Chinese delegation sent to Washington announced that China would join the IAEA.<sup>55</sup>

Kennedy, however, never sought a written policy statement regarding non-proliferation of nuclear weapons from China which could have been incorporated into the Cooperation Agreement believing that the Chinese would never agree to a written statement as a matter of national sovereignty. Instead, U.S. negotiators, along with Kennedy, communicated to the Chinese that a "properly worded verbal statement" of China's policy would be sufficient.<sup>56</sup> This verbal statement led to the controversial White House dinner toasts where Premier Zhao announced China's non-proliferation policy.<sup>57</sup> Major news organizations quickly criticized this shift in U.S. nuclear policy.<sup>58</sup>

Kennedy's negotiating team traveled to China in mid-April, two weeks prior to Reagan's journey, and stated that "[t]he parties will use diplomatic channels to establish mutually acceptable arrangements for exchanges of information and visits to material, facilities and components subject to this agreement."<sup>59</sup> During the presidential trip no details were provided about the non-proliferation assurances. Only upon

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trusted ally Pakistan and denied improper behavior. *Id.* at A20.

53. *Id.*

54. *Id.*

55. *Id.*

56. Chinese official had carefully studied U.S. export and nuclear control laws believing that safeguards were not legally required on nuclear equipment sales between two nuclear-weapon states. According to senior officials, the Reagan administration adopted this narrow legal interpretation. *See id.*

57. *See infra* note 63 and accompanying text.

58. Tyler, *supra* note 48, at A20. The Washington Post received a statement from an informed Beijing diplomat that "Zhao's statement would appear unequivocally to commit China to a non-proliferation policy consistent with U.S. interests." Neither Washington nor Beijing disclosed the toast as the cornerstone of the emerging nuclear cooperation agreement. *Id.*

59. *Id.*

Reagan's return to Washington did State Department officials brief congressional staffs concerning the negotiating history.

Congress immediately attacked the "diplomacy by dinner toast." With reports of the continued presence of Chinese physicists in Pakistan's Kahuta nuclear facility, some U.S. Senators<sup>60</sup> intensified their attack, uncovering intelligence reports regarding Chinese aid to Pakistan in 1982 and 1983.<sup>61</sup>

Aware of U.S. Congressional opposition, the Chinese National People's Congress<sup>62</sup> ratified Zhao's non-proliferation policy by a formal vote on May 15, 1984.<sup>63</sup>

Nevertheless, when Chinese Defense Minister Zhang Aiping came to Washington in June 1984, U.S. administration officials informed him that Congress would not approve the accord without China's additional non-proliferation assurances. While Secretary of State Shultz confronted Zhang regarding the desire for assurances, *The Washington Post* reported that the Chinese official had a "stormy reaction," reiterating that there would be no further assurances and suggesting that Shultz doubted Zhao's integrity regarding China's non-proliferation policy when he toasted the Reagans.<sup>64</sup> The Chinese defense minister stalked out of Shultz' office, confirming that no more assurances were obtainable.

While U.S. intelligence continued to monitor the apparent escalation of the Pakistani nuclear program,<sup>65</sup> the proposed Cooperation

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60. See *infra* notes 84-7, 95-8 and accompanying text.

61. *Nuclear Energy Cooperation with China: Hearing Before the Special Subcomm. on U.S. Trade with China of the House Comm. on Energy and Commerce*, 98th Cong., 2d Sess., H. Hrg. 98-148, 106, 115, 209 (1984) [hereinafter cited as H. Hrg. 99-148]. For a subsequent analysis of the implications of the Cooperation Agreement in the United States, see also *Nuclear Energy Cooperation with China: Hearing before the Special Subcomm. on U.S. Pacific Rim Trade of the House Comm. on Energy and Commerce*, 99th Cong., 1st Sess., 99-59 (1985).

62. The National People's Congress is the highest decision making body in China. See Appendix C.

63. For the Complete Text of Premier of the State Council Zhao Ziyang's Government Work Report to the National People's Congress see 1 Foreign Broadcast Information Service (FBIS), Daily Report-China, No. 107, June 1, 1984 at K1. The Report begins as follows:

China is for disarmament and against the arms race, especially the nuclear arms race. It stands for the complete prohibition [sic] and thorough destruction of nuclear, chemical, biological and space weapons and for substantial reduction of conventional weapons. . . . *Id.* at K14. [W]e by no means favor nuclear proliferation by helping other countries develop nuclear weapons. *Id.* at K15.

64. See Tyler, *supra* note 48, at A21, col. 2.

65. Indian Prime Minister Rajiv Gandhi also demonstrated his apprehensiveness

Agreement between the United States and China remained dormant for the remainder of 1984. Additional U.S. pressure, including a personal letter from Reagan to Pakistani President Zia, induced Pakistan to state that it would "slow" its nuclear program. In addition, the Chinese removed its technicians from Kahuta.<sup>66</sup> In June, 1985, U.S. officials again were dispatched to Beijing to assert the U.S. pledge of nuclear non-proliferation. Although Kennedy drafted a two-page memorandum summarizing the non-proliferation discussion, he failed to obtain a signature from the Chinese on the document.<sup>67</sup> Kennedy returned to Washington after receiving the new oral assurances and on July 23, 1985, President Reagan signed the accord during Chinese President Li Xiannian's visit.

The Cooperation Agreement went into effect in December, 1985, subject to three provisions enacted by a joint resolution of Congress.<sup>68</sup>

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of the peaceful nature of Pakistan's nuclear program. See Ali, *Politics of Proliferation, Zia Fails to Convince Gandhi of Good Intentions*, Far Eastern Econ. Rev., Nov. 7, 1985.

66. See Tyler, *supra* note 48, at A21.

67. *Id.* at A21. Again, notions of Chinese sovereignty arose as an issue. The Chinese stated that their nuclear policy was well known and had been overly repeated. Further elaboration of their policy would ensue at their discretion. Kennedy thought that the issue was exhaustively discussed.

68. S.J. Res. 238, Act of Dec. 16, 1985, Pub. L. No. 99-183, 1985 U.S. CODE CONG. & AD. NEWS (99th Stat.) 1174. The joint resolution approving the Agreement stated: Notwithstanding section 123 of the Atomic Energy Act of 1954, the Agreement becomes effective in accordance with the provisions of this joint resolution and other applicable provisions of law. In relevant part the new law states:

(b) Notwithstanding any other provision of law or any international agreement, no license may be issued for export to the People's Republic of China of any nuclear material, facilities, or components subject to the agreement, and no approval for the transfer or retransfer to the People's Republic of China of any nuclear material, facilities, or components subject to the Agreement shall be given —

(1) until the expiration of a period of thirty days continuous session of Congress after the President has certified to the Congress that —

(A) the reciprocal arrangements made pursuant to Article 8 of the Agreement have been designed to be effective in ensuring that any nuclear material, facilities, or components provided under the Agreement shall be utilized solely for intended peaceful purposes as set forth in the Agreement;

(B) the Government of the People's Republic of China has provided additional information concerning its nuclear non-proliferation policies and that, based on this and all other information available to the United States government, the People's Republic of China is not in violation of paragraph (2) of section 129 of the Atomic Energy Act of 1954; and

(C) the obligation to consider favorably a request to carry out activities described in Article 5(2) of the Agreement shall not prejudice the decision of the United States to approve or disapprove such a request; and

The first provision requires Presidential certification that the materials are solely for peaceful purposes.<sup>69</sup> In addition, a second provision requires the President to certify reprocessing requests not prejudicing the decision of the United States to approve or disapprove such a request.<sup>70</sup> Finally, the third provision requires the President to submit to Congress an unclassified report with classified addendum "detailing the history and current developments in the non-proliferation policies and practices of China" in order to obtain an export license or approval for transfer or retransfer of nuclear material.<sup>71</sup>

Thus, the U.S. perception that China would refuse to accept concrete non-proliferation standards resulted in the United States settling for less restrictive standards in its Cooperation Agreement with the Chinese. Continued notions and assertions of Chinese sovereignty apparently prevented the United States from obtaining more elaborate assurances.

#### IV. ANALYSIS OF STATUTORY COMPLIANCE FOR A NUCLEAR COOPERATION AGREEMENT

##### A. *Section 123 Atomic Energy Act of 1954*

Nuclear Cooperation Agreements are subject to close congressional scrutiny concerning its statutory compliance with the Atomic Energy Act (AEA) of 1954. The nine statutory requirements which must be fulfilled under Section 123 of the AEA of 1954 for new cooperation agreements include:<sup>72</sup>

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(2) until the President has submitted to the Speaker of the House of Representatives and the chairman of the committee on Foreign Relations of the Senate a report detailing the history and current developments in the non-proliferation policies and practices of the People's Republic of China.

The report described in paragraph (2) shall be submitted in unclassified form with a classified addendum.

(c) Each proposed export pursuant to the Agreement shall be subject to United States laws and regulations in effect at the time of each such export.

(d) Nothing in the Agreement or this joint resolution may be construed as providing a precedent or other basis for the negotiation or renegotiation of any other agreement for nuclear cooperation. . . . *Id.*

69. *Id.* art. (b)(1)(A).

70. *Id.* art. (b)(1)(C).

71. *Id.* art. (b)(1)(2).

72. 42 U.S.C. § 2153 (1982). Section 123 of the AEA as amended requires:

(1) a guaranty by the cooperating party that safeguards as set forth in the agreement for cooperation will be maintained with respect to all nuclear materials and equipment transferred pursuant thereto, and with respect to all special nuclear material used in or produced through the use of such nuclear materials and equipment, so long

## 1) Safeguards and their durability,

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as the material or equipment remains under the jurisdiction or control of the cooperating party, irrespective of the duration of other provisions in the agreement whether the agreement is terminated or suspended for any reason;

(2) in the case of non-nuclear-weapon states, a requirement, as a condition of continued United States nuclear supply under the agreement for cooperation, that IAEA safeguards be maintained with respect to all nuclear materials in all peaceful nuclear activities within the territory of such state, under its jurisdiction, or carried out under its control anywhere;

(3) except in the case of those agreements for cooperation arranged pursuant to section 2121(c) of this title, a guaranty by the cooperating party that no nuclear materials and equipment or sensitive nuclear technology to be transferred pursuant to such agreement, and no special nuclear material produced through the use of any nuclear materials and equipment or sensitive nuclear technology transferred pursuant to such agreement, will be used for any nuclear explosive device, or for research on or development of any nuclear explosive device, or for any other military purpose;

(4) except in the case of those agreements for cooperation arranged to section 2121(c) of this title and agreements for cooperation with nuclear-weapon states, a stipulation that the United States shall have the right to require the return of any nuclear materials and equipment transferred pursuant thereto and any special nuclear material produced through the use thereof if the cooperating party detonates a nuclear explosive device or terminates or abrogates an agreement providing for IAEA safeguards;

(5) a guaranty by the cooperating party that any material or any Restricted Data transferred pursuant to the agreement for cooperation and except in the case of agreements arranged pursuant to section 2121(c), 2164(b), or 2164(c), of this title, any production or utilization facility transferred to unauthorized persons or beyond the jurisdiction or control of the cooperating party without the consent of the United States;

(6) a guaranty by the cooperating party that adequate physical security will be maintained with respect any nuclear material transferred pursuant to such agreement and with respect to any special nuclear material used in or produced through the use of any material, production facility, utilization facility transferred pursuant to such agreement;

(7) except in the case of agreements for cooperation arranged pursuant to section 2121(c), 2164(b), or 2164(c) of this title, a guaranty by the cooperating party that no material transferred pursuant to the agreement for cooperation and no material used in or produced through the use of any material, production facility, or utilization facility transferred pursuant to the cooperation will be reprocessed, enriched or (in the plutonium, uranium 233, or uranium enriched to greater than twenty percent in the isotope 235, or other nuclear materials which have been irradiated) otherwise altered in form or content without the prior approval of the United States;

(8) except in the case of agreements for cooperation arranged pursuant to section 2121(c), 2164(b), or 2164(c) of this title, a guaranty by the cooperating party that no plutonium, no uranium 233, and no uranium enriched to greater than twenty percent in the isotope 235, transferred pursuant to the agreement for cooperation, or recovered from any source or special nuclear material so transferred or from any source or special nuclear material used in any production facility or utilization facility transferred pursuant to the agreement for cooperation, will be stored in any facility that has not been approved in advance by the United States; and

- 2) Scope of safeguards,
- 3) No military or explosive use,
- 4) Right of return,
- 5) Retransfer,
- 6) Physical security,
- 7) Reprocessing, enrichment or other alterations,
- 8) Storage, and
- 9) Sensitive nuclear technology.

Two provisions, Articles 5 and 8, of the Cooperation Agreement have been criticized for not complying with §123 of the Atomic Energy Act. Article 5 of the Agreement considers U.S. consent rights for the reprocessing of U.S.-supplied nuclear fuel and Article 8 of this Agreement considers nuclear safeguards.

### 1. *Article 5*

Article 5, paragraph 1, requires the parties' agreement for the retransfer of materials, facilities, components, or special nuclear materials pursuant to the Cooperation Agreement.<sup>73</sup> Paragraph 2 specifies that neither party has any plans to enrich to twenty percent or greater, reprocess, or alter in form or content, material transferred pursuant to the Agreement.<sup>74</sup> In addition, Article 5 requires that neither party has any plans to change locations for the storage of plutonium, uranium 233 (except as contained in irradiated fuel elements), or highly enriched uranium transferred pursuant to the Agreement. If these pursuits materialize, the parties will promptly hold consultations to agree, within six months, on a mutually acceptable arrangement regarding long term arrangements for such activities.<sup>75</sup> The parties shall undertake these obligations "favorably," and agree to provide pertinent information on the plans.<sup>76</sup> During this six month period, the parties agree not to act. If a long term agreement is not reached during this time, the parties will promptly consult for the purpose of agreeing on interim measures. Both parties agree to refrain from actions which either party

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(9) except in the case of agreements for cooperation arranged pursuant to section 2121(c), 2164(b), 2164(c) of this title, a guaranty by the cooperating party that any special nuclear material production facility, or utilization facility produced or constructed under the jurisdiction of the cooperating party by or through the use of any sensitive nuclear technology transferred pursuant to such agreement for cooperation will be subject to all the requirements specified in this subsection.

73. See Appendix A, art. 5(1); 85 DEP'T STATE BULL. 1, 4 (Sept. 1985).

74. See Appendix A, art. 5(2); 85 DEP'T STATE BULL. 1, 4 (Sept. 1985).

75. *Id.*

76. *Id.*



believes would prejudice the long-term arrangements or adversely affect the cooperation under the Agreement.<sup>77</sup> These consultations will be conducted promptly and not inhibit the legitimate development and exploitation of nuclear energy for peaceful purposes.<sup>78</sup>

Finally, the third paragraph of Article 5 precludes the use of material, facilities, or components for any explosive device. The article further prohibits research specifically for the development of any nuclear explosive device or for any military purpose.<sup>79</sup>

#### a. *Proponents*

The proponents of the Cooperation Agreement assert that Article 5(1) of the Agreement satisfies the retransfer criteria of the Atomic Energy Act § 123(5) because no material, facilities, components, or special nuclear material transferred pursuant to the Cooperation Agreement can be retransferred unless the parties agree.<sup>80</sup>

Furthermore, the proponents of the Cooperation Agreement assert that Article 5(2) satisfies §123(7) and § 123(8) of the AEA concerning reprocessing, enrichment, or other alterations and storage.<sup>81</sup> The first sentence in Article 5(2) prohibits activities in § 123(7).<sup>82</sup> China's consideration of reprocessing, enrichment, or other alterations requires that the parties' consult and consider such activities favorably, and that during this consultation period, no reprocessing, enrichment, or alteration shall be conducted. If no long term arrangements are made within six months, interim measures shall be discussed. Proponents maintain

77. *Id.*

78. See Appendix A, art. 5(2); 85 DEP'T STATE BULL. 5 (Sept. 1985).

79. See Appendix A, art. 5(3); 85 DEP'T STATE BULL. 5 (Sept. 1985).

80. H.R. Doc. No. 99-86, 99th Cong. 1st Sess. 34 (1985) [hereinafter cited as H.R. Doc. 99-86]. (Statement of Kenneth L. Adelman, Director of the Arms control and Disarmament Agency (ACDA)). (Statement of Richard T. Kennedy, Ambassador at Large and Special Adviser to the Secretary of State on Non-Proliferation Policy and Nuclear Energy Affairs). Section 109 of the Atomic Energy Act requires that prior U.S. approval for retransferring any components, items, and substances exported from the United States which the Nuclear Regulatory Commission (NRC) has determined to be "significant for nuclear explosive purposes." These components, items, and substances are defined in 10 C.F.R. Part 110. See also BUREAU OF PUBLIC AFFAIRS, U. S. DEP'T OF STATE, PUB. NO. 729, *U.S.- CHINA NUCLEAR COOPERATION AGREEMENT* 32-3 (1985).

81. H.R. Doc. 99-86, *supra* note 80, at 36. See *United States-People's Republic of China Nuclear Agreement: Before the Senate Comm. on Foreign Relations*, S. Hrg. 99-339, 99th Cong., 1st Sess. 181 (1985) [hereinafter cited as S. Hrg. 99-339] (statement of Michael J. Matheson, Deputy Legal Adviser, Department of State).

82. H.R. Doc. 99-86, *supra* note 80, at 37.

that these provisions clearly preclude China from unilaterally proceeding with reprocessing, enrichment, or alteration in the face of U.S. objection.

Finally, proponents of the Cooperation Agreement assert that Article 5(3) satisfies § 123(3) of the AEA which prohibits military or explosive use.<sup>83</sup>

#### b. *Opponents*

A major criticism of Article 5 involves the statutorily required U.S. consent rights. Critics assert that the parties' agreement to "favorably hold consultations" on future arrangements is an insufficient provision if China should aspire to separate plutonium from spent fuel.<sup>84</sup> Opponents have argued that the Cooperation Agreement's mere provision for a commitment to hold consultations is insufficient, and they have maintained that the Agreement should have provided for presidential certification and verification of the U.S. consent rights.<sup>85</sup> The primary concern is to have a clear and unambiguous understanding that the United States possesses veto rights over China's reprocessing of U.S. spent fuel used to extract bomb-usable plutonium.<sup>86</sup> Finally, critics assert that mere "future consultations" enable China to store large amounts of spent fuel, ready for reprocessing, which would create a difficult situation for obtaining a U.S. veto.<sup>87</sup>

### 2. *Article 8*

The other controversial article of the Agreement is Article 8 which provides that the parties shall consult, at the request of either party, on matters regarding the implementation of the Cooperation Agreement, the development of further nuclear cooperation, and other related matters of mutual concern.<sup>88</sup>

The second paragraph of Article 8 specifies that bilateral safeguards are not required because the Agreement is between two nuclear-

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83. H.R. Doc. 99-86, *supra* note 80, at 33, 51. (statements of John C. Whitehead, John S. Herrington, Secretary of Energy).

84. *See* S. Hrg. 99-339 *supra* note 81, at 5 (statement of Senator John Glenn).

85. *See* S. Hrg. 99-339 *supra* note 81, at 48 (statement of Senator John Glenn). Senator Glenn introduced legislation entitled "The Sino-American Nuclear Verification Act of 1985" that would secure many of the concerns he raised.

86. *See* S. Hrg. 99-339 *supra* note 81, at 54 (statement of Senator William Proxmire).

87. *Id.*

88. *See* Appendix A art. 8(1); 85 DEP'T STATE BULL. 5, art. 8(1) (Sept. 1985).

weapon states. However, the parties will use diplomatic channels to establish mutually acceptable arrangements for exchanges of information, and visits in order to exchange experiences and strengthen technical cooperation between the parties. These visits further ensure that the provisions of the Cooperation Agreement are effectively carried out, and enhance a stable, reliable, and predictable nuclear cooperation relationship in connection with transfers of material, facilities, and components under the Agreement.<sup>89</sup>

The final paragraph requires that the parties exchange views and information on the establishment and operation of their respective national accounting and control systems for sources and special nuclear material subject to the Agreement.<sup>90</sup>

#### a. *Proponents*

Proponents of the Cooperation Agreement contend that the scope of the safeguards required under § 123(1) are satisfied by giving the United States the right to conduct visits,<sup>91</sup> the purpose being to ensure that the provisions of the Agreement are effectively carried out. Furthermore, the visits must be arranged "in connection with transfers" of items under the Agreement. Thus, these visits should establish mutually acceptable arrangements, as well as consultations and exchanges of information on national accounting and control systems, as required by § 123(1).<sup>92</sup> Proponents argue that the safeguard provisions in the Chinese Cooperation Agreement are similar to safeguard provisions in agreements that the United States has with the United Kingdom, Belgium, Greece, and thirty-two other countries.<sup>93</sup> Furthermore, the legislative history does not require more restrictive standards.<sup>94</sup>

#### b. *Opponents*

However, opponents of the Cooperation Agreement have criticized the Agreement for its opaque language regarding the adequate verifica-

89. See Appendix A, art. 8(2).

90. *Id.*, art. 8(3).

91. H.R. Doc. 99-86, *supra* note 80, at 32. The proponents state that because China is a nuclear weapon state the requirement for IAEA safeguards set forth in § 123(2) are inapplicable. *Id.* at 31.

92. H.R. Doc. 99-86, *supra* note 80, at 33 (statement of Kenneth L. Adelman, Director of the U.S. Arms Control and Disarmament Agency).

93. See S. Hrg. 99-339 *supra* note 81, at 192-99 (1985) (statement of Michael J. Matheson, Deputy Legal Adviser, Department of State).

94. *Id.*

tion and IAEA safeguards for the peaceful uses of U.S.-exported materials to China. The safeguards "usually involve a thorough accounting and monitoring system" for U.S. exports.<sup>95</sup> Article 8 of the Cooperation Agreement states that the parties *will* use "diplomatic channels" to discuss future arrangements pertaining to safeguards rather than establishing such diplomatic channels.<sup>96</sup> Without safeguard guarantees in the Chinese Cooperation Agreement, opponents stress that the United States is setting a dangerous precedent concerning safeguard requirements which it would want to secure in future cooperation agreements.

Opponents have cited Chinese nuclear agreements with Argentina, Brazil, and Japan in which all of these agreements required IAEA safeguards,<sup>97</sup> and opponents have further pointed out that while these countries secured safeguards with China while the United States has only obtained vague visitation rights from China.<sup>98</sup>

The language of both Article 5 and Article 8 could have been more precise. The fact that China agreed to IAEA safeguards with other nations entering into similar nuclear agreements further strengthens the opposition's assertions that the United States also should have secured the IAEA safeguards.

### 3. *Procedural Compliance and Congressional Review*

Statutorily mandated congressional review provided the forum for congressional scrutiny of the Cooperation Agreement. President Reagan approved the Export Administration Act Extension<sup>99</sup> on July 12, 1985, in order to restore some of the congressional authority concerning nuclear cooperation agreements which has been struck down in *Immigration and Naturalization Service v. Chadha*.<sup>100</sup> If an agreement in-

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95. *See id.* at 51 (statement of Senator William Proxmire).

96. *See id.* at 2, 3 (statement of Senator John Glenn).

97. *Id.* at 4, 53. China signed a nuclear cooperation agreement with Brazil on November 11, 1984, Argentina on April 16, 1985, and Japan on July 31, 1985. CRS-China *supra* note 3, at 12, 13, 15. China also entered into agreements with France in March, 1982 and the United Kingdom on June 3, 1985. *Id.* at 13, 17. Xinhua wire service reported that China and the Federal Republic of Germany signed an agreement on February 25, 1986 (available February 28, 1986 on LEXIS/NEXIS, Nexis library, wires file).

98. S. Hrg. 99-339 *supra* note 81, at 53 (statement of Senator William Proxmire).

99. 42 U.S.C. § 2159(b) to (f) (1982).

100. *Immigration and Naturalization Service v. Chadha*, 462 U.S. 919 (1983). The U. S. Supreme Court in *Chadha* declared that a House Committee resolution authorized under 1254(c)(2) of Title 8, Aliens and Nationality, invalidating an Executive Branch action was unconstitutional. This decision abolished the legislative veto

cludes exemptions<sup>101</sup> to the statutory requirements of § 123 of the Atomic Energy Act of 1954, the proposed agreement may not take effect until approved by a joint resolution of Congress.

If an agreement contains no exemptions to § 123, the President submits it to Congress for a period of ninety working days which includes thirty days of consultation by the House Foreign Affairs Committee and the Senate Foreign Relations Committee,<sup>102</sup> and sixty days of congressional review.<sup>103</sup> The committees must conduct hearings concerning whether the agreement should be approved or disapproved. During the thirty day review, should one of the committees decide that an exemption to § 123 is required, Congress "expects that the President will submit the exemption."<sup>104</sup> The President may then either request an exemption or renegotiate the agreement.<sup>105</sup>

Although never exercising the option,<sup>106</sup> it is also possible for either the Senate Foreign Relations Committee or the House Committee on Foreign Affairs to petition the Nuclear Regulatory Commission, the Department of State, the Department of Energy, the Arms Control and Disarmament Agency, and the Department of Defense and request that those departments furnish their views as to whether the safeguards and other controls provide an adequate framework to ensure that any U.S. exports will not be inimical or create an unreasonable risk to U.S. defense and security.<sup>107</sup>

The procedural requirement for congressional scrutiny of the Cooperation Agreement was fulfilled. The first thirty days of review expired without any legal objection.<sup>108</sup> In the following sixty days of review, a joint resolution was adopted before the Agreement went into effect in December, 1985.<sup>109</sup>

over executive actions. *Id.*

101. See 42 U.S.C. § 2153(a) (1982).

102. See 42 U.S.C. § 2153(c) (1982).

103. See 42 U.S.C. § 2153(d) (1982).

104. 131 CONG. REC. H4919-20 (daily ed. June 26, 1985).

105. "It is clear that this provision does require the President to act in good faith for if he overrides Congress' recommendation during the thirty day review period, we cannot force him to comply." 131 CONG. REC., S8925 (daily ed. June 27, 1985) (statement of Senator William Proxmire).

106. CRS-China *supra* note 3, at 3.

107. 42 U.S.C. §§ 2121, 2164 (1982).

108. Chanda, *Nuclear Cooperation, Smoothing the Way, Sino-U.S. Pact Faces Easier Path Through Congress*, Far Eastern Econ. Rev., Oct. 17, 1985, at 25.

109. S. J. Res. 238, 99th Cong., 1st Sess. (1985). See *supra* note 68.

B. *Section 129 of the Atomic Energy Act of 1954*<sup>110</sup>

Because of China's suspicious nuclear cooperation with other countries, Section 129 of the AEA was invoked to allow further congressional scrutiny of the Cooperation Agreement. According to Section 129, exports of nuclear materials and equipment or sensitive nuclear technology are prohibited to any nation that the President finds to have, subsequent to 1978,

. . . assisted, encouraged or induced any non-nuclear weapon state to engage in activities involving source or special nuclear material and having direct significance for the manufacture or acquisition of nuclear explosive devices, and has failed to take steps which, in the President's judgment, represent sufficient progress toward terminating such assistance, encouragement or inducement.<sup>111</sup>

The President may waive this export prohibition if he determines that the prohibition would seriously prejudice United States non-proliferation goals or jeopardize the common defense or security of the United States.<sup>112</sup> Thus, the President still retains discretionary powers should China manifest nuclear proliferation behavior contrary to U.S. non-proliferation policies.<sup>113</sup>

V. SUBSEQUENT MEASURES

A. *Judicial Intervention - Cranston v. Reagan*

Because the Cooperation Agreement successfully survived the congressional scrutiny without a joint resolution veto, successful subsequent judicial measures to nullify the Cooperation Agreement appear unlikely. In *Cranston v. Reagan*<sup>114</sup> three congressional members<sup>115</sup> and six public interest organizations<sup>116</sup> alleged an Atomic Energy Act viola-

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110. 42 U.S.C. § 2158 (1982).

111. 42 U.S.C. § 2158(2)(B) (1982).

112. 42 U.S.C. § 2158(2) (1982).

113. President Carter invoked this privilege during the Tarapur incident. *See infra* note 124 and accompanying text.

114. *Cranston v. Reagan*, 611 F. Supp. 247 (D.C.D.C. 1985).

115. The plaintiffs were Senator Alan Cranston, member of the Senate Committee on Foreign Relations, and United States Representatives Howard E. Wolpe, and Michael D. Barnes, members of the House Committee on Foreign Affairs. *Id.* at 247 n.1.

116. The organizational plaintiffs were: the Nuclear Control Institute, the Union of Concerned Scientists, Greenpeace, U.S.A., the Natural Resources Defense Council,

tion against several executive branch members<sup>117</sup> concerning agreements for cooperation in the peaceful uses of nuclear energy with Sweden<sup>118</sup> and Norway.<sup>119</sup> The plaintiffs sought a mandatory injunction requiring the U. S. Secretary of State and the Secretary of Energy to review, subject to the agreements for purposes of reprocessing, all transfers from Sweden and Norway of spent reactor fuel.<sup>120</sup> The defendants moved to dismiss asserting that the case presented a non-justiciable political question because United States nuclear non-proliferation policy and foreign relations matters were best left to the political branches of government.<sup>121</sup> The court granted the defendant's motion to dismiss the case, holding that the case presented a non-justiciable political question.<sup>122</sup> Thus, it would seem that the statutory scheme of the Cooperation Agreement with China would also qualify as a non-justiciable political question. As in *Cranston v. Reagan*, the issue of consent rights to reprocess U.S.-supplied nuclear fuel also arose in the Chinese Cooperation Agreement. Again, because of the foreign policy considerations and the subsequent restrictions placed on the Chinese Cooperation Agreement,<sup>123</sup> subsequent judicial intervention appears unlikely.

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Inc., the Energy Research Foundation, and Greenpeace, Sweden. *Id.* at 247 n.2.

117. The defendants included United States President Ronald W. Reagan, United States Secretary of State George P. Shultz, United States Secretary of Energy Donald P. Hodel, Director of the United States Arms Control and Disarmament Agency Kenneth L. Adelman, and the Chairman and members of the United States Nuclear Regulatory Commission. *Id.* at 247 n. 3.

118. The precise name of the treaty is "Agreement for Cooperation between the United States of American and Sweden Concerning Peaceful Uses of Nuclear Energy." *Id.* at 247.

119. "Revised Agreement for Cooperation between the United States of America and Norway Concerning Peaceful Uses of Nuclear Energy." *Id.*

120. The plaintiffs contended that 4 U.S.C. §§ 2153-2160 were violated because terms to retransfer and reprocess spent nuclear reactor fuel must be made subsequent to the initial cooperation agreements. The Norwegian and Swedish agreements for cooperation permitted them to retransfer spent fuel throughout the thirty year life of the agreements. *Id.* at 250.

121. *Id.* at 248, 252. The defendants also asserted that the plaintiffs were without standing to sue and that congress intended to preclude judicial review of nuclear cooperation agreements.

122. *Id.* at 254. The court did not address the defendant's other issues regarding standing and statutory preclusion of judicial review. Assuming that the Congressional plaintiffs did have standing, the court would have denied the requested relief exercising remedial discretion. *Id.* Moreover, although the court held that the legal issues did fall within the court's province to decide, they were nonjusticiable. *Id.* at 247.

123. See *supra* note 68 and accompanying text.

B. *Legislative and Executive Intervention - U.S. v. India Case*

Prior U. S. experience, however, demonstrates that subsequent legislative or executive measures are likely if it appears that China intends to violate the terms of the Agreement. The United States concluded a nuclear agreement with India on October 25, 1963, in which the United States was to supply all of the enriched uranium needed for fuel at the Tarapur Atomic Power Station.<sup>124</sup> Article VI of this agreement enumerated safeguards to ensure that U.S.-provided nuclear fuel or technology supplied to India would be used for peaceful purposes.<sup>125</sup> On May 18, 1974, India conducted an underground test of a nuclear explosive device.<sup>126</sup> The Nixon Administration temporarily suspended nuclear exports for Tarapur until India assured the United States that United States nuclear materials would be used only for the Tarapur Station, thereby precluding their use for nuclear explosive purposes.<sup>127</sup> Congressional concern led to eleven bills dealing with non-proliferation policy during the 95th Congress, culminating in the passage of the Nuclear Non-Proliferation Act (NNPA) of 1978.<sup>128</sup> To implement the NNPA's goals, Congress mandated that statutory standards be met before the Nuclear Regulatory Commission (NRC) would be allowed to issue export licenses.<sup>129</sup> The NRC denied the issuance of licenses for exports to India on May 16, 1980 after two unsuccessful applications.<sup>130</sup> However, President Carter vetoed the NRC's decision by utilizing an executive order that authorized the exports to India.<sup>131</sup> Carter argued that if the United States withheld the nuclear fuel exports, India might claim that the United States had breached its contractual obligations, thus freeing India of its corresponding obligation

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124. Agreement for Cooperation Concerning the Civil Uses of Atomic Energy, Aug. 8, 1963, United States-India, Art. II, para. A, 14 U.S.T. 1484, T.I.A.S. 5446.

125. *Id.* art. VI.

126. See Schorr, *Testing Statutory Criterion for Foreign Policy: The Nuclear Non-Proliferation Act of 1978 and the Export of Nuclear Fuel to India*, 14 N.Y.U.J. INT'L L. & POL. 419, 426 (1982). See also Moeller, *Nuclear Non-Proliferation: Export of Nuclear Fuel to India-Exec. Order No. 12218*, 45 Fed. Reg 41625 (1980), 22 HARV. INT'L L.J. 227 (1981).

127. W. H. DONNELLY, D. S. KRAMER, NUCLEAR EXPORTS: LICENSING FUEL FOR INDIA'S TARAPUR NUCLEAR POWERPLANT 3 (Library of Congress, Congressional Research Service Issue Brief No. IB78043), (1980). See N. Y. Times, May 23, 1974 at A1, col. 4.

128. Schorr, *supra* note 126, at 427 n. 37.

129. 42 U.S.C. §§ 2156, 2157 (1982).

130. Schorr, *supra* note 126, at 434-5.

131. *Id.* at 447.



not to reprocess U.S.-supplied fuel.<sup>132</sup> Moreover, Carter asserted that India might not abide by U.S. vetoes over the transfer of nuclear material to a third country.<sup>133</sup> In addition, suspending fuel to India might move India to withdraw Tarapur from IAEA inspections. Carter stated that continuing these exports would maintain a dialogue with India essential to U.S. non-proliferation policies.<sup>134</sup>

The Cooperation Agreement with China raises several potential concerns similar to those encountered during the Tarapur incident. In the Tarapur incident the United States continued to supply nuclear fuel to India because of foreign policy considerations. Should China invoke its own interpretations of the Cooperation Agreement, foreign policy considerations similar to those faced by the United States during the Tarapur incident may again place the United States in a difficult and precarious position.

## VI. COMMERCIAL IMPLICATIONS

### A. *China's Civil Nuclear Program and Energy Market*

Not only do non-proliferation and foreign policy issues emerge from the Cooperation Agreement, but substantial commercial implications become evident. In light of China's overall energy market, its civil nuclear program has become increasingly important to its development and modernization efforts. Recently, China has begun to develop an ambitious nuclear energy program for the installation of nuclear energy power by the year 2000.<sup>135</sup> The construction of nuclear power plants in energy deficient areas would help China attain its goal of doubling energy output and efficiency, which are both a necessary components for Chinese development and modernization. Although China is faced with severe electrical power shortages which have adversely affected industrial production, it still must obtain increased electrical power for future industrial and economic growth.

China has relied primarily on coal-generated energy, especially in

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132. *Id.* at 448.

133. *Id.*

134. *Id.* at 449-50.

135. H. R. Doc. No. 99-86, *supra* note 80, at 24. By the year 2000, China expects to quadruple the value of its industrial and agricultural products currently at U.S. \$350 billion. Print 99-L, *supra* note 9, at 34. The energy demand would quadruple from 62,000 megawatts (MW) to 250,000 MW. The projected energy source mix would consist of twenty-five percent from fossil fuel, twenty percent from hydropower, and five percent from nuclear. Current plans call for ten to twelve reactors providing 10,000 MW. *Id.*

the rich fossil fuel areas of northern and central China.<sup>136</sup> Coal currently represents seventy-four percent of China's energy production.<sup>137</sup> Coal-generated energy has become more costly because of the growing demands for coal, especially in the transportation and railroad industries.

Petroleum usage in China has fallen,<sup>138</sup> yet the output of petroleum has remained constant since 1978.<sup>139</sup> Petroleum now accounts for twenty percent of China's energy supply, down from twenty-four percent in 1978.<sup>140</sup> Growing internal demands for oil may force China to reconsider its oil export policy which accounts for twenty-five percent of current export earnings.<sup>141</sup>

Hydroelectric power also provides energy for China. However, the large dams required to expand the use of hydroelectric power are regarded as a costly and overly taxing loss on valuable agricultural land.<sup>142</sup>

Natural gas production is limited to only one basin in Sichuan as a by-product of the major oil fields.<sup>143</sup> Because of severe undercapitalization, especially in exploration, natural gas production has declined significantly.<sup>144</sup>

Because of these perceived energy requirements and conditions, China has accepted nuclear power as an alternative. China will need to balance the costs of implementing foreign technological assistance to construct nuclear installations against its tradition of self-reliance. China has adopted a dual strategy: importing nuclear technology for large plants, but designing and building smaller indigenous plants.<sup>145</sup> It is estimated that China possesses uranium deposits sufficient to maintain this civil nuclear program,<sup>146</sup> and American industries aspire to accommodate China's expected demand for American nuclear products

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136. H. R. Doc. 99-86, *supra* note 80, at 24.

137. U.S. Congress, Office of Technology Assessment, *Energy Technology Transfer to China-A Technical Memorandum*, (Washington, D.C. U.S. Gov. Printing Off., Sept. 1985, p. 20 [hereinafter cited as OAT].

138. See H.R. Doc. 99-86, *supra* note 80, at 24.

139. *Id.*

140. This situation has developed largely because of lack of exploration. See OAT, *supra* note 137, at 19.

141. See H. R. Doc. 99-86, *supra* note 80, at 24.

142. *Id.* There are eighteen large hydropower stations and eleven under construction for completion in the year 1990.

143. See OAT, *supra* note 137, at 19.

144. *Id.*

145. Print 99-L, *supra* note 9, at 34.

146. See H. R. Doc. 99-86, *supra* note 80, at 25.

and related services.

### 1. *Market Potential*

The potential impact of the Cooperation Agreement on U. S. industries may be significant. In a hearing before the House Energy and Commerce Special Subcommittee on U.S. Trade with China, several U.S. companies testified regarding their respective needs for doing business with China in order to remain in business themselves.<sup>147</sup> If China imports each of the planned ten nuclear reactors, the total cost to China has been estimated at \$20 billion, consisting primarily of nuclear components and services.<sup>148</sup> Westinghouse has estimated that between six to seven billion dollars out of China's \$20 billion budget allocated for nuclear power plants will be contracted out to foreign contributors.<sup>149</sup> General Electric estimated that the U.S. industry could enjoy \$10 billion of exports over the next five to ten years.<sup>150</sup> The American Nuclear Society estimated that the Chinese nuclear program could provide jobs for approximately 20,000 to 50,000 workers outside of China over the next ten to fifteen years.<sup>151</sup> Additionally, future contracts in associated areas for technical assistance, replacement parts, transmission and distribution systems, lighting, and factory installations could also produce large revenues.

With no new projected nuclear orders from Japan, West Germany, France, Great Britain, or the United States, the nuclear industry faces intense competition for the Chinese market.<sup>152</sup> Thus, the Cooperation Agreement is crucial to the vitality of the American nuclear industry.

147. H. Hrg. 98-148, *supra* note 61. See also CRS-China *supra* note 3, at 3-4.

148. Print 99-L, *supra* note 9, at 34. The nuclear component of a large power plant is about fifteen to twenty percent of the total cost. *Id.* Much of the \$20 billion would derive from site preparations and in local civil engineering and construction. *Id.* at 35.

149. H. Hrg. 98-148, *supra* note 61, at 4.

150. *Id.* at 56.

151. See CRS *supra* note 3, at CRS-3. Westinghouse estimates that each reactor sale will provide 5,000 jobs in thirty-five states and \$1 billion in revenues over five or six years. Print 99-L, *supra* note 9, at 37.

152. H. Hrg. 98-148, *supra* note 61, at 4, 42, 44, 70. See also Print 99-L, *supra* note 9, at 36. For details concerning non-U.S. nuclear suppliers General Electric Co. of Great Britain and Framatone of France, see do Rosario, *Peking gets its way, China's Daya Bay nuclear plant is all set to go ahead*, Far Eastern Econ. Rev., Jan. 23, 1986; Matthews, *Nuclear Power Shapes Up, But will the opportunities be as large as expected?* CHINA BUS. REV., July-Aug. 1985, at 26.

## 2. *Financing Potential*

In addition to the commercial implications, the required financing of China's nuclear power plants raises another issue. The Chinese are unlikely to finance the nuclear power plants through borrowing; they plan to finance through excess foreign exchange reserves.<sup>153</sup> If China's foreign exchange reserves fail to supply the necessary currency to finance the nuclear power plants, China may be forced to borrow the necessary funds, thus providing U.S. banks with opportunities to finance the transactions. Often, nuclear power plants require at least eight years of construction and another twelve to fifteen years for repayment of the financing loans.<sup>154</sup> In addition to possibly borrowing funds from the United States, China has several other options for financing its nuclear needs. It may consider utilizing official Government supported export credit, using credit entirely from Export-Import Bank (Eximbank), or Eximbank combined with private credit sources.<sup>155</sup> Another option available is to arrange complete private financing with an Exim guarantee. China may also utilize foreign currency swaps.<sup>156</sup>

The large commercial and financing possibilities are of genuine concern and interest for the American nuclear industry and U.S. economy. Potential arrangements with China may also improve the U.S. trade deficit problems. The financial implications of the Cooperation Agreement, which undoubtedly played a key role in the passage of the Agreement, may prove to be as significant as the Agreement's non-proliferation goals.

## VII. CONCLUSION

The controversial Nuclear Cooperation Agreement illuminates the

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153. China has cancelled its plant to purchase two nuclear power plants valued at about \$2 billion after months of foreign contract bidding. The decision to abort the plan was because of foreign currency and capital reserve shortages in China. China has manifested their intent to finance the nuclear power plants strictly through the use of reserves which also casts doubts as to U.S. financial market involvement. *See Gumbel, Peking Drops Plans to Purchase Nuclear Plants, Siemens Unit Says*, Wall Street J., Mar. 4, 1986, at 35.

154. *See S. Hrg. 99-339, supra* note 81, at 163 (statement of Raymond J. Albright, Vice President-Asia, Export-Import Bank of the United States).

155. *Id.* at 164.

156. *Id.* A currency swap allows a borrower to exchange its export credit in dollars with a private bank credit to another borrower in yen, or other low interest rate currency. So-called low interest rate currencies include the Japanese yen and Swiss franc markets with fixed market interest rates below 7.5 percent for eight to ten years. The dollar rates are fixed at 11 to 13 percent at the time of this hearing.

difficulties of balancing non-proliferation objectives with foreign policy and commercial goals. The Chinese Agreement has enhanced United States-Sino relations because of U.S. cooperative efforts. The U.S. is now able to exercise greater influence over China's nuclear policy, with the result of strengthening U.S. non-proliferation policies through consultations required under the Cooperation Agreement. In addition, American firms now have a legal framework in which to negotiate potential lucrative contracts in a sagging nuclear industry.

However, these improvements are not risk free. U.S. cooperation with the world's second leading communist state could encourage more U.S. involvement with other communist states. China also could direct U.S.-supplied nuclear power into military applications in its competitive drive to achieve nuclear parity with the superpowers. Finally, the financial possibilities are not guaranteed to materialize.<sup>157</sup>

The Tarapur incident lead to the passage of the Nuclear Non-proliferation Act of 1978. The China Nuclear Cooperation Agreement has lead to the introduction of legislation<sup>158</sup> to avoid compromising U.S. non-proliferation goals. Future nuclear cooperation agreements should require unambiguous U.S. consent rights and IAEA safeguards negotiated and included in the terms of the agreement prior to its signing and not legislatively rectified *post factum* in order to demonstrate and preserve U.S. integrity and dedication to its non-proliferation policy.

*Benjamin M. Chin*

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157. Construction of ten nuclear power plants was halted because of China's financial difficulties. See World Journal, Mar. 29, 1986, at 2 (in Chinese). Furthermore, China's Vice Premier Li Peng announced that China was curtailing its anticipated purchases of foreign nuclear equipment and reactors because of shortages in foreign exchange reserves raising doubts concerning the likelihood of U.S. multibillion-dollar nuclear sales to China. Southerland, *China May Turn to Soviets For Future in Nuclear Power*, Wash. Post, Apr. 4, 1986, at A1. See also *supra* note 153. China announced that it was considering the purchase of Soviet nuclear technology but it is doubtful that the Chinese will purchase the inferior Soviet nuclear technology in light of the Chernobyl nuclear accident. China stated that it will remain dedicated to promoting its civilian nuclear ambitions, unaffected by the Chernobyl accident. Southerland, *China to Press on with Nuclear Plans*, Wash. Post, May 6, 1986, at A13.

158. See *supra* note 85.

**APPENDIX A****Agreement for Cooperation Between The Government of the United States of America and The Government of the People's Republic of China Concerning Peaceful Uses of Nuclear Energy**

The Government of the United States of America and the Government of the People's Republic of China,

Desiring to establish extensive cooperation in the peaceful uses of nuclear energy on the basis of mutual respect for sovereignty, non-interference in each other's internal affairs, equality and mutual benefit,

Noting that such cooperation is one between two nuclear weapon states,

Affirming their support of the objectives of the statute of the International Atomic Energy Agency (IAEA),

Affirming their intention to carry out such cooperation on a stable, reliable and predictable basis,

Mindful that peaceful nuclear activities must be undertaken with a view to protecting the international environment from radioactive, chemical and thermal contamination,

Have agreed as follows:

*Article 1**Definitions*

For the purposes of this agreement:

(1) "parties" means the Government of the United States of America and the Government of the People's Republic of China;

(2) "authorized person" means any individual or any entity under the jurisdiction of either party and authorized by that party to receive, possess, use, or transfer material, facilities or components;

(3) "person" means any individual or any entity subject to the jurisdiction of either party but does not include the parties to this agreement;

(4) "peaceful purposes" include the use of information, technology, material, facilities and components in such fields as research, power generation, medicine, agriculture and industry but do not include use in, research specifically on or development of any nuclear explosive device, or any military purpose;

(5) "material" means source material, special nuclear material or byproduct material, radioisotopes other than byproduct material, moderator material, or any other such substance so designated by agreement of the parties;

(6) "source material" means (i) uranium, thorium, or any other

material so designated by agreement of the parties, or (ii) ores containing one or more of the foregoing materials, in such concentration as the parties may agree from time to time;

(7) "special nuclear material" means (i) plutonium, uranium 233, or uranium enriched in the isotope 235, or (ii) any other material so designated by agreement of the parties;

(8) "byproduct material" means any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material;

(9) "moderator material" means heavy water, or graphite or beryllium of a purity suitable for use in a reactor to slow down high velocity neutrons and increase the likelihood of further fission, or any other such material so designated by agreement of the parties;

(10) "high enriched uranium" means uranium enriched to twenty percent or greater in the isotope 235;

(11) "low enriched uranium" means uranium enriched to less than twenty percent in the isotope 235;

(12) "facility" means any reactor, other than one designed or used primarily for the formation of plutonium or uranium 233, or any other item so designated by agreement of the parties;

(13) "reactor" is defined in Annex I, which may be modified by mutual consent of the parties.

(14) "sensitive nuclear facility" means any plant designed or used primarily for uranium enrichment, reprocessing of nuclear fuel, heavy water production or fabrication of nuclear fuel containing plutonium;

(15) "component" means a component part of a facility or other item, so designated by agreement of the parties;

(16) "major critical component" means any part or group of parts essential to the operation of a sensitive nuclear facility;

(17) "sensitive nuclear technology" means any information (including information incorporated in a facility or an important component) which is not in the public domain and which is important to the design, construction, fabrication, operation or maintenance of any sensitive nuclear facility, or such other information so designated by agreement of the parties.

## *Article 2*

### *Scope of Cooperation*

1. The parties shall cooperate in the use of nuclear energy for peaceful purposes in accordance with the provisions of this agreement. Each party shall implement this agreement in accordance with its re-

spective applicable treaties, national laws, regulations and license requirements concerning the use of nuclear energy for peaceful purposes. The parties recognize, with respect to the observance of this agreement, the principle of international law that provides that a party may not invoke the provisions of its internal law as justification for its failure to perform a treaty.

2. Transfers of information, technology, material, facilities and components under this agreement may be undertaken directly between the parties or through authorized persons. Such cooperation shall be subject to this agreement and to such additional terms and conditions as may be agreed by the parties.

3. Material, facilities and components will be regarded as having been transferred pursuant to this agreement only upon receipt of confirmation by the supplier party, from the appropriate Government authority of the recipient party, that such material, facilities or components will be subject to this agreement and that the proposed recipient of such material, facilities or components, if other than the recipient party, is an authorized person.

4. Any transfer of sensitive nuclear technology, sensitive nuclear facilities, or major critical components will, subject to the principles of this agreement, require additional provisions as an amendment to this agreement.

### *Article 3*

#### *Transfer of Information and Technology*

Information and technology concerning the use of nuclear energy for peaceful purposes may be transferred. Transfers of such information and technology shall be that which the parties are permitted to transfer and may be accomplished through various means, including reports, data banks, computer programs, conferences, visits and assignments of persons to facilities. Fields which may be covered include, but shall not be limited to, the following:

(1) research, development, experiment, design, construction, operation, maintenance and use and retirement of reactors and nuclear fuel fabrication technology;

(2) the use of material in physical and biological research, medicine, agriculture and industry;

(3) nuclear fuel cycle research, development and industrial application to meet civil nuclear needs, including multilateral approaches to guaranteeing nuclear fuel supply and appropriate techniques for management of nuclear wastes;

(4) health, safety, environment, and research and development re-



lated to the foregoing;

(5) assessing the role nuclear power may play in international energy plans;

(6) codes, regulations and standards for the nuclear energy industry; and

(7) such other fields as may be agreed by the parties.

#### *Article 4*

##### *Transfer of Material, Facilities and Components*

1. Material, facilities and components may be transferred pursuant to this agreement for applications consistent with this agreement. Any special nuclear material to be transferred under this agreement shall be low enriched uranium except as provided in paragraph 4 of this article.

2. Low enriched uranium may be transferred for use as fuel in reactors and reactor experiments, for conversion or fabrication, or for such other purposes as may be agreed by the parties.

3. The quantity of special nuclear material transferred under this agreement shall be the quantity which the parties agree is necessary for any of the following purposes: the loading of reactors or use in reactor experiments, the efficient and continuous operation of such reactors or conduct of such reactor experiments, and the accomplishment of such other purposes as may be agreed by the parties.

4. Small quantities of special nuclear material may be transferred for use as samples, standards, detectors, targets, radiation sources and for such other purposes as the parties may agree.

#### *Article 5*

##### *Retransfers, Storage, Reprocessing, Enrichment, Alteration, and No Use for Military Purposes*

1. Material, facilities, components or special nuclear material transferred pursuant to this agreement and any special nuclear material produced through the use of such material or facilities may be retransferred by the recipient party, except that any such material, facility, components or special nuclear material shall not be retransferred to unauthorized persons or, unless the parties agree, beyond its territory.

2. Neither party has any plans to enrich to twenty percent or greater, reprocess, or alter in form or content material transferred pursuant to this agreement or material used in or produced through the use of any material or facility so transferred. Neither party has any plans to change locations for storage of plutonium, uranium 233 (except as contained in irradiated fuel elements), or high enriched ura-

nium transferred pursuant to this agreement or used in or produced through the use of any material or facility so transferred. In the event that a party would like at some future time to undertake such activities, the parties will promptly hold consultations to agree on a mutually acceptable arrangement. The parties undertake the obligation to consider such activities favorably, and agree to provide pertinent information on the plans during the consultations. Inasmuch as any such activities will be solely for peaceful purposes and will be in accordance with the provisions of this agreement, the parties will consult immediately and will seek agreement within six months on long-term arrangements for such activities. In the spirit of cooperation the parties agree not to act within that period of time. If such an arrangement is not agreed upon within that period of time, the parties will promptly consult for the purpose of agreeing on measures which they consider to be consistent with the provisions of the agreement in order to undertake such activities on an interim basis. The parties agree to refrain from actions which either party believes would prejudice the long-term arrangements for undertaking such activities or adversely affect cooperation under this agreement. The parties agree that the consultations referred to above will be carried out promptly and mutual agreement reached in a manner to avoid hampering, delay or undue interference in their respective nuclear programs. Neither party will seek to gain commercial advantage. Nothing in this article shall be used by either party to inhibit the legitimate development and exploitation of nuclear energy for peaceful purposes in accordance with this agreement.

3. Material, facilities or components transferred pursuant to this agreement and material used in or produced through the use of any material, facility or components so transferred shall not be used for any nuclear explosive device, for research specifically on or development of any nuclear explosive device, or for any military purpose.

## *Article 6*

### *Physical Security*

1. Each party shall maintain adequate physical security with respect to any material, facility or components transferred pursuant to this agreement and with respect to any special nuclear material used in or produced through the use of any material or facility so transferred.

2. The parties agree to the levels for the application of physical security set forth in Annex II, which levels may be modified by mutual consent of the parties. The parties shall maintain adequate physical security measures in accordance with such levels. These measures, as minimum protection measures, shall be comparable to the recommen-

dations set forth in IAEA document INFCIRC/225/Revision 1 entitled "The Physical Protection of Nuclear Material", or in any revision of that document agreed to by the parties.

3. The parties shall consult at the request of either party regarding the adequacy of physical security measures maintained pursuant to this article.

4. Each party shall identify those agencies or authorities responsible for ensuring that levels of physical security are adequately met and having responsibility for coordinating response and recovery operations in the event of unauthorized use or handling of material subject to this article. Each party shall also designate points of contact within its national authorities to cooperate on matters of out-of-country transportation and other physical security matters of mutual concern.

#### *Article 7*

##### *Cessation of Cooperation*

1. Each party shall endeavor to avoid taking any actions that affect cooperation under this agreement. If either party at any time following entry into force of this agreement does not comply with the provisions of this agreement, the parties shall promptly hold consultations on the problem, it being understood that the other party shall have the right to cease further cooperation under this agreement.

2. If either party decides to cease further cooperation under this agreement, the parties shall make appropriate arrangements as may be required.

#### *Article 8*

##### *Consultations*

1. The parties shall consult at the request of either party regarding the implementation of this agreement, the development of further cooperation in the field of peaceful uses of nuclear energy, and other matters of mutual concern.

2. The parties recognize that this cooperation in the peaceful uses of nuclear energy is between two nuclear-weapon states and that bilateral safeguards are not required. In order to exchange experience, strengthen technical cooperation between the parties, ensure that the provisions of this agreement are effectively carried out, and enhance a stable, reliable, and predictable nuclear cooperation relationship, in connection with transfers of material, facilities and components under this agreement the parties will use diplomatic channels to establish mutually acceptable arrangements for exchanges of information and visits

to material, facilities and components subject to this agreement.

3. The parties shall exchange views and information on the establishment and operation of their respective national accounting and control systems for source and special nuclear material subject to this agreement.

#### *Article 9*

##### *Environmental Protection*

The parties shall consult, with regard to activities under this agreement, to identify the international environmental implications arising from such activities and shall cooperate in protecting the international environment from radioactive, chemical or thermal contamination arising from peaceful nuclear cooperation under this agreement and in related matters of health and safety.

#### *Article 10*

##### *Entry Into Force and Duration*

1. This agreement shall enter into force on the date of mutual notifications of the completion of legal procedures by the parties and shall remain in force for a period of thirty years. This term may be extended by agreement of the parties in accordance with their respective applicable procedures.

2. Notwithstanding the suspension, termination or expiration of this agreement or any cooperation hereunder for any reason, the provisions of articles 5, 6, 7, and 8 shall continue in effect so long as any material, facility or components subject to these articles remain in the territory of the party concerned or any material, facility or components subject to these articles remain subject to that party's right to exercise jurisdiction or to direct disposition elsewhere.

IN WITNESS WHEREOF, the undersigned, being duly authorized, have signed this agreement.

DONE at Washington this 23rd day of July, 1985, in English and Chinese, both equally authentic.

FOR THE GOVERNMENT  
OF THE UNITED STATES  
OF AMERICA:

FOR THE GOVERNMENT  
OF THE PEOPLE'S  
REPUBLIC OF CHINA:

Annex I — Definition of “Reactor”

“Reactor” means:

1. any apparatus, other than a nuclear weapon or other nuclear explosive device, in which a self-sustaining fission chain reaction is maintained by utilizing uranium, plutonium or thorium, or any combination thereof; or
2. any of the following major parts of an apparatus described in paragraph 1:
  - (1) a pressure vessel designed to contain the core;
  - (2) primary collant pumps;
  - (3) fuel charging or discharging machines;
  - (4) control rods.

A “reactor” does not include the steam turbine generator portion of a nuclear power plant.

Annex II

Pursuant to paragraph 2 of article 6, the agreed levels of physical security to be ensured by the competent national authorities in the use, storage and transportation of the materials listed in the attached table shall as a minimum include protection characteristics as below.

*Category III*

Use and storage within an area to which access is controlled.

Transportation under special precautions including prior arrangements among sender, recipient and carrier, and prior agreement between entities subject to the jurisdiction and regulation of supplier and recipient States, respectively, in case of international transport specifying time, place and procedures for transferring transport responsibility.

*Category II*

Use and storage within a protected area to which access is controlled, i.e., an area under constant surveillance by guards or electronic devices, surrounded by a physical barrier with a limited number of points of entry under appropriate control, or any area with an equivalent level of physical protection.

Transportation under special precautions including prior arrangements among sender, recipient and carrier, and prior agreement between entities subject to the jurisdiction and regulation of supplier and recipient States, respectively, in case of international transport, specify-

ing time, place and procedures for transferring transport responsibility.

*Category I*

Material in this category shall be protected with highly reliable systems against unauthorized uses as follows:

Use and storage within a highly protected area, i.e., a protected area as defined for category II above, to which, in addition, access is restricted to persons whose trustworthiness has been determined, and which is under surveillance by guards who are in close communication with appropriate response forces. Specific measures taken in this context should have as their objective the detection and prevention of any assault, unauthorized access or unauthorized removal of material.

Transportation under special precautions as identified above for transportation of categories II and III materials and, in addition, under constant surveillance by escorts and under conditions which assure close communication with appropriate response forces.

Agreed Minute

During the negotiation of the Agreement for Cooperation between the United States of America and the People's Republic of China Concerning Peaceful Uses of Nuclear Energy signed today, the following understanding, which shall be an integral part of the agreement, was reached.

The parties agree that the interpretation and implementation of article 5(3) shall not involve any nuclear activities and related research and development carried out by either party, as a nuclear weapon state, through the use of material, facilities, components and technology not subject to the agreement.

TABLE: CATEGORIZATION OF NUCLEAR MATERIAL<sup>e</sup>

Material	Form	Category		
		I	II	III
1. Plutonium <sup>a,f</sup>	Unirradiated <sup>b</sup>	2 kg or more	Less than 2 kg but more than 500 g	500 g or less <sup>c</sup>
2. Uranium-235 <sup>d</sup>	Unirradiated <sup>b</sup>	5 kg or more	Less than 5 kg but more than 1 kg	1 kg or less <sup>c</sup>
	— uranium enriched to 20% <sup>235</sup> U or more	—	10 kg or more	Less than 10 kg <sup>c</sup>
	— uranium enriched to 10% <sup>235</sup> U but less than 20%	—	—	10 kg or more
3. Uranium-233	Unirradiated <sup>b</sup>	2 kg or more	Less than 2 kg but more than 500 g	600 g or less <sup>c</sup>
	— uranium enriched above natural, but less than 10% <sup>233</sup> U	—	—	—

<sup>a</sup> All plutonium except that with isotopic concentration exceeding 80% in plutonium-238.

<sup>b</sup> Material not irradiated in a reactor but with a radiation level equal to or less than 100 rads/hour at one meter unshielded.

<sup>c</sup> Less than radiologically significant quantity should be exempted.

<sup>d</sup> Natural uranium, depleted uranium and thorium and quantities of uranium enriched to less than 10% not falling in Category III should be protected in accordance with prudent management practice.

<sup>e</sup> Irradiated fuel should be protected as Category I, II or III nuclear material depending on the category of the fresh fuel. However, fuel which by virtue of original fissile material content is included as Category I or II before irradiation should only be reduced one Category level, while the radiation level from fuel exceeds 100 rads/h at one meter unshielded.

<sup>f</sup> The State's competent authority should determine if there is a credible threat to disperse plutonium malevolently. The State should then apply physical protection requirements for category I, II or III of nuclear material, as it deems appropriate and without regard to the plutonium quantity specified under each category herein, to the plutonium isotopes in those quantities and forms determined by the State to fall within the scope of the credible dispersal.

## APPENDIX B

## CHINA'S NUCLEAR POLICY

## CHINA'S NUCLEAR TESTS

	<u>Date</u>	<u>Yield</u>	<u>Delivery System</u>	<u>Test Site</u>	<u>Warhead</u>
1.	10/16/64	20KT	Ground (tower)	Lop Nor	Fission device
2.	5/14/65	40KT	Air (TU-4)	Lop Nor	Fission
3.	5/09/66	300KT	Air (TU-16)	Lop Nor	Fission
4.	10/27/66	30KT	Missile (SS-4 IRBM)	Shwangchentze to Lop Nor	Fission
5.	12/28/66	500KT	Ground (tower)	Lop Nor	Fission
6.	6/17/67	3MT	Air (TU-16)	Lop Nor	Thermonuclear warhead
7.	12/24/67	25KT	Air (TU-16)	Lop Nor	N.A.
8.	12/27/68	3MT	Air (TU-16)	Lop Nor	Thermonuclear warhead
9.	9/22/69	25KT	Underground	Lop Nor	Fission device
10.	9/29/69	3MT	Air (TU-16)	Lop Nor	Thermonuclear warhead
11.	10/14/70	3MT	Air (TU-16)	Lop Nor	Thermonuclear warhead
12.	11/18/71	20KT	Ground (tower)	Lop Nor	Tactical warhead
13.	1/07/72	Under 20KT	Ground (tower)	Nop Nor	Tactical warhead
14.	3/18/72	200KT	Air (TU-16)	Lop Nor	Atomic warhead
15.	6/27/73	2MT+	Air (TU-16)	Lop Nor	Thermonuclear warhead
16.	6/17/74	500MT	Air (TU-16)	Lop Nor	Tactical weapon
17.	10/27/75	200KT	Underground	Lop Nor	Fission
18.	1/23/76	200KT	Air (TU-16)	Lop Nor	N.A.
19.	9/26/76	200KT	Air (TU-16)	Lop Nor	Tactical weapon
20.	10/17/76	200KT	Underground	Lop Nor	Tactical weapon
21.	11/17/76	4MT	Air (TU-16)	Lop Nor	Thermonuclear warhead
22.	9/17/77	20KT	Air (TU-16)	Lop Nor	Fission
23.	3/15/78	20KT	Ground (tower)	Lop Nor	Fission
24.	10/14/78	50KT	Underground	Lop Nor	Fission
25.	12/14/78	20KT	Air (TU-16)	Lop Nor	Tactical weapon
26.	10/16/80	1MT	Air (TU-16)	Lop Nor	Thermonuclear warhead

Sources: Ray bonds (ed.), *The Chinese War Machine* (New York: Crescent, 1979), p. 174;  
Agatha S.Y. Wong-Fraser, "China's Nuclear Deterrent," *Current History*, September  
1981, p. 246;

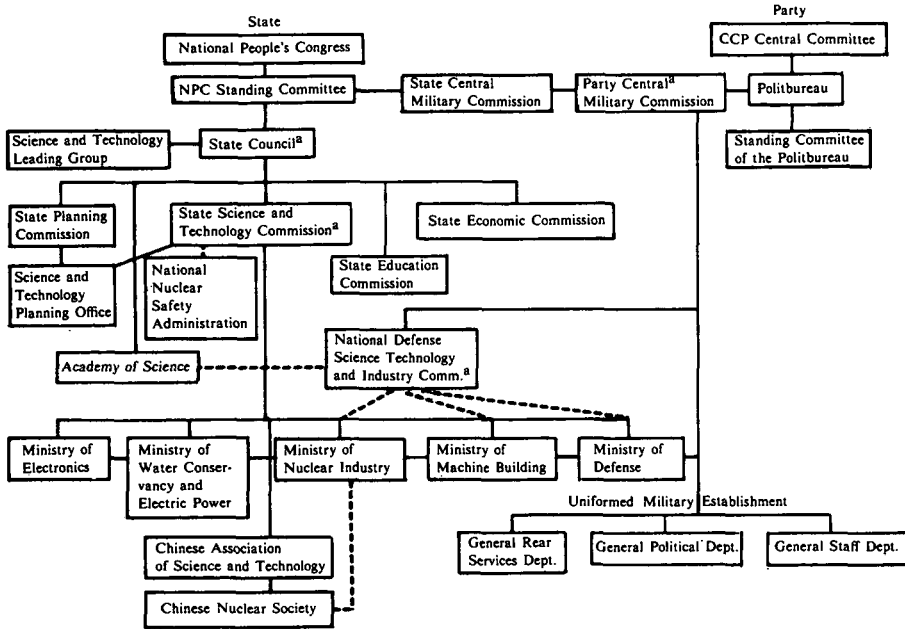
*Stockholm International Peace Research International Yearbook 1981*, pp. 374, 382.

This chart was taken from Shao-Chuan Leng, *China's Nuclear Policy: An Overall View*, Occa-  
sional Papers/Reprints Series in Asian Studies, No.1 (1984) 60, p. 15.

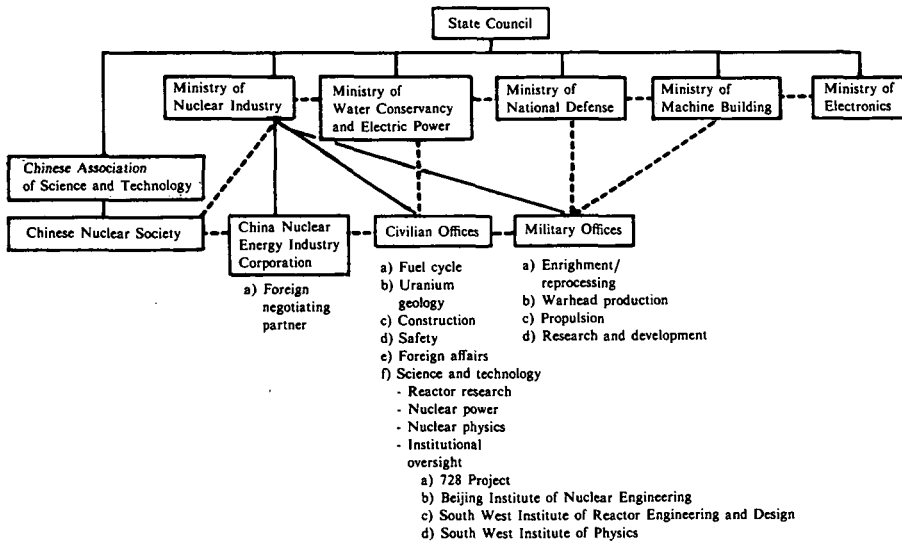


APPENDIX C

Nuclear Policy Decisionmaking Organization



Nuclear Policy Implementation



<sup>a</sup>Represents the most important nuclear affairs decisionmaking organizations.

SOURCE: Office of Technology Assessment.