

15. Nuclear arms control, non-proliferation and ballistic missile defence

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I. Introduction

In 2002 there were signs that strains within the nuclear non-proliferation regime were building to a breakdown. The principal legal foundation of that regime, the 1968 Non-Proliferation Treaty (NPT), came under severe pressure as a result of the unexpected admission by the Democratic People's Republic of Korea (DPRK, North Korea) that it had a uranium enrichment programme under way, followed by North Korea's expulsion of inspectors from the International Atomic Energy Agency (IAEA) monitoring the implementation of the 1994 North Korean–US Agreed Framework and its formal withdraw from the NPT. These doubts were reinforced by suspicions about nuclear weapon-related activities in Iraq and Iran.

During 2002 there was growing concern about the risks posed by the acquisition by terrorists of nuclear or other weapons of mass destruction (WMD). This gave rise to several new multilateral initiatives aimed at combating the risks of 'leakage' of weapons and materials of mass destruction from the former Soviet Union and elsewhere. It also led to renewed attention to existing cooperative efforts to reinforce the technical chokepoint (i.e., the difficulty in acquiring weapon-usable fissile material) on which the NPT is based.

This chapter reviews the principal developments in nuclear arms control and missile defence in 2002. Section II examines developments leading to the collapse of the North Korean–US Agreed Framework and to North Korea's decision to withdraw from the NPT. Section III describes the resumption of United Nations-mandated nuclear inspections in Iraq, and section IV summarizes the controversy over Iran's nuclear activities. Section V highlights international efforts and initiatives to enhance the safety and custodial security of nuclear materials. Section VI describes the Russian–US Strategic Offensive Reductions Treaty (SORT) and discusses the changing nature of strategic nuclear arms control. Section VII examines changes in the USA's programme to develop and deploy a missile defence system designed to protect the territory of the United States and its allies from a limited ballistic missile attack. Section VIII presents the conclusions.

Appendix 15A provides data on the nuclear forces of the five NPT-defined nuclear weapon states, as well as on the nuclear weapon programmes of India, Israel and Pakistan. Appendix 15B presents information on operational military satellites.

II. The North Korean–US Agreed Framework

The discrepancies discovered by IAEA inspectors in North Korea's initial report to the IAEA in May 1992 on its nuclear material holdings had given rise to suspicions that North Korea was secretly diverting plutonium separated from spent reactor fuel for use in nuclear weapons.¹ The 1994 North Korean–US Agreed Framework was the product of intense high-level diplomatic bargaining to resolve the crisis arising from North Korea's non-compliance with its safeguards agreement with the IAEA and its threat to withdraw from the NPT.²

Under the terms of the Agreed Framework, North Korea agreed to remain a party to the NPT and to 'freeze' its nuclear programme.³ It suspended operations at the 5-megawatt-electric (MW(e)) graphite-moderated power reactor and spent-fuel reprocessing plant at Yongbyon, halted construction work on two larger power reactors and allowed IAEA inspectors into the country to monitor that these facilities remained frozen. In return, in cooperation with Japan, South Korea and the European Union (EU), the USA organized an international consortium—the Korean Peninsula Energy Development Organization (KEDO)—responsible for providing North Korea with two 1000-MW(e) pressurized light-water reactors (LWRs).⁴ The USA assumed the main responsibility within KEDO for underwriting the costs of compensatory oil supplies (500 000 tonnes of heavy fuel oil per annum) to North Korea for heating and electricity production until the new reactors were in operation.

The Agreed Framework stipulated that construction work would be halted when a 'significant portion' of the project was completed but before the delivery of 'key nuclear components'.⁵ The IAEA would then conduct a special

¹ The IAEA's analysis of nuclear waste solutions indicated that North Korea had separated more plutonium product than it had stated in its initial declaration; however, in the absence of further inspections the IAEA was unable to determine how much plutonium North Korea had actually separated. In Feb. 1993 North Korea rejected the IAEA's demand for a special inspection of 2 suspected nuclear waste facilities at Yongbyon, leading the IAEA Board of Governors to declare on 1 Apr. 1993 that North Korea was not in compliance with its safeguards agreement. IAEA, 'Fact sheet on DPRK nuclear safeguards', Media Advisory 2002/52, 16 Dec. 2002, available at URL <http://www.iaea.org/worldatom/Press/P_release/2002/med-advise_052.shtml>; and Fischer, D., *History of the International Atomic Energy Agency* (IAEA: Vienna, 1997).

² For further detail about the origins of the Agreed Framework, see Goodby, J., Kile, S. and Müller, H., 'Nuclear arms control', *SIPRI Yearbook 1995: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1995), pp. 653–54. North Korea became a party to the NPT on 12 Dec. 1985. Its safeguards agreement with the IAEA (INFCIRC/403) entered into force on 10 Apr. 1992. It is available at URL <<http://www.iaea.org/worldatom/Documents/Infcircs/others/inf403.shtml>>.

³ 'Agreed Framework between the United States of America and the Democratic People's Republic of Korea', 21 Oct. 1994, available at Korean Peninsula Energy Development Organization (KEDO) Internet site, URL <<http://www.kedo.org/pdfs/AgreedFramework.pdf>>.

⁴ The LWRs are considered to pose less of a proliferation risk than graphite-moderated reactors, since the fuel rods from LWRs do not require reprocessing. For a discussion of scenarios in which LWRs could be used for military purposes, see May, M. *et al.*, *Verifying the Agreed Framework* (Center for International Security and Cooperation: Stanford, Calif., Apr. 2001), chapter 5.

⁵ A subsequent implementing agreement defined 'key nuclear components' as the components controlled under the 'Export Trigger List of the Nuclear Suppliers Group: Agreement on Supply of a Light-Water Reactor Project to the Democratic People's Republic of Korea between the Korean Peninsula Energy Development Organization and the Government of the Democratic People's Republic of Korea', 13 June 1995, available at URL <<http://www.kedo.org/pdfs/SupplyAgreement.pdf>>.

inspection, including two suspected nuclear waste sites at Yongbyon—to which IAEA inspectors had been denied access—to verify that North Korea had accounted for all nuclear material that is subject to safeguards.⁶ Once the IAEA was satisfied that North Korea had come into compliance with its safeguards agreement, the work on the LWRs would resume and North Korea would proceed with a phased dismantling of its nuclear reactors and related facilities. The project was scheduled to be completed by the end of 2003, at a total estimated cost of \$4.6 billion.⁷

Problems in implementing the Agreed Framework

By the beginning of 2002, the scheduled completion date for the first of the two LWRs had slipped from 2003, as specified in the Agreed Framework, to 2008. The start of preparatory work at the reactor site at Kumho, on the eastern coast of North Korea, had been delayed repeatedly by differences between the partners over financial, legal, safety and programme management issues. In spite of these problems, an important milestone in the reactor construction project was achieved on 7 August 2002, when ‘first concrete’ was poured for the foundations of the main power plant buildings.⁸

Linkages to other controversies

During 2002 the implementation of the Agreed Framework continued to be complicated by its linkage to other contentious issues in North Korean–US relations. Foremost of these was the dispute over North Korea’s development of advanced ballistic missiles and its exports of missile technology. North Korea reiterated that, until 2003, it would observe a moratorium on flight-tests of long-range ballistic missiles, which had been the source of considerable concern in Japan and the USA.⁹ However, North Korea continued to export several types of ballistic missiles and missile technology to third countries, including Iran and Pakistan—a practice which the USA had long demanded that it halt. In August 2002, the USA imposed trade sanctions

⁶ The IAEA declared North Korea in non-compliance with its safeguards agreement (INFCIRC/403) as a result. IAEA, ‘Status of safeguards agreement with the Democratic People’s Republic of Korea’, excerpt from the Statement of IAEA Director General to General Conference, 16 Sep. 2002, URL <http://www.iaea.org/worldatom/Press/Focus/iaeaDprk/dg_on_dprk.html>.

⁷ Most of the cost was to be financed by a \$3.2 billion contribution from South Korea, with Japan contributing \$1 billion; the EU also agreed to contribute to the project. North Korea agreed to repay KEDO for the LWR plants in equal, semiannual installments, free of interest, over a 20-year period after the completion of each plant, including a 3-year grace period. KEDO–North Korean Supply Agreement (note 5).

⁸ KEDO, ‘KEDO marks “first concrete” pouring milestone’, News Release, 7 Aug. 2002, URL <http://www.kedo.org/news_detail.asp?NewsID=9>.

⁹ See Bermudez, J., *A History of Ballistic Missile Development in the DPRK*, Occasional Papers no. 2 (Monterey Institute of International Studies, Center for Nonproliferation Studies: Monterey, Calif., Feb. 2000), available on the CNS Internet site, URL <<http://cns.miis.edu/pubs/opapers/op2/index.htm>>.

Table 15.1. Status of North Korea's nuclear infrastructure, as of 31 December 2002^a

Facility	Location	Description
<i>Declared sites^b</i>		
8-MW(t) IRT research reactor	Yongbyon	Completed in 1965 with a rating of 2-MW(t); placed under IAEA safeguards in 1977 along with associated 0.1-MW(t) critical facility; not frozen under AF
5-MW(e) graphite-moderated experimental power reactor ^c	Yongbyon	Completed in 1986; operation frozen in 1994 under AF; unfrozen and core refuelling begun in Dec. 2002; estimated to be capable of producing <i>c.</i> 5.5–7.5 kg of plutonium annually
50-MW(e) graphite-moderated power reactor	Yongbyon	Uncompleted; construction begun in 1984; frozen in 1994 under AF
200-MW(e) graphite-moderated power reactor	Taecheon	Uncompleted; construction begun in 1987; frozen in 1994 under AF
Isotope production laboratory	Yongbyon	Hot-cell facility for producing radioactive isotopes for medical and industrial use; North Korea has admitted to extracting 'gram-size' quantity of plutonium there; not under IAEA safeguards
Radiochemical laboratory ^d	Yongbyon	Partially completed; estimated to have capacity for reprocessing 200–250 kg of spent fuel and extracting up to 100 kg of plutonium annually; frozen under AF; unfrozen in Dec. 2002
Nuclear fuel rod fabrication plant	Yongbyon	Completed; frozen in 1994 under AF; unfrozen in Dec. 2002
<i>Suspect sites</i>		
Nuclear waste storage facilities	Yongbyon	2 sites suspected to be undeclared nuclear waste storage facilities and to contain evidence of past plutonium reprocessing activities
Uranium-enrichment facilities	Mt Chonma/ Pyongan(?) ^e	Programme to enrich uranium to weapon grade, reportedly acknowledged by North Korea in Oct. 2002

MW(e) = megawatt-electric, MW(t) = megawatt-thermal, AF = Agreed Framework

^a Not included are institutes and research centres where nuclear-weapon design activities may be under way.

^b Declared in North Korea's initial report to the IAEA, 4 May 1992.

^c An associated spent fuel storage facility was also frozen under the Agreed Framework and placed under IAEA monitoring.

^d According to the IAEA, the laboratory is a facility for reprocessing spent reactor fuel.

^e Other suspected uranium enrichment sites are in Chagang Province and at the Laser Research Institute of the Academy of Sciences in Pyongyang.

Sources: IAEA, 'Fact sheet on DPRK Nuclear Safeguards', Media Advisory 2002/52, 16 Dec. 2002, available at URL <http://www.iaea.org/worldatom/Press/P_release/2002/med-advise_052.shtml>; Fischer, D., *History of the International Atomic Energy Agency* (IAEA: Vienna, 1997); May, M. *et al.*, *Verifying the Agreed Framework* (Center for International Security and Cooperation: Stanford, Calif., Apr. 2001); and Pinkston, D., 'The status of North Korea's nuclear inspections', Center for Nonproliferation Studies, Monterey Institute of International Studies, 26 Feb. 2002, available at URL <<http://cns.miis.edu/pubs/week/020226.htm>>.

against a North Korean enterprise, as well as against the North Korean Government, for allegedly transferring prohibited missile technology to Yemen.¹⁰

During 2001–2002 the prospects for implementing the Agreed Framework were also clouded by the dissatisfaction of the administration of George W. Bush with the terms of the accord, which were criticized by the White House and its congressional allies for allegedly rewarding North Korean cheating and for giving encouragement to other aspiring nuclear proliferators.¹¹ There was also considerable ambivalence within the administration about the desirability of engagement with North Korea.¹² While a comprehensive review of US policy issued in June 2001 had called for unconditional talks between North Korea and the USA on a range of issues, influential administration officials advocated a tougher line.¹³

North Korean officials duly complained about the conflicting signals being sent from the USA, pointing in particular to Bush's description of North Korea as part of an 'axis of evil' as evidence that his administration was actively pursuing a policy of confrontation.¹⁴ The aim of this policy was alleged to be to 'stifle' North Korea and to undermine the process of détente and reconciliation under way on the Korean peninsula.¹⁵

Compliance controversies

During 2002 the USA and North Korea continued to exchange allegations of non-compliance with the Agreed Framework.¹⁶ On 19 March 2002, Bush announced that he had refused to certify that North Korea was in compliance with the terms of the Agreed Framework and its safeguards agreement with the IAEA because of concerns about the unresolved discrepancies in North Korea's initial declaration and its continued refusal to grant IAEA inspectors

¹⁰ Slevin, P., 'US to sanction North Korean manufacturer', *Washington Post*, 23 Aug. 2002, p. A15. On 10 Dec. 2002, at the behest of the US Government, the Spanish Navy intercepted a North Korean freighter bound for Yemen. The freighter, which was found to be carrying Scud missile components purchased by Yemen, was later released after being searched by the US Navy. Kim, M. and Lee, C., 'North acknowledges missile ship was theirs, condemns US for piracy', *JoonAng Ilbo*, 16 Dec. 2002, URL <<http://english.joins.com/nk/article.asp?aid=20021213174032&sid=E00>>.

¹¹ 'Policy Committee chairman urges end to nuclear subsidies for North Korea', Press Release, Office of Representative Christopher Cox, Chairman of the Policy Committee, US House of Representatives, 13 Feb. 2002, available on the Federation of American Scientists (FAS) Internet site, URL <<http://www.fas.org/news/usa/2002/021302was.htm>>

¹² Hiebert, M., 'In two minds', *Far Eastern Economic Review*, 27 June 2002, p. 27; and Kerr, P., 'US sends conflicting signals on North Korea', *Arms Control Today*, vol. 32, no. 7 (Sep. 2002), p. 16.

¹³ See, e.g., 'North Korea: a shared challenge for the US and the ROK', Remarks delivered by John R. Bolton, US Undersecretary of State for Arms Control and International Security, before the Korean-American Association, Seoul, 29 Aug. 2002, available on US Department of State Internet site, URL <<http://www.state.gov/t/us/rm/13219.htm>>.

¹⁴ White House, Office of the Press Secretary, 'State of the Union address delivered by President George W. Bush', 9 Jan. 2002, URL <<http://www.whitehouse.gov/news/releases/2002/01/20020129-11.html>>.

¹⁵ Korean Central News Agency (Pyongyang), 'KCNA urges U.S. to stop styming process to improve North-South relations', 3 Sep. 2002, available on Korean Central News Agency Internet site, URL <<http://www.kcna.co.jp/item/2002/200209/news09/07.htm#8>>.

¹⁶ For detail about previous controversies over alleged non-compliance with the Agreed Framework, see Kile, S., 'Nuclear arms control', *SIPRI Yearbook 1999: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1999), pp. 541–42.

access to suspect sites.¹⁷ Nonetheless, the Bush Administration issued a compliance waiver for the LWR project and permitted \$95 million in heavy fuel oil shipments to go ahead as planned.¹⁸

In North Korea the state-run media increased criticism that the USA was not honouring its commitments. The main complaint was that the USA had failed to move towards normalizing political and economic relations with North Korea, which North Korea perceived as the core commitment in the Agreed Framework,¹⁹ and had thereby undermined a central pillar of the accord.

A second North Korean complaint was that the USA had not made a good-faith effort to begin construction on the LWR project.²⁰ North Korean officials argued that the project was over five years delayed because of political opposition in the USA and called for US compensation for the loss of planned generation capacity, which exacerbated a national electricity shortage.²¹

A third complaint was that the USA had not provided negative security assurances (NSA) to North Korea as it promised to do under the Agreed Framework.²² North Korean officials claimed that it was clear from press reports about the Pentagon's Nuclear Posture Review (NPR), completed in 2001, that US military planning contingencies included the use of nuclear weapons against North Korea.²³ Particular concern was expressed that the US administration would resort to the first use of nuclear weapons against North Korea as part of its new strategic doctrine emphasizing pre-emptive strikes.²⁴

Disagreement over the timing of the IAEA special inspection

A special IAEA inspection to verify the accuracy and completeness of North Korea's 1992 initial declaration of its nuclear material inventory was both a

¹⁷ The North Korea Threat Reduction Act of 1999 (Public Law 106-113) requires the president to determine and report to Congress that North Korea is in compliance with these agreements and has met certain benchmarks on the safe use of nuclear materials before issuing any 'export licenses for, or approval for transfer of, nuclear materials, facilities, components or other goods, services or technology' that are part of nuclear-related international agreements or agreements for cooperation with North Korea. Rennack, D. E., *Nuclear, Biological, Chemical and Missile Proliferation Sanctions: Selected Current Law*, Report for Congress RL31502 (Congressional Research Service: Washington DC, 15 July 2002), pp. 31–32, available at URL <<http://www.house.gov/htbin/crsprodget?/rl/RLINDEX>>.

¹⁸ Slevin, P., 'North Korea not following nuclear pact, US to say', *Washington Post*, 20 Mar. 2002, p. 4; and Miller, J. and Sanger, D., 'No certification for North Korea on nuclear pact', *International Herald Tribune*, 21 Mar. 2002, p. 2.

¹⁹ Article II stipulated that '[t]he two sides will move toward full normalization of political and economic relations', including reducing barriers to trade and investment within 3 months of the date of the signing of the accord. 'Agreed Framework' (note 3). See also Struck, D., 'For North Korea, US is violator of accords', *Washington Post*, 21 Oct. 2002, p. A18.

²⁰ Korean Central News Agency (Pyongyang), 'US urged to honor its commitment under AF', 3 Sep. 2002, URL <<http://www.kcna.co.jp/item/2002/200209/news09/03.htm#8>>.

²¹ Korean Central News Agency (Pyongyang), 'KCNA holds US fully accountable for loss of electricity in DPRK', 19 Aug. 2002, URL <<http://www.kcna.co.jp/item/2002/200208/news08/09.htm#8>>.

²² In Article III.1, the USA pledged to provide formal assurances to North Korea that it would not threaten or use nuclear weapons against it. 'Agreed Framework' (note 3).

²³ A partial copy of the classified review was published in. Richter, P., 'US works up plan for using nuclear arms', *Los Angeles Times* (Internet edn), 9 Mar. 2002, URL <<http://www.latimes.com/news/nationworld/nation/la-030902bombs.story>>.

²⁴ Korean Central News Agency (Pyongyang), 'KCNA on Bush's war logic', 6 July 2002, URL <<http://www.kcna.co.jp/item/2002/200207/news07/06.htm#4>>.

basic obligation of North Korea's safeguards agreement and a prerequisite under the Agreed Framework for the delivery of key nuclear components. The IAEA estimated that even with full cooperation by North Korea it would take three to four years to carry out the activities needed to verify North Korea's initial declaration, including the difficult task of reconstructing the operating history of the 5-MW(e) reactor at Yongbyon.²⁵ However, the IAEA reported that during 2002 North Korea had rebuffed its efforts to convene a technical meeting to discuss such a programme of work.²⁶

The delay implied that the IAEA would not be able to determine whether North Korea was in full compliance with its safeguards agreement by the time the key nuclear components were scheduled to be delivered in mid-2005. Some US analysts argued that, since this was a foreseeable situation, North Korea's stalling over the inspection constituted an 'anticipatory breach' of the Agreed Framework.²⁷

North Korea continued to reject calls for agreement on a timetable to allow the IAEA inspections process to begin, giving as the main reason the delay in the construction of the power reactors promised to North Korea under the Agreed Framework.²⁸ Growing mistrust of US intentions was expressed by North Korean officials, who pointed to IAEA statements that a 'significant portion' of the LWR project would not be completed before 2005. They maintained that the inspections issue was only one element of the interconnected obligations contained in the Agreed Framework, including the US pledge to normalize relations with North Korea.²⁹ The lack of progress towards resolving the issue of special inspections led some analysts to warn that a new nuclear crisis was developing on the Korean peninsula.³⁰

Revelation of North Korean uranium-enrichment programme

Relations between North Korea and the USA—and the prospect of implementing the Agreed Framework—deteriorated sharply in the autumn of 2002. On 16 October, the US State Department issued a statement declaring that North Korea had acknowledged having a secret programme to enrich uranium for

²⁵ IAEA, 'Implementation of the NPT safeguards agreement between the Agency and the Democratic People's Republic of Korea', IAEA General Conference, 46th regular session, GC(46)/16, 16 Aug. 2002, URL <<http://www.iaea.org/worldatom/About/Policy/GC/gc46/Documents/gc46-16.pdf>>. The process of reconstructing the operating history of the 5-MW(e) reactor—and hence of estimating the amount of plutonium that might have been produced—was complicated when North Korean engineers unloaded fuel rods in May 1994 without IAEA oversight and subsequently mixed them together in a cooling pond.

²⁶ IAEA, 'Fact sheet on DPRK nuclear safeguards', IAEA WorldAtom Media Advisory 2002/52 (note 1).

²⁷ The chief US negotiator of the Agreed Framework has rejected this argument, pointing out that the language of the accord did not preclude delaying the delivery of key nuclear components until the IAEA had completed its work. See the remarks of Robert Gallucci reproduced in 'Progress and challenges in denuclearizing North Korea', *Arms Control Today*, vol. 32, no. 4 (May 2002), pp. 14–17.

²⁸ Pinkston, D., 'The status of North Korea's nuclear inspections', Research Report of the Week, Center for Nonproliferation Studies (CNS), Monterey Institute of International Studies, 26 Feb. 2002, URL <<http://cns.miis.edu/pubs/week/020226.htm>>.

²⁹ Struck, D., 'Better ties seen as key to nuclear inspections', *Washington Post*, 27 July 2002, p. A14.

³⁰ Gill, B., 'A new Korean nuclear crisis', *Newsweek Korea*, 3 Apr. 2002, available on the Brookings Institution Internet site, URL <<http://www.brook.edu/views/op-ed/gill/20020321.htm>>.

use in nuclear weapons.³¹ According to the statement, the admission was made by First Deputy Foreign Minister Kang Suk Joo during a 3–5 October visit to Pyongyang by James Kelly, US Assistant Secretary of State for East Asia after Kelly had confronted North Korean officials about the programme. By the summer of 2002, the US intelligence community had come to strongly suspect the existence of such a programme.³²

North Korea's uranium-enrichment programme reportedly was the product of a barter deal beginning in the 1990s between Pakistan and North Korea.³³ Pakistan allegedly provided the design specifications and expertise for building a gas centrifuge, one of several methods for enriching uranium to weapon grade.³⁴ In exchange, North Korea supplied Pakistan with medium-range ballistic missiles and missile technology. During his meeting with Kelly, Kang reportedly stated that North Korea was willing to shut down the enrichment programme in return for a US promise not to attack it and a commitment to normalize relations. He also insisted on North Korea's right to develop nuclear weapons, although he did not say whether it had actually done so.³⁵

A response by the North Korean Foreign Ministry to the US announcement of Kang's admission blamed the controversy on the 'hostile policy' of the USA and its failure to fulfil its commitments under the Agreed Framework.³⁶ The statement did not directly address the issue of the alleged North Korean clandestine nuclear weapon programme but stressed that North Korea had a right to develop nuclear arms 'in order to defend its sovereignty and right to existence'.³⁷ Subsequent commentaries in the official media rejected international calls for North Korea to be more forthcoming about its nuclear activities.³⁸ They also proposed that the nuclear controversy could be resolved if the USA would extend assurances of non-aggression, including the non-use of

³¹ US Department of State, Richard Boucher, Spokesman, Bureau of Public Affairs, 'North Korean nuclear program', Press Statement, 16 Oct. 2002, URL <<http://www.state.gov/r/pa/prs/ps/2002/14432.htm>>; and Sanger, D., 'North Korea says it has a program on nuclear arms', *New York Times*, 17 Oct. 2002, pp. A1, 8.

³² Warrick, J., 'US followed the aluminum', *Washington Post*, 18 Oct. 2002, pp. A1, 4. According to one analyst, North Korea had begun a secret uranium-enrichment programme by 1995. Nicksch, L., 'North Korea's nuclear weapon program', Issues Brief IB91141, Congressional Research Service, Washington, DC, 7 Jan. 2003, pp. 6–7, URL <<http://www.house.gov/htbin/crsprodget?/ib/IB91141>>. Another analyst has suggested that North Korea may have had an enrichment programme as early as the 1980s. Pinkston, D., 'Collapse of the Agreed Framework?', Center for Nonproliferation Studies (CNS), Monterey Institute of International Studies, 21 Oct. 2002, URL <<http://cns.miis.edu/pubs/week/021021.htm>>.

³³ General Pervez Musharraf, Pakistan's president, attacked the reports as 'absolutely baseless'. Sanger, D., and Dao, J., 'US says Pakistan gave technology to North Korea', *New York Times*, 18 Oct. 2002, pp. A1, 6.

³⁴ Warrick (note 32). Pakistan allegedly had been sharing sophisticated technology, warhead-design information, and weapon testing data with North Korea since 1997. Hersh, S. M., 'The cold test', *New Yorker*, 27 Jan. 2003, URL <http://www.newyorker.com/fact/content/?030127fa_fact>.

³⁵ Hersh (note 34).

³⁶ Korean Central News Agency, 'Conclusion of non-aggression treaty between DPRK and U.S. called for', 25 Oct. 2002, URL <<http://www.kcna.co.jp/item/2002/200210/news10/25.htm#1>>.

³⁷ 'Conclusion of non-aggression treaty between DPRK and U.S. called for' (note 36).

³⁸ *Rodong Sinmun* (Pyongyang), 'Unilateral demand and pressure will make the situation more complicated', 2 Nov. 2002, p. 6, in 'DPRK's *Rodong Sinmun* commentator urges US to accept nonaggression treaty', Foreign Broadcast Information Service, *Daily Report-East Asia (FBIS-EAS)*, FBIS-EAS-2002-1102, 4 Nov. 2002; and Pilling, D., 'N. Korea refuses to discuss arms with Japan', *Financial Times*, 30 Oct. 2002, p. 8.

nuclear weapons, in a legally binding North Korean–US treaty based on equal relations.³⁹ In return, North Korea would be ready to ‘clear up all US security concerns’ regarding the nuclear issue.⁴⁰

Suspension of heavy fuel oil shipments

North Korea’s acknowledgement that it was developing a capability to produce highly enriched uranium (HEU) elicited a sharp reaction from KEDO. On 14 November 2002, the members of KEDO’s Executive Board—the EU, Japan, South Korea and the USA—issued a joint statement announcing that the deliveries of heavy fuel oil to North Korea would be suspended beginning with the December shipment.⁴¹ The US administration reportedly had argued strongly in favour of cutting off oil deliveries, which was initially opposed by South Korea.⁴² The KEDO statement also condemned North Korea for violating the Agreed Framework and its commitments made in the NPT and in other agreements to remain a non-nuclear weapon state. It warned that North Korea’s future relations with the EU, Japan, South Korea and the USA ‘hinged on the complete and permanent elimination of its nuclear weapons program’.⁴³

North Korea’s decision to unfreeze its nuclear facilities

International concern about North Korea’s nuclear programme was heightened when North Korea began to prepare to unfreeze its nuclear facilities in response to the KEDO decision to suspend heavy fuel oil shipments. On 12 December 2002 the Director General of North Korea’s General Department of Atomic Energy, Ri Je Son, sent a letter to the Director General of the IAEA, Mohamed ElBaradei, informing him of North Korea’s decision to ‘take measures to lift the “freeze” on [its] nuclear facilities . . . and to normalize the operation of the facilities necessary for power generation’.⁴⁴ The letter requested that the IAEA remove the seals and monitoring cameras on all nuclear facilities in North Korea. It cautioned that if the IAEA failed to ‘expeditiously take

³⁹ See, e.g., Korean Central News Agency (Pyongyang), ‘Practical measures to conclude non-aggression treaty called for’, 29 Oct. 2002, URL <<http://www.kcna.co.jp/item/2002/200210/news10/29.htm#1>>; and Kim, Y., ‘North demands US pledge “no aggression”’, *Joong Ang Ilbo* (Seoul), 26 Oct. 2002, URL <<http://www.english.joins.com/nk/article.asp?aid=20021026094620&sid=E00>>.

⁴⁰ Pyongyang Broadcasting Station, ‘Acts of vicious provocation against our republic’s proposal to conclude a nonaggression treaty’, 26 Nov. 2002 (in Korean), in ‘DPRK Radio to ROK stresses US conclusion of nonaggression “obligation”’, FBIS-EAS-2002-1126, 26 Nov. 2002.

⁴¹ KEDO, ‘KEDO Executive Board meeting concludes’, News Release, 15 Nov. 2002, URL <http://www.kedo.org/news_detail.asp?NewsID=10>. The KEDO announcement followed a decision by the European Union Parliament on 24 Oct. 2002 to withhold the EU’s fiscal year (FY) 2003 contribution of \$20 million to the LWR project. Ser, M., ‘EU withholds \$20 million from North’s reactor project’, *Joong Ang Ilbo* (Seoul), 02 Nov. 2002, URL <<http://english.joins.com/nk/article.asp?aid=20021104100045&sid=E00>>.

⁴² Associated Press, ‘Key US allies cut off oil aid to North Korea’, *Washington Post*, 15 Nov. 2002, p. A29.

⁴³ KEDO, ‘KEDO Executive Board meeting concludes’ (note 41).

⁴⁴ Quoted in IAEA, ‘Implementation of safeguards in the DPRK’, Report by the Director General to the Board of Governors, IAEA document GOV/2002/62, Vienna, 30 Dec. 2002.

measures to meet [the] request', North Korea 'would take necessary measures unilaterally'.

On 22 December the IAEA reported that North Korean workers had cut the seals and disabled the surveillance cameras installed at the 5-MW(e) reactor and associated spent fuel pond.⁴⁵ This was followed by IAEA reports that on 23–24 December North Korea had removed seals and monitoring equipment both at the fuel rod fabrication plant and the reprocessing plant at Yongbyon.⁴⁶ ElBaradei declared that North Korea's moves towards restarting its nuclear facilities raised 'serious non-proliferation concerns' and were 'tantamount to "nuclear brinkmanship"'.⁴⁷

Despite IAEA calls for restraint, North Korea's General Department of Atomic Energy sent a letter to the agency on 27 December 2002 requesting the withdrawal of all IAEA inspectors still in the country.⁴⁸ ElBaradei responded that, notwithstanding the lifting of the freeze under the Agreed Framework, the presence of safeguards inspectors was needed for 'the immediate installation of containment and surveillance measures'; their continuing presence was also needed during the loading of the 5-MW(e) reactor as well as during the operation of the reprocessing plant.⁴⁹ However, North Korea indicated that the decision was final, and the two remaining IAEA inspectors left the country on 31 December 2002.

Statements issued by the North Korean Foreign Ministry, and subsequent commentaries carried by the state news service, claimed that North Korea had been forced to unfreeze its nuclear facilities in order to make up for the shortfall in electricity generation resulting from the suspension of heavy fuel oil shipments.⁵⁰ This explanation was rejected by outside nuclear experts, who noted that the 5-MW(e) experimental power reactor at Yongbyon would consume virtually all of the electricity that it produced.⁵¹ It was pointed out that the principal purpose of the reprocessing facility at Yongbyon was to separate plutonium from spent reactor fuel. According to ElBaradei, North Korea had no 'current legitimate peaceful use for plutonium'.⁵²

⁴⁵ IAEA, 'Further disruption of IAEA safeguards implementation in the DPRK', Press Release PR2002/23, 22 Dec. 2002, URL <http://www.iaea.org/worldatom/Press/P_release/2002/prn0223.shtml>.

⁴⁶ IAEA, 'Implementation of the NPT safeguards agreement between the Agency and the Democratic People's Republic of Korea', IAEA General Conference, 46th regular session, GC(46)/16, 16 Aug. 2002, URL <<http://www.iaea.org/worldatom/About/Policy/GC/gc46/Documents/gc46-16.pdf>>.

⁴⁷ IAEA, 'IAEA Director General cites DPRK "nuclear brinkmanship"', Press Release, PR2002/25, 26 Dec. 2002, URL <http://www.iaea.org/worldatom/Press/P_release/2002/prn0225.shtml>.

⁴⁸ Letter of Ri Je Son, Director General of the DPRK General Department of Atomic Energy, to Mohammed ElBaradei, Director General, International Atomic Energy Agency, 27 Dec. 2002, text reproduced in Korean Central News Agency (Pyongyang), 'DPRK Government decides to order IAEA inspectors out of DPRK', 28 Dec. 2002, URL <<http://www.kcna.co.jp/item/2002/200212/news12/28.htm#10>>.

⁴⁹ IAEA, 'IAEA responds to DPRK request to remove inspectors', Press Release PR2002/26, 27 Dec. 2002, URL <http://www.iaea.org/worldatom/Press/P_release/2002/prn0226.shtml>.

⁵⁰ Korean Central News Agency (Pyongyang), 'DPRK Gov't to immediately resume operation and construction of its nuclear facilities', 12 Dec. 2002, URL <<http://www.kcna.co.jp/item/2002/200212/news12/13.htm#10>>; and French, H., 'Pyongyang intends to reactivate nuclear site', International Herald Tribune, 13 Dec. 2002, pp. 1, 7.

⁵¹ Slevin, P., 'N. Korea warned on arms bid', Washington Post, 24 Dec. 2002, p. A11.

⁵² IAEA, 'IAEA Director General cites DPRK "nuclear brinkmanship"' (note 47).

IAEA Board resolution

The IAEA's 35-member Board of Governors met in emergency session, on 6 January 2003, and adopted a resolution 'deploring in the strongest terms the DPRK's unilateral actions', which were considered 'of great non-proliferation concern'.⁵³ It urged North Korea 'to comply fully and promptly with its safeguards agreement and to co-operate fully with the Agency to that end', including readmitting IAEA inspectors. The resolution left open the possibility for diplomatic efforts to resolve concerns and did not impose a strict deadline for compliance.⁵⁴ The Board also declined to send the matter immediately to the UN Security Council, which could authorize punitive measures against North Korea, and instead called for an urgent meeting between IAEA and North Korean experts to discuss the situation. ElBaradei warned, however, that if a positive North Korean response to the Board's resolution were not forthcoming, the IAEA 'was bound to report the matter to the Security Council'.⁵⁵

Commentaries carried by North Korea's state news service denounced the Board's resolution as a US-instigated 'ultimatum' and a 'grave encroachment upon the country's sovereignty'.⁵⁶ The IAEA was dismissed 'as a tool for carrying out the USA's hostile policy toward the DPRK after discarding its principle of impartiality'.⁵⁷ North Korean commentators also harshly criticized proposals to bring the nuclear dispute before the Security Council and thereby 'internationalize' it. These criticisms were accompanied by ominous warnings that North Korea would regard the imposition of 'any sanctions against it as a declaration of a war'.⁵⁸

North Korea's withdrawal from the NPT

The stakes in the nuclear stand-off were raised considerably when North Korea announced, on 10 January 2003, that it was withdrawing from the NPT. The official statement declared 'an automatic and immediate effectuation of [North Korea's] withdrawal from the NPT'. It also stated that North Korea considered itself to be 'totally free from the binding force of the safeguards accord with the IAEA'.⁵⁹

⁵³ IAEA, 'Resolution adopted by the Board of Governors', IAEA document GOV/2003/3, 6 Jan. 2003, URL <http://www.iaea.org/worldatom/Press/P_release/2003/gov2003-3.pdf>.

⁵⁴ Watts, J., 'UN gives North Korea one last chance', *Guardian Weekly*, vol. 168 no. 3 (9–15 Jan. 2003), p. 3; and Finn, P., 'N. Korea warned by nuclear agency', *Washington Post*, 7 Jan. 2003, p. A8.

⁵⁵ IAEA, 'Statement by the Director General to the Board of Governors', Vienna, 6 Jan. 2003, Press Statement, URL <<http://www.iaea.org/worldatom/Press/Statements/2003/ebsp2003n001.shtml>>.

⁵⁶ Korean Central News Agency (Pyongyang), 'KCNA hails DPRK's withdrawal from NPT', 12 Jan. 2003, URL <<http://www.kcna.co.jp/item/2003/200301/news01/14.htm#6>>.

⁵⁷ Korean Central News Agency (Pyongyang), 'KCNA accuses US of mocking at UN and international community', 14 Jan. 2003, URL <<http://www.kcna.co.jp/item/2003/200301/news01/15.htm#6>>.

⁵⁸ Korean Central News Agency (Pyongyang), 'KCNA refutes US sophism about DPRK's decision', 14 Jan. 2003, URL <<http://www.kcna.co.jp/item/2003/200301/news01/15.htm#7>>; and Reuters AlertNet News, 'North Korea says sanctions means war, seeks dialogue', 7 Jan. 2003, URL <<http://www.alertnet.org/thenews/newsdesk/SEO130609?view=printerfriendly>>.

⁵⁹ Korean Central News Agency, 'Statement of DPRK Government on its withdrawal from the NPT', 10 Jan. 2003, URL <<http://www.kcna.co.jp/item/2003/200301/news01/11.htm#1>>.

In a letter sent to the president of the Security Council on the same day, North Korean Foreign Minister Paek Nam Sun stated that North Korea had decided 'to revoke the [1993] suspension on the effectuation of its withdrawal from the NPT' and that the withdrawal would be effective as of the following day, when the 90-day period had elapsed.⁶⁰ Paek's assertion that North Korea was withdrawing with immediate effect from the NPT on the basis of its earlier notification was rejected by most legal experts. Although no statement was issued by the three NPT depository states (Russia, the UK and the USA), the generally held view was that North Korea's withdrawal would come into effect on 10 April 2003, when its 90-day notice of withdrawal expired.⁶¹ It was also the general view that North Korea's comprehensive safeguards agreement with the IAEA would lapse on the same date.

Pyongyang justified its decision to withdraw from the NPT 'as a measure to defend the supreme interests of the country' against the 'reckless moves' of the USA and the partiality of the IAEA.⁶² At the same time, the 10 January statement announcing the withdrawal emphasized that North Korea had 'no intention to produce nuclear weapons' and that its 'nuclear activities at this stage will be confined only to peaceful purposes such as the production of electricity'.⁶³ North Korean officials continued to deny that the country had ever admitted to having a nuclear weapon programme.⁶⁴

International reaction

The international community was left pondering the intentions of the North Korean regime. In the view of some analysts and diplomats, North Korea's actions indicated that it had decided to go beyond the bellicose rhetoric and threats that characterized its relations with the USA and become a declared nuclear weapon state. Others argued that North Korea viewed its nuclear weapon programme as a bargaining chip that it was prepared to trade away in exchange for security assurances and economic aid. Still others emphasized that these alternatives were not mutually exclusive: North Korea's claims that it had no plans to develop nuclear weapons were seen as evidence that it was

⁶⁰ Korean Central News Agency (Pyongyang), 'DPRK FM sends letter to UNSC president', 10 Jan. 2003, URL <<http://www.kcna.co.jp/item/2003/200301/news01/11.htm>>. On 12 Mar. 1993, North Korea notified the NPT depositories (Russia, the UK and the USA) of its intention to withdraw from the treaty after a 90-day period, as provided for under Article X. On 11 June 1993—1 day before the pullout from the treaty took effect, North Korea announced that it had 'suspended the effectuation' of the withdrawal. Korean Central News Agency (Pyongyang), 'DPRK Foreign Minister sends letter to UNSC President', 10 Jan. 2003, URL <<http://www.kcna.co.jp/item/2003/200301/news01/11.htm#1>>.

⁶¹ du Preez, J. and Potter, W., 'North Korea's withdrawal from the NPT: a reality check', Center for Nonproliferation Studies (CNS), Monterey Institute of International Studies, 9 Apr. 2003, URL <<http://cns.miis.edu/pubs/week/030409.htm>>.

⁶² Korean Central News Agency (Pyongyang), '*Rodong Sinmun* on DPRK's withdrawal from NPT', 14 Jan. 2003, URL <<http://www.kcna.co.jp/item/2003/200301/news01/15.htm#4>>.

⁶³ 'Statement of DPRK Government on its withdrawal from the NPT' (note 59).

⁶⁴ Ward, A. and Jack, A., 'North Korea opens door to resolving nuclear crisis', *Financial Times*, 30 Jan. 2003, p. 3; and Mydans, S., 'US envoy starts discussions in Seoul on North Korea', *New York Times* (Internet edn), 13 Jan. 2003, URL <<http://www.nytimes.com/2003/01/13/international/asia/13Kore.html>>; and 'KCNA refutes US sophism about DPRK's decision' (note 58).

leaving open the option of negotiations with the USA to see if a sufficiently attractive deal could be reached.⁶⁵

The uncertainty about the intentions of the North Korean leadership was matched by the confusion and conflicting signals that characterized the responses of the USA and its allies in the region. Particularly sharp differences emerged between the USA and South Korea, where newly elected President Roh Moo Hyun of the ruling Millennium Democratic Party was keen to preserve the progress made by his predecessor, Kim Dae Jung, towards promoting reconciliation between the two Korean states.⁶⁶ In addition, there were clear differences between the preferred approaches of the USA and two key regional powers—China and Russia—which both launched their own initiatives to mediate the dispute.⁶⁷

The Bush Administration appeared to have been caught off guard by North Korea's rapid series of unilateral moves, coming as they did at a time when the USA was preoccupied with the escalating tensions over UN weapon inspections in Iraq. Senior White House officials insisted that North Korea's actions did not constitute a crisis and that US policy would rely on diplomacy to resolve the dispute over its nuclear programme. Some observers found this curious, given both the Iraq precedent and the new security doctrine's statement that the USA would not 'allow' hostile states to acquire nuclear and other weapons of mass destruction.⁶⁸

US administration officials also appeared slow in laying out a consistent diplomatic approach to the North Korean nuclear dispute. They initially pledged to work to further isolate the North Korean regime through a policy of 'tailored containment'—an approach using political and possibly economic pressure to induce North Korea to give up its nuclear programmes. However, faced with narrowing options for dealing with North Korea and increasingly strained ties with South Korea, the Bush Administration began to sound a more conciliatory note. In what was perceived as a change in course, White House officials signalled the administration's willingness to begin a dialogue.⁶⁹ In exchange for North Korea's verifiably abandoning its nuclear weapon programme, the USA would issue security assurances in the form of a declaration that it had no hostile intent towards the DPRK. The USA also suggested that it would consider providing energy assistance to North Korea

⁶⁵ Goodman, P., 'Treaty pullout may signal desire for arms—or a deal', *Washington Post*, 11 Jan. 2003, pp. A1, A6; and Saunders, P., 'Assessing North Korea's nuclear intentions', North Korea Special Collection, Center for Nonproliferation Studies (CNS), Monterey Institute of International Studies, 14 Jan. 2003, URL <<http://cns.miis.edu/research/korea/nucint.htm>>.

⁶⁶ Goodman, P. and Cho, J., 'Anti-US sentiment deepens in S. Korea', *Washington Post*, 9 Jan. 2003, pp. A1, A9; and Ward, A., 'Roh presses US to enter talks with N. Koreans', *Financial Times*, 18–19 Jan. 2003, p. 3.

⁶⁷ Weisman, S. R., 'US and its Asian partners strain to form united stand on North Korea', *New York Times* (Internet edn), 25 Oct. 2002, URL <<http://www.nytimes.com/2002/10/25/international/asia/25korea.html>>.

⁶⁸ Dao, J., 'Bush administration defends its approach on North Korea', *New York Times*, 7 Feb. 2003, p. A13. For a description of the national security strategy published by the Bush Administration in Sep. 2002, see chapter 1 in this volume.

⁶⁹ Ward, A., 'US adds arms term to N. Korea aid', *Financial Times*, 20 Jan. 2003, p. 4.

while working to normalize political and economic relations.⁷⁰ However, US officials emphasized that the nuclear dispute was an international issue, not a bilateral one between North Korea and the USA, and should eventually be brought before the UN Security Council for discussion.

North Korea's nuclear weapon capability

North Korea's unilateral moves to unfreeze the Yongbyon facilities, to expel IAEA inspectors and to withdraw from the NPT raised the prospect that it intended to stage a 'breakout' from the NPT regime. Many analysts noted that North Korea was now able to reconstitute its plutonium separation programme and to its uranium-enrichment programme and thus could produce a sizeable arsenal of nuclear weapons.⁷¹

Before the North Korean moves at the end of 2002, there was an emergent consensus in the US Government that North Korea had developed a nuclear weapon capability.⁷² According to a December 2001 National Intelligence Council report, the US intelligence community had judged in the mid-1990s that North Korea had produced 'one, possibly two, nuclear weapons'.⁷³ There is speculation that the plutonium for these weapons was extracted from the spent fuel rods removed from the 5-MW(e) power reactor during a 70-day shutdown in 1989; the exact amount of plutonium that North Korea separated is unknown but has been estimated to be a maximum of 7–11 kg.⁷⁴ However, there remains considerable uncertainty about whether North Korea actually separated this amount of material and whether it has taken the further step of building a nuclear weapon.

Following North Korea's decision to unfreeze its facilities at Yongbyon, the immediate concern among non-proliferation analysts was that North Korean

⁷⁰ French, H., 'Tensions slowly diffusing after US aid offer and Pyongyang's call for talks', *International Herald Tribune*, 20 Jan. 2003, p. 3.

⁷¹ See, e.g., Pinkston, D. A. and Lieggi, S., 'North Korea's nuclear program: key concerns', Center for Nonproliferation Studies (CNS), Monterey Institute of International Studies, 17 Jan. 2003, URL <<http://cns.miis.edu/research/korea/keycon.htm>>; and Isenberg, D., 'North Korea's nuke capability', *Asia Times* (Internet edn), 24 Sep. 2002, URL <<http://atimes.com/atimes/Korea/DI24Dg05.html>>.

⁷² US Secretary of Defense Donald Rumsfeld stated categorically that North Korea was a 'country that has been aggressively developing nuclear weapons and has nuclear weapons'. Secretary of Defense Donald H. Rumsfeld, DOD news briefing, 16 Sep. 2002, US Department of Defense, transcript available at DefenseLink, URL <http://www.defenselink.mil/news/Sep2002/t09162002_t0916sd.html>.

⁷³ National Intelligence Council, *Foreign Missile Developments and the Ballistic Missile Threat Through 2015*, Dec. 2001, p. 9, unclassified summary available on the Central Intelligence Agency (CIA) Internet site, URL <http://www.cia.gov/nic/pubs/other_products/Unclassifiedballisticmissilefinal.htm>. According to a former US Energy Department official, the Dec. 2001 National Intelligence Estimate represented an important revision of the intelligence assessments made in the mid-1990s in that it implied that North Korea had accomplished all the other phases of nuclear warhead manufacturing, including the testing of high explosives needed to detonate a plutonium implosion-type warhead. Trulock, N., 'Going nuclear in North Korea', *Washington Times* (Internet edn), 26 June 2002, URL <<http://asp.washingtontimes.com/printarticle.asp?action=print&ArticleID=20020625-28401752>>.

⁷⁴ Niksch (note 32), pp. 6–7; and Nonproliferation Policy Education Center (NPEC), 'Beyond the Agreed Framework: the DPRK's projected atomic bomb making capabilities, 2002–09', 3 Dec. 2002, available on NPEC Internet site, URL <<http://www.npec-web.org/projects/fissile2.htm>>. See also Albright, D., 'How much plutonium did North Korea produce', eds D. Albright and K. O'Neill, *Solving the North Korean Nuclear Puzzle* (Institute for Science and International Security: Washington, DC, 2000), pp. 111–165.

technicians would move the 8000 spent fuel rods stored in a temporary cooling pond into the nearby Radiochemical Laboratory for reprocessing. US intelligence agencies and independent experts have estimated that, once the reprocessing plant is restarted, North Korea will be able to extract all of the plutonium from the spent fuel rods in about six months.⁷⁵ On the basis of information from the IAEA, the spent fuel rods are believed to contain approximately 25–30 kg of plutonium.⁷⁶ This would be sufficient to manufacture five or six nuclear weapons, assuming that each weapon would need approximately 5 kg of plutonium.

North Korea has other facilities that are available for use in a nuclear weapon production programme. The 5-MW(e) experimental power research reactor has been estimated to be capable of producing 5.5–7.5 kg of plutonium per year or enough to build one nuclear weapon.⁷⁷ After being reloaded with fresh fuel, the reactor would have to operate for approximately one year to make enough plutonium for a nuclear weapon because the irradiation of fuel—and hence the production of plutonium—occurs relatively slowly.

On the basis of these considerations, a credible scenario is that North Korea could produce a total of between six and eight nuclear weapons by mid-2003 if it were to restart the relevant facilities in early 2003; this would be the same size as South Africa's nuclear arsenal in the late 1980s.⁷⁸ This figure could grow to between seven and nine weapons by the end of 2004.

Beyond that date, North Korea's nuclear arsenal could begin to expand more rapidly if the gas centrifuges for enriching uranium to weapon grade, which it is believed to be building, were brought on line.⁷⁹ North Korea could significantly increase its capacity to produce weapon-grade plutonium if it were to complete the two unfinished graphite-moderated reactors frozen under the terms of the Agreed Framework. Operating at design values, the 50-MW(e) reactor at Yongbyon and the 200-MW(e) reactor at Taechon have been estimated to be able to produce up to 55 kg and 220 kg of plutonium per year, respectively, or enough for as many as 55 nuclear weapons.⁸⁰

⁷⁵ Nicksch (note 32), p. 2; and Albright, D., 'North Korea's current and future plutonium and nuclear weapon stocks, *ISIS Issue Brief*, Institute for Science and International Security, 15 Jan. 2003, available at URL <<http://www.isis-online.org/publications/dprk/currentandfutureweaponsstocks.html>>.

⁷⁶ However, some fuel rods may be so damaged that they cannot be processed in the plutonium separation plant.

⁷⁷ Pinkston and Lieggi (note 71); Albright (note 75); and United States General Accounting Office (GAO), *Nuclear Nonproliferation: Implications of the US/North Korean Agreement on Nuclear Issues* (GAO/RCED/NSIAD-97-8), Oct. 1996, p. 3.

⁷⁸ Albright (note 75).

⁷⁹ There is considerable uncertainty about how much highly enriched uranium (HEU) the DPRK might be able to produce. According to an unclassified CIA report, the DPRK is 'constructing a plant that could produce enough weapon-grade uranium for 2 or more nuclear weapons per year when fully operational—which could be as soon as mid-decade'. NPEC, 'Beyond the Agreed Framework' (note 74), appendix 1; and Albright (note 75). Other sources cite estimates from 'Bush Administration officials' that the DPRK may have enough centrifuges on line within 1–3 years to produce 100 kg of HEU annually, or enough to make as many as 6 nuclear weapons. Pinkston and Lieggi (note 71).

⁸⁰ Pinkston and Lieggi (note 71); and NPEC, 'Beyond the Agreed Framework' (note 74). These estimates represent the upper limit of the amount of plutonium that could be produced: they assume that the relevant facilities would be operated for most of the year and at nearly full capacity while experiencing no significant slowdowns due to bottlenecks in the availability of materials or expertise.

Risks and international concerns

The prospect that North Korea might eventually have the capability to produce more than 50 nuclear weapons annually has figured prominently in the public discussions about how to deal with the North Korean nuclear issue. In terms of enhancing deterrence and increasing bargaining leverage vis-à-vis the USA, however, there is little obvious incentive for North Korea to devote the considerable resources needed to expand beyond a small nuclear arsenal consisting of a few dozen weapons. At the same, its possession of even a small number of nuclear weapons—or its overt attempt to acquire them—will probably undermine stability on the Korean peninsula and in North-East Asia. One consequence could be to stimulate a reassessment in Japan and South Korea of the value of the NPT and of their status as non-nuclear weapon states.

One of the most serious concerns is the prospect that North Korea will actively assist other proliferators in developing nuclear weapons. Against a background of persistent and significant North Korean exports of ballistic missiles and missile technologies (as mentioned above),⁸¹ some observers worry that an isolated and impoverished regime in North Korea might have few reservations about selling nuclear materials, or even nuclear weapons.⁸² This, in turn, could lead to a destabilizing spread of nuclear weapons to regional trouble spots, such as the Middle East, and could even result in their acquisition by terrorist groups such as al-Qaeda.⁸³ More generally, if North Korea were to emerge as a de facto nuclear weapon state after having materially breached its NPT obligations, the non-proliferation regime would suffer a severe—and perhaps irremediable—setback that would weaken the legal and underlying normative restraints on proliferators elsewhere.

III. UN inspections in Iraq

Iraq's nuclear programme remained the focus of international scrutiny during 2002. The key questions were whether Iraq had engaged in proscribed nuclear-related activities since the withdrawal of IAEA inspectors from the country in 1998 and how close it might be to acquiring nuclear weapons.⁸⁴

A 'dossier' on Iraq's WMD programmes, published in September 2002 by a research institute in the UK, concluded that there were no indications that Iraq had been able to build facilities to produce fissile material in sufficient

⁸¹ See Central Intelligence Agency, 'Unclassified report to Congress on the acquisition of technology relating to weapons of mass destruction and advanced conventional munitions, 1 July through 31 December 2001', Jan. 2003, URL <http://www.cia.gov/cia/publications/bian/bian_jan_2003.htm#3>.

⁸² See, e.g., the comments by William Potter, Director, Center for Nonproliferation Studies, in 'CNS experts respond to DPRK's withdrawal from NPT', North Korea Special Collection, Center for Nonproliferation Studies (CNS), Monterey Institute of International Studies, 14 Jan. 2003, URL <<http://cns.miis.edu/research/korea/outnpt.htm>>.

⁸³ Lerner, M., 'North Korea weapons a "nuclear nightmare"', *Washington Times* (Internet edn), 17 Jan. 2003, URL <<http://dynamic.washtimes.com/twt-print.cfm?ArticleID=20030117-25255995>>.

⁸⁴ Along with UNSCOM, the IAEA withdrew its personnel in Dec. 1998 out of concern for their safety in the light of imminent US-led air strikes against Iraq.

amounts for nuclear weapons.⁸⁵ It would likely need several years and extensive foreign assistance to do so. However, if fissile material from foreign sources were obtained, Iraq's retained expertise and design data could allow it to assemble nuclear weapons 'within months'.⁸⁶ A CIA report made public in October 2002 similarly concluded that Iraq could produce a nuclear weapon within one year if it were able to procure weapon-grade fissile material.⁸⁷

A September 2002 British Government dossier on Iraq's WMD programmes alleged that after the departure of UN inspectors from the country in 1998 Iraq had made 'concentrated covert efforts to acquire dual-use technology and materials' with nuclear weapon applications.⁸⁸ Among other activities, the dossier stated that Iraq had tried to purchase 'significant quantities of uranium' from Africa, despite having no active civil nuclear power programme that required it.⁸⁹ It also claimed that Iraq had attempted to purchase a series of items—including high-strength aluminium alloy tubing—for manufacturing gas centrifuges which, in turn, could be used to enrich uranium to weapon grade; this latter concern was raised by the US administration as well.⁹⁰

However, subsequent investigations failed to substantiate these allegations. The IAEA dismissed the claim about Iraq's efforts to purchase uranium in Africa after determining that the claim was based on forged documents. It also dismissed concerns about the aluminium tubes after its inspectors concluded that they appeared to be consistent with the use claimed by Iraq—for manufacturing 81-mm artillery rockets—and would not be suitable for manufacturing centrifuges.⁹¹ The British Government report was later discredited when parts of it were discovered to have been plagiarized from a university student's research paper.⁹²

IAEA activities in Iraq

The IAEA established the Iraq Action Team in April 1991 as part of its mandate under UN Security Council Resolution 687 to uncover and dismantle, with the assistance and cooperation of the UN Special Commission on Iraq (UNSCOM), Iraq's clandestine nuclear programme.⁹³ (The team was renamed

⁸⁵ International Institute for Strategic Studies (IISS), 'Iraq's weapons of mass destruction: a net assessment', *Strategic Dossier* (IISS: London, 9 Sep. 2002), press statement and summary available at URL <<http://www.iiss.org/confStatement.php?confID=3>>.

⁸⁶ International Institute for Strategic Studies (note 85).

⁸⁷ Central Intelligence Agency, 'Iraq's weapons of mass destruction programs', Oct. 2002, available at URL <http://www.cia.gov/cia/publications/iraq_wmd/Iraq_Oct_2002.htm>.

⁸⁸ *Iraq's Weapons of Mass Destruction: The Assessment of the British Government* (Stationery Office: London, Sep. 2002), p. 25, available at URL <<http://www.official-documents.co.uk>>.

⁸⁹ *Iraq's Weapons of Mass Destruction* (note 88), p. 25.

⁹⁰ Warrick, 'US claim on Iraqi nuclear program is called into question', *Washington Post*, 24 Jan. 2003, p. A1.

⁹¹ IAEA, 'IAEA update report for the Security Council pursuant to Resolution 1441 (2002)', available at URL <http://www.iaea.org/worldatom/Press/Focus/IaeaIraq/unscreport_290103.html>.

⁹² Curtis, P. and Toms, N., 'Oxford student paper in UK war dossier', *Guardian* (Internet edn), 26 Feb. 2003, URL <<http://www.guardian.co.uk/Iraq/Story/0,2763,903505,00.html>>.

⁹³ UN Security Council Resolution 687, 8 Apr. 1991, available at URL <<http://www.iaea.org/worldatom/Programmes/ActionTeam/Resolutions/res687.pdf>>; and IAEA World Atom Press Centre, 'IAEA's mandate in Iraq', 27 Dec. 2002, URL <<http://www.iaea.org/worldatom/Programmes/>>.

the Iraq Nuclear Verification Office, INVO, in 2002). Between 1991 and 1998, it conducted 29 numbered inspections; after establishing a permanent presence in Iraq in August 1994, it also conducted more than 1500 Ongoing Monitoring and Verification (OMV) inspections.⁹⁴ According to the IAEA, these activities had yielded a ‘technically coherent picture’ of the clandestine nuclear programme that was under way in Iraq before the 1991 Persian Gulf War, which inspectors had subsequently ‘neutralized’.⁹⁵

Resumption of UN inspections

On 27 November 2002, the INVO began inspection activities pursuant to the implementation of UN Security Council Resolution 1441.⁹⁶ The IAEA’s initial priority was to re-establish its knowledge of Iraq’s nuclear capabilities, including confirming the locations of significant equipment and material and identifying key technical personnel.

On 7 December 2002, as required by Resolution 1441, Iraq submitted to the UN Security Council a 12 000-page Currently Accurate, Full and Complete Declaration (CAFCD) of its WMD programmes. Iraq stated in the declaration that its nuclear activities since 1991 had been limited to the use of radioisotopes for non-proscribed purposes (e.g., agricultural, industrial and medical uses). Of the seven nuclear-related volumes of material turned over to the IAEA, six covered Iraq’s nuclear activities before 1991. The seventh volume, covered the years 1991–2002; it included descriptions of the activities conducted at current and former Iraqi Atomic Energy Commission (IAEC) sites—at locations established since 1991 to which former IAEC personnel had been transferred and at other industrial locations that had supported the weapon development programme.⁹⁷

According to the IAEA Director General, the Iraqi declaration was consistent with the IAEA’s understanding of Iraq’s pre-1991 nuclear programme. However, it did not provide new information on certain questions that had been outstanding since 1998, in particular regarding Iraq’s progress related to weapon design and centrifuge development. ElBaradei also stated that the

ActionTeam/index.html>. For further detail, see Ekéus, R., ‘The United Nations Special Commission on Iraq: activities in 1992’, *SIPRI Yearbook 1993: World Armaments and Disarmament* (Oxford University Press: Oxford, 1993), pp. 691–704. In December 1999, UN Security Resolution 1284 confirmed the inspectors’ mandate and replaced UNSCOM with the UN Monitoring, Verification and Inspection Commission (UNMOVIC). UN Security Council Resolution 1284, 17 Dec. 1999, available at URL <<http://www.iaea.org/worldatom/Programmes/ActionTeam/resolutions/res1284.htm>>.

⁹⁴ See chapter 16 in this volume for further detail about Iraq’s disarmament obligations specified in Resolution 1441.

⁹⁵ For a summary of the IAEA’s activities and achievements in Iraq, prior to Dec. 1998, see IAEA, ‘Fact sheet: Iraq’s nuclear weapon programme’, IAEA WorldAtom Press Center, 27 Dec. 2002, URL <<http://www.iaea.org/worldatom/Programmes/ActionTeam/nwp2.html>>.

⁹⁶ UN Security Council Resolution 1441, 8 Nov. 2002, available at URL <[http://www.un.org/Docs/journal/asp/ws.asp?m=S/RES/1441\(2002\)](http://www.un.org/Docs/journal/asp/ws.asp?m=S/RES/1441(2002))> For a summary of developments leading to the Security Council’s decision to authorize the resumption of weapon inspections in Iraq, see chapter 1 in this volume.

⁹⁷ IAEA, ‘Preliminary analysis of the nuclear-related “Currently Accurate, Full and Complete Declaration” (CAFCD) submitted by Iraq’, Informal briefing by Mohamed ElBaradei, IAEA Director General, to the Security Council, Press Statement, 19 Dec. 2002, URL <<http://www.iaea.org/worldatom/Press/Statements/2002/ebsp2002n010.shtml>>.

IAEA was giving special attention to verifying Iraq's claim that there had been no material changes in its nuclear programme since 1998 and that its activities has been limited to non-proscribed uses.⁹⁸

Interim reports on status of UN inspections

On 27 January 2003, ElBaradei and Hans Blix, the head of UNMOVIC, delivered to the Security Council their much-anticipated interim reports on the status of the inspections being carried out by the IAEA and UNMOVIC in Iraq. ElBaradei's report was less critical of Iraq's compliance record and stated that the INVO inspectors 'had found no evidence that Iraq had tried to revive its nuclear weapon programme'.⁹⁹ By contrast, Blix gave a broadly negative report on Iraq's cooperation during two months of inspections.¹⁰⁰ He provided a catalogue of inconsistencies and omissions in Iraq's declaration of its chemical and biological weapons (CBW) and missile programmes which suggested that Iraq did not appear 'to have come to a genuine acceptance—not even today—of the disarmament which was demanded of it'.¹⁰¹

The report submitted by ElBaradei summarized the IAEA's activities in Iraq pursuant to Resolution 1441.¹⁰² It noted that the INVO had carried out a total of 139 inspections at 106 locations, mainly state-run or private industrial facilities, research centres and universities where Iraq was known to have significant technical capabilities in the past, plus new sites suggested by 'remote monitoring and analysis'. All inspection activities had been carried out without prior notification to Iraq, except where notification was needed to ensure the availability of required support.

In his statement to the Security Council, ElBaradei stressed that, while Iraq had been cooperative throughout the inspections process, it was important for it to shift to more 'proactive support'.¹⁰³ This involved 'providing documentation, people and other evidence that will assist in filling in the remaining gaps in our information'. ElBaradei also made a strong personal appeal to the Council to grant the IAEA 'a few months' to complete its work and 'provide credible assurance that Iraq has no nuclear weapons programme'. He stated

⁹⁸ IAEA, 'Status of the Agency's verification activities in Iraq as of 8 January 2003', Informal briefing by Mohamed ElBaradei, IAEA Director General, to the Security Council, Press Statement, 9 Jan. 2003, URL <<http://www.iaea.org/worldatom/Press/Statements/2003/ebsp2003n002.shtml>>.

⁹⁹ IAEA, 'The status of nuclear inspections in Iraq', Statement by Mohamed ElBaradei, IAEA Director General, to the United Nations Security Council, 27 Jan. 2003, text available at URL <<http://www.iaea.org/worldatom/Press/Statements/2003/ebsp2003n003.shtml>>.

¹⁰⁰ Fidler, S., 'Tone of Blix declaration more critical than many expected', *Financial Times*, 28 Jan. 2003, p. 3; and O'Brien, T., 'Cooperation falls short, Blix says', *International Herald Tribune*, 28 Jan. 2003, pp. 1, 5.

¹⁰¹ 'An update on inspections', Statement by Hans Blix, Executive Chairman of UNMOVIC, to the United Nations Security Council, 27 Jan. 2003, text available at URL <<http://www.un.org/apps/news/infocusnewsiraq.asp?NewsID=354&slID=6>>. For further detail about the findings of Blix's report, see chapter 16 in this volume.

¹⁰² IAEA, 'IAEA update report for the Security Council pursuant to Resolution 1441 (2002)', available at URL <http://www.iaea.org/worldatom/Press/Focus/iaeaIraq/unscreport_290103.html>.

¹⁰³ 'The status of nuclear inspections in Iraq' (note 99).

that the additional months would be a 'valuable investment in peace because they could help us to avoid a war'.¹⁰⁴

IV. Iran and nuclear proliferation concerns

In 2002 controversy continued over Iran's suspected nuclear weapon ambitions. The fundamental question was whether the export of dual-use technologies to Iran was facilitating a clandestine Iranian military nuclear programme, as long alleged by the USA. In August 2002, US Secretary of Energy Spencer Abraham asserted that Iran was 'aggressively pursuing nuclear weapons'.¹⁰⁵

The lingering controversy over Iran's nuclear activities has an important international dimension. Russia's cooperation with Iran in the field of nuclear energy has emerged as one of the most contentious issues in Russian-US relations in recent years, highlighting the two countries' underlying differences over non-proliferation and the relative priority to be accorded to export control considerations in their foreign policies.

The Russian-US dispute centres on the 1995 decision by the Russian Ministry of Atomic Energy (Minatom) to complete a 1000-MW(e) light-water power reactor started by Germany in the 1980s at Bushehr, on the Persian Gulf coast. Despite reports in March 2002 of a falling out between Iran and Russia over financing arrangements, work proceeded on the reactor, which is expected to become operational by the end of 2004.¹⁰⁶ The US Government has sought to prevent the \$800 million deal from going ahead, fearing that it would undermine nuclear non-proliferation goals and norms. Particular concern has been expressed that the project could be used as cover for Iran to maintain wide-ranging contacts with Russian nuclear entities and for engaging in more sensitive forms of cooperation with direct applicability to a nuclear weapon programme.¹⁰⁷

During 2002 Russia continued to dismiss US concerns that its technology exports were helping Iran to develop nuclear weapons.¹⁰⁸ It insisted that the Bushehr reactor project fell entirely within the provisions of the NPT, in which nuclear weapon states agree to assist non-nuclear weapon states in developing civilian nuclear power programmes, in exchange for a commitment from them to refrain from pursuing nuclear weapon capabilities. Russian officials also pointed out that the IAEA had deemed Iran to be in compliance with

¹⁰⁴ 'The status of nuclear inspections in Iraq' (note 99).

¹⁰⁵ Quoted in Myers, S. L. and Tavernise, S., 'Iran nuclear issue sours US-Russian talks on energy', *New York Times* (Internet edn), 2 Aug. 2002, URL <<http://www.nytimes.com/2002/08/02/international/europe/02RUSS.html>>.

¹⁰⁶ 'Russia said to honour its commitments in building Iran nuclear plant', RIA News Agency, 26 Feb. 2002, available on Russian-American Nuclear Security Advisory Council (RANSAC) Internet site, URL <<http://www.ransac.org/new-web-site/pub/nuclearnews/03.04.02.html#1c>>.

¹⁰⁷ Central Intelligence Agency (note 87); and 'Iran: Russian nuclear institutes aid weapon scientists', Global Security Newswire, 6 Feb. 2002, URL <<http://www.ransac.org/new-web-site/pub/nuclearnews/02.08.02.html#1D>>.

¹⁰⁸ Yurkin, A., 'Russian technologies supplied to Iran unfit for making nuclear weapons', ITAR-TASS (Moscow), 22 May 2002, in Foreign Broadcast Information Service, *Daily Report-Central Eurasia (FBIS-SOV)*, 'Expert says Russian technologies supplied to Iran unfit for making nuclear weapons', FBIS-SOV-2002-0522, 22 May 2002.

its comprehensive safeguards agreement mandated by the NPT.¹⁰⁹ Moreover, Russia had made its participation in the Bushehr project contingent on Iranian assurances that all spent reactor fuel would be returned to Russia.¹¹⁰

The controversy gained renewed prominence when Russia announced in July 2002 a preliminary agreement with Iran on plans to build five nuclear power reactors in the country over the next 10 years, including three additional reactors at Bushehr.¹¹¹ The USA immediately protested.¹¹² Minatom officials subsequently played down the significance of the announcement, noting that Russia would take into account 'political factors' before signing contracts for the additional reactors.¹¹³

Suspected undeclared nuclear facilities

A new controversy involving Iranian nuclear activities occurred in December 2002 with the publication of commercial satellite images purporting to show the construction of two secret nuclear fuel facilities south of Tehran. According to non-governmental experts, one of the facilities, a 'desert eradication' project near the town of Natanz, appeared to be a uranium-enrichment plant; the other facility, near the town of Arak, appeared to be related to the production of heavy water.¹¹⁴ The existence of the facilities reportedly was first revealed by an Iranian opposition group in August 2002. Some analysts warned that, while the facilities would not be operational for several years, their existence suggested that Iran might have other secret facilities.¹¹⁵

Iranian officials denied that Iran has had a nuclear weapon programme. President Mohammed Khatami dismissed the reports about secret nuclear fuel cycle facilities as 'totally baseless'.¹¹⁶ Russia, which has numerous commercial contracts with Iran, also insisted that there was no evidence that Iran was secretly pursuing a nuclear weapon programme.¹¹⁷

¹⁰⁹ Iran acceded to the NPT on 2 Feb. 1970. Its full-scope safeguards agreement with the IAEA (INFCIRC/214) entered into force on 15 May 1974. The 5-MW(t) research reactor at Tehran University and the 30-KW(t) research reactor and .01KW(t) critical assembly at the Nuclear Technology and Research Centre at Isfahan are under IAEA safeguards.

¹¹⁰ Engelman, E., 'Russia vows to recover nuclear fuel', Associated Press, 26 July 2002, <http://story.news.yahoo.com/news?tmpl=story2&cid=518&u0=/ap/20020712/ap_on_re_eu/russia_iran_nuclear_2&printer=1>.

¹¹¹ Baker, P., 'Russia plans 5 more nuclear plants in Iran', *Washington Post*, 27 July 2002, p. A15.

¹¹² Kerr, P., 'US irked by potential growth in Russian nuclear aid to Iran', *Arms Control Today*, vol. 32, no. 4 (Sep. 2002), p. 14.

¹¹³ Kerr (note 112).

¹¹⁴ Albright, D. and Hinderstein, C., 'Iran building nuclear fuel cycle facilities: international transparency needed', Institute for Science and International Security (ISIS), *Issues Brief*, 12 Dec. 2002, available on ISIS Internet site, URL <<http://www.isis-online.org/publications/iran/iranimages.html>>.

¹¹⁵ Kessler, G., 'Sources say Iran lays groundwork for nuclear bombs', *Washington Post*, 19 Dec. 2002, p. A26. According to one US news report, the Pentagon has estimated that Iran's uranium-enrichment programme could produce enough HEU to manufacture a nuclear weapon 'within a few years', if Iran received external assistance; without such assistance, it could take until the end of the decade. Sanger, D., 'US says Russia helped Iran in nuclear arms effort', *New York Times* (Internet edn), 16 Dec. 2003, URL <<http://www.nytimes.com/2002/12/16/international/middleeast/16DIPL.html>>.

¹¹⁶ Kessler (note 115).

¹¹⁷ ITAR-TASS (Moscow), 24 Jan. 2003, in 'US wants Russia to limit nuclear assistance to Iran', FBIS-SOV-2003-0124, 24 Jan. 2003.

According to Director General ElBaradei, the reports about the two suspected nuclear facilities had ‘not come as a surprise’ to the IAEA, which was already aware of their existence.¹¹⁸ He noted that Iran had rejected efforts by the IAEA to examine the two sites but subsequently invited inspectors for talks in February 2003. ElBaradei urged Iran to grant IAEA inspectors broader rights of access and authority for verification of both declared and undeclared nuclear facilities through the conclusion of an Additional Protocol to its safeguards agreement.¹¹⁹

This revelation refocused international attention on compliance challenges for the NPT regime that had been largely eclipsed by the demonstrated Iraqi and North Korean material breaches of the treaty. It highlighted inherent difficulties over ascertaining a party’s intentions with respect to nuclear weapons based on its development of non-prohibited civil nuclear technologies which have direct military applications. Above all, it raised the prospect that a state party can assemble most of the infrastructure necessary for a nuclear weapons capability under the political ‘cover’ provided by the treaty.

V. International cooperation on nuclear safety and security

In the wake of the 11 September 2001 terrorist attacks on the USA, there has been growing international concern about the danger of nuclear and other weapons of mass destruction falling into the hands of transnational terrorist groups such as al-Qaeda.¹²⁰ This concern was evident in the decision taken by the Group of Eight (G8) countries in June 2002 to create the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.¹²¹

In the USA, such concerns led to a renewed focus on strengthening non-proliferation efforts under way within the framework of the Cooperative Threat Reduction (CTR) programme.¹²² This programme has evolved to encompass a wide range of cooperative initiatives to dismantle or convert the former Soviet Union’s sizeable non-conventional weapon complexes and to safeguard nuclear and other hazardous materials. Despite the progress made,

¹¹⁸ IAEA, ‘IAEA chief addresses Iraq, North Korea and Iran issues’, News Release, 13 Dec. 2002, available at URL <<http://www.iaea.org/worldatom/Press/News/2002/12/13-540911.html>>.

¹¹⁹ IAEA, ‘IAEA chief addresses Iraq, North Korea and Iran issues’ (note 118). The principal provisions of the Additional Protocol, which constitute the legally binding obligations for implementing the IAEA strengthened safeguards systems, are contained in IAEA ‘Model Protocol Additional to the Agreement(s) between State(s) and the International Atomic Energy Agency for the Application of Safeguards’, INFCIRC/540(Corrected), 1998, URL <<http://www.iaea.org/worldatom/Documents/Infircs/1998/infirc540corrected.pdf>>.

¹²⁰ See Kobayakov, D. and Florquin, N., ‘“Dirty bomb” threat awakens dormant disarmament conference’, Center for Nonproliferation Studies, Monterey Institute of International Studies, 26 Aug. 2002 URL <<http://cns.miis.edu/pubs/week/020826.htm>>.

¹²¹ For a description of the G8 Global Partnership, see chapter 14 in this volume.

¹²² The Bush Administration proposed a total of \$956.9 million for nuclear security and threat reduction activities for fiscal year (FY) 2003, including \$233 million for material physical control and accounting (MPC&A) activities. When compared to the regular congressional appropriation for these activities in FY 2002, the total amount represented an increase of approximately \$149 million. Hoehn, W., ‘Analysis of the Bush Administration’s Fiscal Year 2003 budget requests for US–Former Soviet Union nonproliferation programs’, Russian–American Nuclear Security Advisory Council (RANSAC), Apr. 2002, URL <http://www.ransac.org/new-web-site/related/congress/status/fy2003doe_0402.html>.

there was renewed awareness in 2002 that considerable quantities of weapon-usable material remain at hundreds of unsecured locations in more than a dozen countries.¹²³ Several expert panel reports called for a sustained political commitment to build on key threat reduction activities and to overcome problems and bottlenecks in implementing existing programmes.¹²⁴

IAEA initiatives

International concern about the dangers of nuclear material falling into the hands of terrorists has been accompanied by a growing awareness that national measures for protecting nuclear material and facilities are uneven in their substance and application. As a result, a number of new initiatives have been launched under the auspices of the IAEA to promote consistent standards for enhancing the safe transport and physical protection of nuclear materials. Among these is an effort to strengthen the 1980 Convention on the Physical Protection of Nuclear Material (CPPNM). In September 2002, the parties met to discuss a draft amendment to the convention that would extend its coverage to nuclear material in domestic use, storage and transport.¹²⁵

In March 2002 the IAEA Board of Governors approved in principle an Action Plan designed to upgrade worldwide protection against acts of terrorism involving nuclear and other radioactive materials.¹²⁶ The plan supplements efforts by countries working at the national level to upgrade physical protection of their nuclear material and nuclear facilities, detect illicit nuclear trafficking across borders and improve control of radioactive sources. Activities during 2002 included sending missions to Afghanistan, Georgia and Uganda to assist in recovering radiological sources that either had been lost or were not adequately protected.¹²⁷

¹²³ See Bunn, et al., 'Controlling nuclear warheads and materials: a report card and action plan,' Project on Managing the Atom, Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University, Mar 2003, available at URL <<http://www.nti.org/cnwm>>.

¹²⁴ E.g., Russian–American Nuclear Security Advisory Council (RANSAC) and Carnegie Endowment for International Peace, 'Reshaping US–Russian threat reduction: new approaches for the second decade', Nov. 2002, available on RANSAC Internet site, URL <http://www.ransac.org/new-web-site/whatsnew/Reshaping_threat_reduction.pdf>; and Center for Strategic and International Studies (CSIS), 'Protecting against the spread of nuclear, biological and chemical weapons: an action agenda for the Global Partnership', Jan. 2003, available on CSIS Internet site, URL <<http://www.csis.org>>.

¹²⁵ The CPPNM is the only multilateral treaty, in force since 1987, that deals with physical protection issues. It obligates the parties to make specific arrangements and meet defined standards for the protection of nuclear material in international transport or storage incidental to such transport. The text of the convention is available at URL <<http://www.iaea.org/worldatom/Documents/Infcircs/Others/inf274r1.shtml>>. A list of signatories and parties is available at URL <http://www.iaea.org/worldatom/Documents/Legal/cppn_status.pdf>.

¹²⁶ IAEA, 'IAEA Board of Governors approves IAEA Action Plan to combat nuclear terrorism', Press Release PR2002/04, 19 Mar. 2002, URL <http://www.iaea.org/worldatom/Press/P_release/2002/prn0204.shtml>.

¹²⁷ IAEA, 'IAEA nuclear security fund gains ground', IAEA WorldAtom News, 19 Mar. 2002, URL <<http://www.iaea.org/worldatom/Press/News/2002/11-22-118949.html>>. As of Jan. 2003, 23 countries and organizations had pledged more than \$12 million, including services, equipment or use of facilities, to support the Action Plan.

VI. Russian–US nuclear arms control

A new chapter in strategic nuclear arms control and Russian–US relations opened on 24 May 2002, when President Bush and Russian President Vladimir Putin signed the Russian–US Strategic Offensive Reductions Treaty in Moscow¹²⁸ The treaty codified the pledges made by Bush and Putin at a November 2001 summit meeting to carry out deep reductions in the strategic nuclear forces of Russia and the USA.¹²⁹ The US administration initially resisted Russia’s calls for these reductions to be codified in a legally binding agreement but later acquiesced in return for Russia’s agreeing to terms that maximized the flexibility of the parties in implementing the arms cuts.¹³⁰ In addition, the US administration’s willingness to codify an arms reductions deal in treaty form may have been a tacit ‘reward’ for Putin’s muted reaction to its decision to withdraw from the ABM Treaty.

SORT provisions

SORT obligates Russia and the USA to reduce the number of their operationally deployed strategic nuclear warheads so that the aggregate numbers of such warheads do not exceed 1700–2200 each by 31 December 2012.¹³¹ This involves a two-thirds cut in the current number of deployed nuclear warheads; it also entails cuts substantially below the 3500-warhead ceiling mandated by the 1993 Russian–US Treaty on Further Reduction and Limitation of Strategic Offensive Arms (START II Treaty).¹³²

SORT differs from previous Russian–US arms reduction agreements in that it does not obligate the parties to implement their reductions in an identical manner. The treaty states that ‘each Party shall determine for itself the composition and structure of its strategic offensive arms, based on the established aggregate limit for the number of such warheads’. Accordingly, it does not impose sublimits on the number of strategic nuclear delivery vehicles (inter-continental ballistic missiles, ICBMs, submarine-launched ballistic missiles and heavy bombers) that each party may deploy or ban particular categories of weapons. The treaty also does not set out interim ceilings to be reached before the final reduction deadline.

¹²⁸ White House, Office of the Press Secretary, ‘President Bush, President Putin sign nuclear arms treaty’, 24 May 2002, URL <<http://www.whitehouse.gov/news/releases/2002/05/20020524-3.html>>.

¹²⁹ See Kile, S. N., ‘Ballistic missile defence and nuclear arms control’, *SIPRI Yearbook 2002: World Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2002), pp. 515–17.

¹³⁰ Slevin, P. and Pincus, W., ‘US now seeking binding deal with Russia on nuclear arms’, *Washington Post*, 6 Feb. 2002, p. A15.

¹³¹ White House, Office of the Press Secretary, ‘Text of the Strategic Offensive Arms Reductions Treaty’, 24 May 2002, URL <<http://www.whitehouse.gov/news/releases/2002/05/20020524-3.html>>.

¹³² For a summary of the main provisions of the START II Treaty, see annex A in this volume. The Russian Federal Assembly voted on 14 June 2002 to withdraw from the START II Treaty. The action had little practical effect, since the Russian and US legislatures had ratified different versions of START II, preventing it from entering into force. LaFraniere, S., ‘Russia quits arms pact’, *Washington Post*, 15 June 2002, p. A20.

The absence of these constraints means that Russia and the USA are free to deploy whatever number of strategic nuclear warheads and delivery vehicles they deem to be appropriate—consistent with their obligations under the 1991 Treaty on the Reduction and Limitation of Strategic Offensive Arms (START I Treaty)—so long as this does not exceed the SORT-mandated ceiling on operationally deployed strategic nuclear warheads on 31 December 2012.¹³³ This means *inter alia* that the treaty does not prohibit the parties from deploying ICBMs equipped with multiple independently targetable re-entry vehicles (MIRVs). The ban on MIRVed land-based missiles had been considered by many arms control advocates to be the central achievement of the START II Treaty.¹³⁴

SORT further enhances the flexibility of the parties by not requiring the irreversible elimination of nuclear warheads from operational deployment, that is, the verified dismantlement of surplus warheads and secure disposal of the fissile material that they contain. This remains a key point of dissatisfaction with the treaty in Russia, where the idea of requiring surplus warheads to be verifiably dismantled has gained support as a mechanism for addressing concerns about asymmetries in the ‘reconstitution potential’ of the US and Russian strategic nuclear forces.¹³⁵ According to the US Department of Defense (DOD) *Nuclear Posture Review*, the USA intends to maintain many of the nuclear warheads removed from delivery vehicles in reserve stockpiles in various states of readiness as a ‘responsive capability’.¹³⁶

In negotiating SORT, the two sides did not seek new verification measures, although they did agree that a Bilateral Implementation Commission would meet at least twice a year. However, in the Russian–US Joint Declaration on the New Strategic Relationship, which was presented when the treaty was signed, presidents Putin and Bush agreed that the START I Treaty’s comprehensive verification regime ‘will provide the foundation for providing confidence, transparency and predictability in further strategic offensive reductions’.¹³⁷ They also pledged that Russia and the United States would hold high-level discussions in a newly established Consultative Group for Strategic Security to explore ways to enhance transparency and predictability.

¹³³ For a summary of the main provisions of the START I Treaty, see annex A in this volume.

¹³⁴ According to US Secretary of State Powell, ‘since neither the USA nor Russia has any incentive to launch nuclear weapons at each other, we no longer view Russian deployment of MIRVed ICBMs as destabilizing to our strategic relationship’. Prepared statement by Secretary of State Colin L. Powell to the Senate Foreign Relations Committee, 9 June 2002, reproduced in *European Washington File* (US Embassy: Stockholm, 9 July 2002), URL <<http://www.usis.usemb/wireless/200/eur204.htm>>.

¹³⁵ See Kile (note 129), pp. 517–18.

¹³⁶ The *Nuclear Posture Review* is a classified report. A briefing on the public aspects is available at US Department of Defense, ‘Special briefing on the Nuclear Posture Review’, 9 Jan. 2002, URL <http://www.defenselink.mil/news/Jan2002/t01092002_t0109npr.html>.

¹³⁷ White House, Office of the Press Secretary, ‘Text: Joint Declaration of new US–Russian relationship’, 24 May 2002, URL <<http://www.whitehouse.gov/news/releases/2002/05/20020524-2.html>>. The START Treaty regime is based on different ‘counting rules’ than SORT and its verification provisions have not been extended to apply to the latter accord.

US ratification proceedings

On 24 June 2002 President Bush transmitted SORT to the Senate for its advice and consent to ratification. Bush stated that the treaty was 'emblematic' of the USA's new, cooperative relationship with Russia. However, he emphasized that, in contrast with previous strategic arms control agreements, it was 'neither the primary basis for this relationship nor its main component'.¹³⁸

Hearings on the treaty got under way in July 2002, during which a number of concerns were expressed about its provisions. There was particular criticism of its failure to set a timetable for the removal of deployed warheads from their delivery vehicles. Complaints were also expressed about the absence of a provision requiring the elimination of warheads removed from delivery vehicles.

These criticisms were rejected by senior administration officials and military leaders, who argued that one of the main strengths of the treaty was that it enabled the USA 'to make deep reductions in strategic nuclear warheads while preserving [its] flexibility to meet unpredictable strategic changes'.¹³⁹ In addition, Secretary of Defense Donald Rumsfeld maintained that the USA needed to keep some decommissioned warheads in reserve 'in the event we run into safety or reliability problems' with deployed warheads, since there was currently no active US warhead production line.¹⁴⁰

Administration officials also dismissed concerns expressed about SORT's lack of verification measures. Secretary of State Colin Powell acknowledged that the treaty was not constructed to be verifiable under the 'old cold war paradigm', since this was 'neither required nor relevant' for a situation in which Russia and the USA consider each other to be strategic partners rather than strategic threats.¹⁴¹ Powell noted that the inspections and data exchanges of the START I Treaty would provide adequate information about the disposition of the parties' strategic nuclear forces and overall status of reduction in deployed strategic nuclear warheads.¹⁴²

Despite the criticisms of the treaty, the hearings made clear that SORT enjoyed bipartisan support, with a broad majority of senators from both parties indicating that they would support approval of the accord. However, the year ended with the Senate leadership having failed to bring the agreement before the full Senate for ratification vote because other legislative agenda items blocked action on it.

¹³⁸ White House, Office of the Press Secretary, 'Letter of transmittal to the Senate of the United States', 24 June 2002, URL <<http://www.whitehouse.gov/news/releases/2002/06/20020620-13.html>>.

¹³⁹ Statement on Moscow Treaty by General Richard B. Myers, Chairman of the Joint Chiefs of Staff, before the 107th Congress, Senate Armed Services Committee, 25 July 2002, reproduced in *European Washington File* (US Embassy: Stockholm, 25 July 2002), URL <<http://www.usis.usemb/wireless/400/eur412.htm>>.

¹⁴⁰ Prepared Testimony for the Senate Foreign Relations Committee regarding the Moscow Treaty by Secretary of Defense Donald H. Rumsfeld, 17 June 2002, text available at URL <<http://usinfo.state.gov/topical7pol7arms702071802.htm>>.

¹⁴¹ Prepared statement by Secretary of State Colin L. Powell (note 134).

¹⁴² Prepared statement by Secretary of State Colin L. Powell (note 134).

Russian ratification proceedings

The signing of SORT was generally welcomed in Russia. In the view of many Russian officials and analysts, Russia had faced a choice between accepting a 'minimalist' treaty, which would have an inequitable impact on the force reconstitution potential of the two parties, or abandoning the nuclear arms reduction process altogether.¹⁴³ According to Russian Foreign Minister Igor Ivanov, the treaty 'was the most that could be done' for the moment.¹⁴⁴ This view was echoed by the Deputy Chairman of State Duma Defence Committee Alexei G. Arbatov, who insisted that Russia had negotiated the best deal it could after the Russian military had announced plans to cut the strategic nuclear forces for budgetary reasons even without arms deal with the USA.¹⁴⁵ Others argued that the USA's consent to formalizing the arms cuts in a treaty was, in fact, a victory for Russia given that the Pentagon could afford to deploy as many warheads as it wanted.¹⁴⁶

President Putin submitted SORT to the Duma on 7 December 2002. Despite nationalist complaints that Russia had caved in to the USA in reaching a nuclear arms reduction deal, leading Russian parliamentarians predicted that SORT would easily win the approval of the Federal Assembly. This was expected to occur in the spring of 2003, possibly with conditions attached by the Duma outlining a number of exceptional circumstances enabling Russia to 'withdraw from the treaty to protect its sovereignty'.¹⁴⁷

US withdrawal from the ABM Treaty

On 13 June 2002 the USA formally withdrew from the 1972 Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty). In December 2001, as required by the treaty, the USA had notified Russia and the other signatories of its intention to withdraw from the ABM Treaty in six months.¹⁴⁸ The decision was motivated by the US administration's desire to proceed with the development and testing of missile defence systems that are prohibited by the treaty.

Despite Russia's strenuous diplomatic efforts in recent years to preserve the ABM Treaty, Russian reactions were notably restrained. The Duma issued a

¹⁴³ See, e.g., Litovkin, V., 'Clash of nuclear warheads: Russia and the USA are left with their interests intact', *Obshchaya Gazeta* (Moscow), 16 May 2002, in 'Russian paper: better off with arms treaty than without it', FBIS-SOV-2002-0517, 16 May 2002.

¹⁴⁴ Interfax (Moscow), 21 May 2002, in 'Ivanov says Russia, US will "independently" determine START structure', FBIS-SOV-2002-0521, 21 May 2002.

¹⁴⁵ Interfax (Moscow), 15 May 2002, in 'Russian Duma Defense Committee official welcomes arms deal with US', FBIS-SOV-2002-0515, 15 May 2002.

¹⁴⁶ Belous, V., 'The Treaty on a Reduction in Strategic Offensive Potentials: pluses and minuses', *Trud* (Moscow), 18 June 2002, in 'Russia seen as having greater interest in new arms reduction treaty than US', FBIS-SOV-2002-0618, 18 June 2002. Russian analysts also noted that the absence of the START II Treaty's ban on MIRVed ICBMs left Russia in a better position to be able to restructure its strategic forces up to the treaty-mandated limits, at a numerical level comparable to that of the USA.

¹⁴⁷ Interfax (Moscow), 17 Dec. 2002, in 'State Duma says Russia-US arms reduction treaty could be ratified after six months', FBIS-SOV-2002-1217, 17 Dec. 2002.

¹⁴⁸ See Kile (note 129).

statement denouncing the US withdrawal as a ‘political mistake that can inflict serious damage on international security’.¹⁴⁹ Senior defence officials expressed a similar sentiment, calling the US move ‘an error, but no reason for drama, as the USA is not presently seen as a threat to Russia’s security’.¹⁵⁰ They also continued to express interest in cooperating with the USA on anti-missile issues. Defence Minister Sergey Ivanov said that Russia could work with the USA on creating a joint anti-missile system if such cooperation were ‘based on law and the missile defense system should not be aimed against each other’.¹⁵¹

Towards a new arms control paradigm?

In 2002 Russia and the USA took further steps towards forging a new strategic relationship, moving from mistrust and rivalry towards cooperation and consultation. Bush and Putin in effect ‘agreed to disagree’ on the future of the ABM Treaty rather than let it disrupt this rapprochement, and to push ahead with deeper cuts in their countries’ nuclear arsenals.

The signing of SORT in 2002 marked a breakthrough in a strategic arms reduction process that had been largely deadlocked since the signing of the 1993 START II Treaty. In the words of President Bush, the new treaty holds out the prospect that Russia and the USA will finally begin to adjust their nuclear force postures, which are arguably the most visible and enduring product of the superpower arms race, and to bring them into line with a new, non-adversarial political relationship. It also codifies the symbolically important notion of equal security for both sides, insofar as the USA is committed to sharply reducing its nuclear forces to a level similar to that of Russia.

At the same time, SORT marks a fundamental change in the form and substance of the arms control process. It is not a ‘traditional’ cold war treaty, seeking to manage superpower competition by carefully balanced and verified limits on strategic nuclear arms. This type of agreement had been firmly rejected by the Bush Administration as being outdated and as inhibiting US flexibility in adapting to a new and changing security environment. In its final form, the new treaty gives the two sides unprecedented flexibility in implementing what amount to parallel, unilateral force reductions.

SORT arguably can be described as an asymmetric agreement in that the USA basically got everything it wanted; however, this asymmetry has to be assessed within a broader context. SORT is one part of a more comprehensive Russian–US ‘package deal’, including a strategic restraint component, but going beyond arms reductions to encompass ‘positive’ measures. As spelled out in the May 2002 Joint Declaration, these measures include improved political consultation and coordination, particularly with regard to combating

¹⁴⁹ ITAR-TASS (Moscow), 14 June 2002, in ‘Russia: Duma statement denounces US withdrawal from ABM Treaty’, FBIS-SOV-2002-0614, 14 June 2002.

¹⁵⁰ Maj.-Gen. Yevgeniy Buzhinski, Director, International Treaties Department of the Russian Ministry of Defence, quoted by ITAR-TASS (Moscow), 13 June 2002, in ‘Defense Ministry says US ABM pullout “error” but no basis for “drama”’, FBIS-SOV-2002-0613, 13 June 2002.

¹⁵¹ Interfax (Moscow), 15 Jan. 2003, in ‘Russian Defense Minister Ivanov gives conditions for cooperation with US on missile defense’, FBIS-SOV-2003-0115, 15 Jan. 2003.

terrorism and halting the proliferation of weapons of mass destruction, as well as increased economic and scientific cooperation.¹⁵²

It is this aspect of the ‘package deal’ which is especially attractive for Russia. While traditional arms control concerns such as strategic stability and parity are not unimportant issues, they are secondary priorities to Putin’s overriding goal: to stabilize, regularize and restructure the economy. In his view, the promotion of economic growth and integration into the global economy requires, above all, substantially improved relations with the United States.¹⁵³ One result has been that arms control is becoming increasingly integrated with these other aspects of Russian–US relations.

VII. Developments in US ballistic missile defence programme

The Bush Administration entered office committed to the development of a robust missile defence system to protect the USA and its allies. In January 2002 US Secretary of Defense Rumsfeld issued a memorandum outlining the future direction of the Missile Defense Program of the DOD.¹⁵⁴ He identified four main missile defence priorities: (a) ‘to defend the USA, deployed forces, allies and friends’; (b) ‘to employ a Ballistic Missile Defense System (BMDS) that layers defenses to intercept missiles in all phases of their flight’; (c) ‘to enable the services to field elements of the overall BMDS as soon as practicable’; and (d) to develop and test technologies and ‘improve the effectiveness of deployed capability by inserting new technologies as they become available or when the threat warrants an accelerated capability’.¹⁵⁵ Rumsfeld’s memorandum directed the DOD to develop for deployment an integrated ballistic missile defence system capable of addressing ‘all ranges of threats’, and hence going beyond the limited system envisaged by the Clinton Administration.

Missile defence deployment decision

On 17 December 2002 the Pentagon’s Missile Defense Agency (MDA, known as the Ballistic Missile Defense Organization before January 2002) announced that it had been directed by President Bush to begin deploying, in 2004–2005, an initial missile defence system ‘to meet the near-term ballistic missile threat’ to the USA’s ‘homeland, deployed forces and friends and allies’.¹⁵⁶ The announcement marked the first time that the Bush Administration had defined

¹⁵² ‘Joint Declaration of new US–Russian relationship’ (note 137).

¹⁵³ For a discussion of the impact on arms control of Putin’s reordering of Russian foreign and security policy priorities, see Kuchins, A., ‘Explaining Mr Putin: Russia’s new nuclear diplomacy’, *Arms Control Today*, vol. 32, no. 8 (Oct. 2002), pp. 3–8. See also chapter 1 in this volume.

¹⁵⁴ Secretary of Defense Donald Rumsfeld, ‘Missile defense program direction’, Memorandum, Office of Secretary of Defense, 2 Jan. 2002, available at URL <http://www.defenselink.mil/news/Jan2002/b01042002_bt008-02.html>.

¹⁵⁵ Department of Defense, ‘DOD establishes Missile Defense Agency’, News Release no. 008-02, 4 Jan. 2002, URL <http://www.defenselink.mil/news/Jan2002/b01042002_bt008-02.html>.

¹⁵⁶ US Department of Defense, ‘Missile defense operations announcement’, News Release no. 642-02, 17 Dec. 2002, URL <http://www.defense.link.mil/news/Dec2002/b12172002_bt642-02.html>.

an initial BMD capability to protect US territory and committed to a specific deployment date.

Pentagon officials stated that the principal purpose of the initial system was to intercept long-range ballistic missiles launched by North Korea against the United States.¹⁵⁷ They emphasized that the system to be deployed would provide only a rudimentary defence capability against ballistic missile attack and would require many years of development and testing. They also stressed that the composition of the system architecture, including the number, type and location of systems to be deployed, would evolve over time to meet 'the changing threat and take advantage of technological developments'.¹⁵⁸

To finance the plans, Pentagon officials indicated that the White House would seek an additional \$1.5 billion over the next two years.¹⁵⁹ This would come on top of the \$7.3 billion previously projected for missile defence activities in FY 2004 and the \$7.9 billion for FY 2005.¹⁶⁰ In FY 2003, a total of \$7.8 billion was authorized for US missile defence programmes.

The system planned for deployment in 2004–2005 has a considerably more expansive architecture than the initial missile defence system proposed by the Clinton Administration, which envisioned a single interceptor missile site deployed in Alaska (see table 15.2). It will build on the Midcourse Defense Segment (MDS) Test Bed Facility under construction at Fort Greely, Alaska. This facility, which will consist of a set of launchers, radar, and command and control installations will be the initial site for the deployment of land-based missile interceptors beginning in 2004. The system also calls for putting as many as 20 smaller interceptors on three Aegis surface ships for use against short- and medium-range missiles, and for a more expansive sensor architecture.¹⁶¹ In addition to a new X-band (very high resolution) radar being built at Shemya Island, Alaska, as part of the test bed facility, the system will include a new fleet of launch-detection satellites known as the Space-Based Infrared System (SBIRS)–High.

The Bush Administration also requested permission from the British and Danish governments to use the early-warning radars based at Fylingdales in the United Kingdom, and Thule, Greenland, as part of the initial system and to upgrade them with advanced tracking capabilities in 2005.¹⁶² The use of these radars, which would be essential for tracking missiles launched from the Middle East, has been the source of considerable controversy in both Denmark

¹⁵⁷ However, they denied that the timing of the decision to deploy the system was linked to recent nuclear-related tensions with North Korea. 'Missile defense deployment announcement', Special Briefing with Lt Gen. Ronald Kadish, Director, Missile Defense Agency and J. D. Crouch, Assistant Secretary of Defense for International Security, Department of Defense, News Transcript, 17 Dec. 2003, available at URL <http://www.defenselink.mil/news/Dec2002/t12172002_t1217missiledef.html>.

¹⁵⁸ 'Missile defense operations announcement' (note 156).

¹⁵⁹ 'Missile defense deployment announcement' (note 157).

¹⁶⁰ Statement of Lt Gen. Ronald F. Kadish, Director, Missile Defense Agency, before the Senate Appropriations Committee, Defense Subcommittee, regarding the FY03 Missile Defense Budget, 17 Apr. 2002, URL <<http://www.acq.osd.mil/bmdo/bmdolink/pdf/budget03.html>>.

¹⁶¹ 'Missile defense operations announcement' (note 156).

¹⁶² Office of the Prime Minister, 'Initial agreement for US missile defence proposal', 10 Downing Street Newsroom, URL <<http://www.number-10.gov.uk/output/Page6999.asp>>.

and the UK.¹⁶³ The Pentagon's plans for a wider defence system reportedly call for another interceptor site to be located in Maine, oriented towards missile threats from the Middle East; additional interceptor sites could be set up in Hungary, Poland or the UK.¹⁶⁴

Criticism of the deployment decision

The Bush Administration's decision to move ahead with the deployment of an initial missile defence system sparked an immediate, albeit relatively restrained, controversy. The plan came under fire from missile defence sceptics and some Democrats in Congress for deploying technologies before they had been tested and shown to work.¹⁶⁵ Critics pointed to the recent failed intercept test in the MDA's Ground-based Midcourse Segment (previously referred to as National Missile Defence) test programme as evidence that the technology was clearly not ready for deployment.¹⁶⁶

These concerns were played down by senior Pentagon and White House officials. Lt General Ronald Kadish, the Director of the MDA, noted that, despite the most recent setback, there had been successful interceptions in the four previous tests and a total record of five hits in eight attempts since the Ground-based Midcourse Segment flight-test programme began in 1999. He noted that these tests, along with others involving short-range interceptors, had demonstrated the feasibility of the 'hit-to-kill' concept.¹⁶⁷

There were also international expressions of concern about the US deployment decision. A Chinese Foreign Ministry spokesman said that China was concerned 'about the possible negative impact on regional stability of a missile defence system'.¹⁶⁸ He would not say, however, whether China would add more long-range missiles to its arsenal or change the deployment of its strategic forces in response to the announcement. The Russian Foreign Ministry similarly warned that US missile defence plans 'had moved into a new destabilizing phase'.¹⁶⁹ At the same time, Russia continued to press to be incorporated into those plans, arguing that joint missile defence was better suited to the new relationship of strategic partnership between Russia and the USA than the unilateral programme being promoted by the White House.

¹⁶³ Helm, T., 'Labour anger at decision to back "son of star wars"', *Daily Telegraph* (Internet edn), 16 Jan. 2003, URL <<http://www.telegraph.co.uk/news/main.jhtml?xml=%2Fnews%2F2003%2F01%2F16%2Fnm16.xml>>

¹⁶⁴ Gertz, B., 'Pentagon plans defense against Mideast missiles', *Washington Times* (Internet edn), 19 Dec. 2003, URL <<http://dynamic.washtimes.com/twt-print.cfm?ArticleID=20021219-86065308>>.

¹⁶⁵ Guggenheim, K., 'Bush missile shield plan draws criticism', Associated Press, 18 Dec. 2002, available at URL <http://story.news.yahoo.com/news?tmpl=story2&cid=544&u=/ap/20021218/ap_on_go_pr/wh/missile_defenses&printer=1>.

¹⁶⁶ Reuters, 'US missile defense test is failure', *Washington Post*, 12 Dec. 2002, p. A35.

¹⁶⁷ 'Missile defense deployment announcement' (note 157).

¹⁶⁸ Cited in 'China concerned by missile defence plan', *The Guardian* (Internet edn), 19 Dec. 2002, URL <<http://www.guardian.co.uk/worldlatest/story/0,1280,-2256976,00.html>>.

¹⁶⁹ Glasser, S., 'Russia has warning, and overture, on missile plan', *Washington Post*, 19 Dec. 2002, p. A19.

Table 15.2. Summary of planned US missile defence capabilities, 2004–2005

Programme	System	Mission
Ground-based Mid-Course Defence ^a	‘Up to 20’ multistage Ground-based Interceptor (GBI) missiles carrying Exoatmospheric Kill Vehicle (EKV) ^b	Intercept intercontinental-range ballistic missiles during mid-course phase of flight
Sea-Based Midcourse Defence ^c	3 Aegis cruisers equipped with reconfigured AN/SPY-1 radar and ‘up to 20’ upgraded Standard Missile interceptors	Intercept short- to medium-range ballistic missiles during mid-course phase of flight
Patriot Advanced Capability-3 (PAC-3)	Land-based, air-transportable launcher, equipped with high-speed hit-to-kill interceptor missile, and associated radar and engagement control station	Intercept short- to medium-range ballistic missiles
Sensors	X-band radar at Shemya Island, Alaska, and deployed on ship; SBIRS-High missile launch-detection satellites; and upgraded early warning radars in Greenland and UK	Detect ballistic missile launches and provide target tracking data in all phases of flight trajectory

^a Previously referred to as National Missile Defense.

^b 16 interceptors will be based at Fort Greely, Alaska and 4 interceptors will be based at Vandenberg Air Force Base, California.

^c Previously referred to as Navy Theatre Wide system.

Sources: ‘Missile defense deployment announcement’, Special Briefing with Lt Gen. Ronald Kadish, Director, Missile Defense Agency and J. D. Crouch, Assistant Secretary of Defense for International Security, Department of Defense, News Transcript, 17 Dec. 2003, URL <http://www.defenselink.mil/news/Dec2002/t12172002_t1217missiledef.html>; and ‘Missile defense operations announcement’, Department of Defense, News Release no. 642-02, 17 Dec. 2002, URL <http://www.defnse.link.mil/news/Dec2002/b12172002_bt642-02.html>.

VIII. Conclusions

In 2002 concerns about the viability of the NPT and the broader nuclear non-proliferation regime moved to the fore of the nuclear arms control and disarmament agenda. Developments in the year highlighted at least two major weaknesses in that regime. The first has to do with its relative lack of strong stakeholders. For many states, non-proliferation is only one objective among numerous—and often competing—commercial, economic and strategic objectives. There is also a tendency for governments to view their non-proliferation commitments primarily through the prism of their relations with other states rather than as a political and legal undertaking that benefits their own security.

A second, related weakness is that the nuclear non-proliferation regime’s principal legal and normative foundation—the NPT—continues to lack universal legitimacy. It creates an inherently discriminatory system of nuclear ‘haves’ and ‘have-nots’ that remains unacceptable to many non-nuclear states

especially since they consider the nuclear weapon states as failing to uphold their end of the NPT 'bargain', that is, to work in a serious way towards fulfilling their legally binding nuclear disarmament commitments. The widely perceived illegitimacy of this differentiation works against building a stable and effective regime that depends on the parties' voluntary compliance with its underlying norms.

Developments in 2002 also revealed that there is an urgent need to strengthen the technical measures to prevent the spread of weapon-usable fissile material in order to take into account the fact that the nuclear fuel cycle technology of greatest proliferation concern has changed over the past decade. Increasingly, aspiring proliferators have sought to acquire the capability to produce highly enriched uranium rather than plutonium as the basis for manufacturing nuclear weapons. This technology has spread globally since the 1980s. It requires fewer 'tell-tale' facilities and thus is easier to conceal from national technical means of surveillance, such as satellites. The USA, in particular, has become proficient at detecting at a distance the large reactors and reprocessing facilities required for making plutonium-based weapons.

Measures to strengthen the technical chokepoint on which the NPT regime rests already exist. For example, the Strengthened Safeguards System, developed by the IAEA in the 1990s after the discovery of the extent of Iraq's clandestine nuclear weapon programme, would probably have detected the undeclared facilities allegedly built by Iran and North Korea, while discouraging other potential proliferators from attempting to follow suit.

However, the key issue to be addressed is not whether particular treaties and regulatory arrangements have failed. Rather, it is how to deal with states which deliberately violate their obligations under these treaties and the norms underlying them. The UN Security Council is vested with the ultimate responsibility for enforcing compliance. The conspicuous deadlock in the Security Council over Iraq in early 2003 has left as an open question whether it will be able to live up to its mandate as the upholder of international law.

The year 2002 witnessed a reappearance of 'old' threats at the top of the international security agenda: namely, the prospect that—as many feared 40 years ago—the world will see the emergence of a host of new nuclear-armed states. This would be a profound development, suggesting that the new strategic environment would probably be very different from that which existed in recent decades. Clearly, the international community stands at an important crossroads with respect to revitalizing and strengthening the global non-proliferation regime. The fundamental choice before it is whether the emerging international system is to be characterized by the wider spread of nuclear weapons or whether it will be characterized by stability, restraint and continuing decline in the global nuclear arsenal.