10. Ballistic missile defence and nuclear arms control

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I. Introduction

In 2001 the international controversy over the United States missile defence plans and the future of the 1972 Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty) came to a head. On 13 December, President George W. Bush announced that the USA would withdraw from the ABM Treaty. Bush s announcement was widely expected and did not undermine commitments made by Russia and the USA the previous month to further reduce their nuclear arsenals. Against the background of improving political relations, Bush and Russian President, Vladimir Putin, had pledged to make significant new cuts in their countries strategic nuclear force levels. As the year ended, however, there was disagreement between Russian and the US over whether these reductions would be made within the framework of a traditional arms control treaty or as parallel, non-legally binding initiatives.

This chapter reviews the principal developments in nuclear arms control and missile defence in 2001. Section II describes the US administration s decision to withdraw from the ABM Treaty and assesses the reaction of the Russian Government and others. It also examines changes in the USA s programme to develop and deploy a missile defence system designed to protect the United States and its allies from a limited ballistic missile attack. Section III examines the Russian and US commitments to make further nuclear force reductions. It also notes the completion of the reductions in strategic nuclear delivery vehicles (SNDVs) and accountable warheads mandated by the 1991 Treaty on the Reduction and Limitation of Strategic Offensive Arms (START I Treaty). Section IV summarizes developments related to the international cooperative programmes to dismantle nuclear weapons and enhance the safety and custodial security of nuclear materials in the former Soviet Union. Section V surveys the status of efforts to bring the Comprehensive Nuclear Test-Ban Treaty (CTBT) into force. Section VI presents the conclusions.

Appendix 10A provides data on the nuclear forces of the five legally recognized nuclear weapon states and on the nuclear arsenals of India, Israel and Pakistan. Appendix 10B analyses the arms control challenges posed by non-strategic (or tactical) nuclear weapons and describes proposals for controlling and eventually eliminating these weapons. Appendix 10C provides an overview of changes under way in the US and Russian nuclear weapon production complexes. Appendix 10D examines recent international efforts to strengthen the physical protection of nuclear facilities.

II. Ballistic missile defence and the future of the ABM Treaty

The issue of ballistic missile defence (BMD) and the future of the ABM Treaty has generated controversy both within the USA and between the USA and Russia.[1] This controversy came to a head in 2001 with the change of US administration. The incoming Bush Administration pledged that one of its immediate policy priorities would be to pursue the deployment of a more extensive missile defence system than that envisaged by its predecessor; it submitted an amended fiscal year (FY) 2002 defence budget authorization bill that significantly increased funding for missile defence research and development (R&D) programmes. The change in administrations also led to a shift in the US position on the ABM Treaty. President Bush announced that the USA would withdraw from the treaty rather than seek to amend it to permit the deployment of a limited national missile defence (NMD) system. The announcement elicited a restrained reaction from President Putin, who signalled that the decision would not derail improving Russian—US relations.

The US missile defence debate

The issue of missile defence has been a source of recurring partisan dispute in the USA. In the late 1990s a consensus gradually emerged in Washington that a BMD system was needed to protect the USA against an attack by a small number of long-range missiles possibly armed with nuclear, chemical or biological weapons launched by rogue states such as North Korea or Iraq.[2] This consensus was reflected in the US Congress overwhelming approval of the National Missile Defense Act of 1999, which committed the USA to deploy as soon as is technologically possible an effective National Missile Defense system capable of defending the territory of the United States against limited ballistic missile attack (whether accidental, unauthorized, or deliberate).[3]

However, missile defence has remained a controversial issue in Congress. There has been a spirited debate over how limited in scope and scale a future BMD system should be and over the pace of its development. There has also

[1] The ABM Treaty was signed by the USA and the USSR in May 1972 and entered into force in Oct. 1972. In September 1997, Belarus, Kazakhstan and Ukaine signed a Memorandum of Understanding (MOU) with Russia and the US recognizing themselves as successor states to the Soviet Union for the purposes of the ABM Treaty. Although the MOU was not fully ratified and never entered into force it was accepted that, as signatories, Belarus, Kazakhstan and Ukaine would assume the rights and responsibilities of the treaty. For a summary of the main provisions of the treaty see annex A in this volume. The text of the ABM Treaty; the Agreed Statements, Common Understandings and Unilateral Statements; and the 1974 Protocol are presented in St tzle, W., Jasani, B. and Cowen, R., SIPRI, *The ABM Treaty: To Defend or Not to Defend?* (Oxford University Press: Oxford, 1987), pp. 207—13.

[2] For a summary of the US missile defence debate prior to 2001 see Kile, S., Nuclear arms control and ballistic missile defence, *SIPRI Yearbook 2001: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2001), pp. 424—26.

[3] National Missile Defense Act of 1999, Public Law 106—38, 22 July 1999.

been considerable disagreement over the degree to which, if any, this system should be constrained by the ABM Treaty.

In 2001 there were important changes in the tone and substance of this debate. Paradoxically, both its advocates and critics claimed that the 11˚September 2001 terrorist attacks supported their views about the relative priority that should be accorded to missile defence in countering new threats to US security.[4] However, in the wake of the attacks, the partisan conflict largely disappeared as Republicans and Democrats moved to present a united front on defence and security issues. Popular support for a large increase in US defence spending also effectively swept away the budgetary constraint that critics had hoped would derail, or at least slow, the new administration s ambitious missile defence plans. In addition, Bush s announcement that the USA would withdraw from the ABM Treaty removed one of the main points of contention from the debate.

The Bush Administration s arguments for missile defence

The Bush Administration entered office in January 2001 committed to the development of a robust missile defence system to protect the USA and its allies. The idea of building a strategic missile defence shield has long been an attractive one among some conservatives in the Republican Party.[5] It has gained wider favour in light of growing scepticism about the adequacy of the existing framework of arms control treaties and multilateral supplier arrangements designed to prevent the spread of non-conventional weapons and the means to deliver them.[6] The Bush Administration s approach to missile defence was part of a broader shift in emphasis from attempting to halt proliferation at its source to a greater focus on responding to and managing the consequences of proliferation. It also reflected an inclination to favour unilateral responses to proliferation challenges.

The new administration lost little time in urging Congress to push ahead with missile defence as an urgent priority. One argument put forward by senior administration officials was that a nationwide missile defence system would usefully supplement nuclear deterrence; this supplement was increasingly needed in the light of the emergence of states armed with long-range ballistic missiles which might not be deterred by threats of devastating retaliation.[7] Other officials downplayed the risk posed by potentially undeterrable

[4]˚E.g., Cirincione, J. and Payne, K., Debate: in the wake of 11˚September where does missile defence fit in security spending priorities? , *NATO Review*, vol. 49 (winter 2001/2002), pp. 26—30.

[5]˚See FitzGerald, F., Way Out There in the Blue: Reagan, Star Wars and the End of the Cold War (Simon & Schuster: New York, 2000), pp.˚114—46.

[6]˚E.g., Perle, R., Good guys, bad guys and arms control , eds I. Anthony and A. D. Rotfeld, SIPRI, A˚Future Arms Control Agenda (Oxford University Press: Oxford, 2001), pp.˚43—49. See also chapter 11 in this volume.

[7]˚Testimony of Secretary of Defense Donald H. Rumsfeld before the Armed Services Committee, US Senate, 12 July 2001, URL <http://www.defenselink.mil/speeches/2001/s20010621-secdef2.htm>.

states, focusing instead on the prospect that a state might initiate a regional conflict involving US allies and important national interests in the mistaken belief that the USA would be deterred, by their missiles, from intervening in the conflict. In their view, the deployment of a nationwide missile defence system even one using unproven technologies would force potential adversaries to reassess the risks they would face by confronting the USA, thereby enhancing US freedom of action when responding to regional crises.[8] In addition, it was argued that the deployment of missile defences by the United States would discourage aspiring proliferators from developing or otherwise acquiring long-range ballistic missiles and weapons of mass destruction.[9]

New planning guidelines

During the 2000 presidential campaign, candidate Bush called for extensive missile defences to protect both the USA and its allies.[10] Upon taking office he ordered a re-evaluation of the scale and scope of the NMD system architecture put in place during the Administration. of President Bill Clinton. That architecture relied exclusively on ground-based interceptor missiles guided by external sensors, to collide with incoming missile warheads in the mid-course phase of their flight trajectories (that is, after they have separated from their booster rockets outside the earth s atmosphere). This mid-course-intercept approach had been criticized by both missile defence supporters and opponents as providing an inherently fragile defence. Particular concern had been expressed about the ability of this approach to overcome the range of countermeasures (for instance, various types of decoys) that an attacker could be expected to employ.[11]

In May 2001, Bush indicated that he favoured building a more robust system that would eventually consist of several layers of defences.[12] While

[8]°Prepared Statement on Ballistic Missile Defense, Deputy Secretary of Defense Paul Wolfowitz, US House of Representatives, Armed Services Committee, 18 July 2001, URL <http://www.defenselink.mil/speeches/2001/s20010719-depsecdef1.htm>. The argument that a national missile defence system would help to prevent the USA from being deterred by rogue state missile threats had been put forward by senior Pentagon officials during the Clinton Administration. See the testimony of Walter B. Slocombe, Under Secretary of Defense for Policy, to the Armed Services Committee, US House of Representatives, 13°Oct.°1999, in US Information Service (USIS), *Washington File*, available at the Federation of American Scientists (FAS) Space Policy Project site at URL <http://www.fas.org/spp/starwars/program/news99/991013-missile-usia.htm>.

[9]°Wolfowitz (note 8).

[10]° New leadership on national security , Address by Governor George W. Bush to the National Press Club, Washington, DC, 23 May 2000.

[11]°E.g., Heritage Foundation Commission on Missile Defence, *Defending America: A Plan to Meet the Urgent Missile Threat* (Heritage Foundation: Washington, DC, 1999); and Lewis, G., Gronlund, L. and Wright, D., National missile defense: an indefensible system , *Foreign Policy*, no.°117 (winter 1999/2000), pp. 120—31.

[12]°Transcript of remarks by the President to students and faculty at National Defense University, Washington DC, May 1, 2001, The White House, Office of the Press Secretary, 1°May 2001, URL <http://www.whitehouse.gov/news/releases/2001/05/20010501-10.html>; and Knowlton, B., Bush calls for missile shield, saying ABM pact is outdated , *International Herald Tribune*, 2 May 2001, pp. 1, 10.

acknowledging that significant technological difficulties would have to be overcome, he expressed confidence that complementary and innovative approaches to missile defence would eventually succeed.[13] Bush said that the Pentagon was examining options for deploying an initial defence capability against limited missile threats; this capability could be supplemented later by sea- and land-based sensors and interceptors. He noted in particular that he saw substantial advantages in systems capable of intercepting missiles in the boost phase (that is, the powered ascent phase) of their flight trajectories.[14] He also expressed interest in proposals to deploy advanced sensors and interceptors in space as part of an integrated, multi-layer missile defence system.[15] Following the address, administration officials emphasized that no final decision on the architecture for such a system had been taken.[16]

In January 2002 US Secretary of Defense Donald Rumsfeld issued a memorandum outlining the future direction of the Missile Defense Program of the Department of Defense (DOD).[17] 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 defences 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.[18] Rumsfeld's memorandum directed the DOD to develop for deployment an integrated BMD system capable of addressing all ranges of threats. This set out a clear planning requirement for a multi-layer missile defence architecture capable of countering larger, more technically sophisticated missile threats than the limited NMD system envisaged by the Clinton Administration.

[13] Transcript of remarks by the President (note 12).

[14] Transcript of remarks by the President (note 12). A number of prominent missile defence proponents have advocated the development of a sea-based system, based on current US Navy theater missile defence (TMD) programmes, to intercept missiles during the boost phase of their trajectories. Since such a system would intercept ascending missiles before they could deploy warheads and decoys, it would not face the discrimination problem inherent in the mid-course intercept approach. Deutch, J., Brown, H. and White, J., National missile defense: is there another way?, *Foreign Policy*, no. 119 (summer 2000), pp. 91—104; and Garwin, R., A defense that will not defend, *Washington Quarterly*, vol. 23, no. 3 (summer 2000), pp. 109—23.

[15] The development of space-based assets for use in missile defence and other military roles and missions has been accorded a high priority by US Defense Secretary Donald Rumsfeld, who during the year 2000 headed a congressionally mandated commission charged with reviewing US space activities. See *Report of the Commission to Assess United States National Security Space Management and Organization*, 11 Jan. 20901, Executive Summary available at URL <http://www.space.gov/commission/report.htm>.

[16] Gordon, M., Bush describes his brave new world but not how to get there, *International Herald Tribune*, 3 May 2001, p. 6; and Suro, R., Plan for missile defense not clear, *Washington Post*, 9 May 2001, p. A8.

[17] 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>.

[18] DOD establishes Missile Defense Agency, US Department of Defense, News release No. 008-02, 4 Jan. 2002, URL <http://www.defenselink.mil/news/Jan2002/b01042002_bt008-02.html>.

CBO cost estimates

In a report released in January 2002 the US Congressional Budget Office (CBO) presented estimates of the potential cost (in constant 2001 dollars) of several different types of national missile defence systems.[19] It examined three architectures under consideration by the DOD: a ground-based mid-course interception system; a stand-alone sea-based mid-course interception system (that is, a sea-based system not seen as a complement to a ground-based one); and a constellation of satellite-based lasers and interceptors.

The CBO looked first at the missile defence system architecture proposed during the Clinton Administration.[20] It estimated that a system consisting of 100 ground-based interceptors deployed at a single site in Alaska (the so-called Expanded Capability 1 system) would cost $23—25 billion to develop, deploy and operate to 2015. If this system were expanded to include a second site with 150 additional interceptor missiles, along with satellite-based sensors and additional X-band (very high resolution) radar, the total cost would rise to $51—58 billion.[21]

The CBO report cautioned that the costs of sea- and satellite-based systems were more difficult to estimate since these systems were either in the early phases of technology demonstration or the concepts for them were under development. It estimated that a stand-alone sea-based mid-course intercept system would cost $43—55 billion to develop, deploy and operate until 2015. It did not provide an estimate for a sea-based boost-phase system because the DOD had not released a description, however preliminary, of what might compose such a system.[22] The report estimated that the cost of a space-based laser system, consisting of a constellation of lasers deployed in low-earth orbit, would range from $56 billion to $68 billion to 2025. It did not provide an estimate of the cost of the Brilliant Pebbles satellite-based interceptor system because of a lack of relevant technical and operational documentation.[23]

The CBO report concluded that the total cost of national missile defense cannot be determined definitively at this time because of numerous uncertainties about the scale and configuration of the missile defence system to be deployed.[24] Nevertheless, some independent analysts used the CBO estimates

[19] Congressional Budget Office (CBO), *Estimated Costs and Technical Characteristics of Selected National Missile Defense Systems*, Jan. 2002, available at the CBO Internet site, URL <http://www.cbo.gov>.

[20] For a description of the components and operational concept of this system see Kile (note 2), pp. 426—29.

[21] CBO (note 19), p. 9.

[22] CBO (note 19), p. 2.

[23] CBO (note 19), pp. 29—30. The Brilliant Pebbles system was part of the missile defence architecture of the Administration of President George Bush (1989—1993), known as Global Protection Against Limited Strikes (GPALS). It was to consist of 500—1000 hit-to-kill interceptors. Each interceptor would be housed in an orbiting satellite which would provide communications with ground stations.

[24] CBO (note 19), pp. 2—3.

as the basis for calculating the total cost of NMD, which was projected to be as much as $238 billion over the next 15—25 years.[25] While this would make NMD one of the most expensive DOD weapon procurement programmes, it would be similar in scale to the cost of other major US procurement programmes, such as the Joint Strike Fighter.[26]

Missile defence funding and programme changes

In December 2001 Congress approved a $317.4 billion amended defence appropriations bill for FY 2002.[27] The bill included the largest appropriation yet $7.78 billion for missile defence. This was $525 million less than requested by the Bush Administration in June. However, it represented an increase of $2.5 billion over the FY˚2001 appropriation for missile defence. Coupled with increases for counter-terrorism programmes that were added after the 11˚September terrorist attacks, Congress approved a total of $8.24˚billion for BMD and increased counter-terrorism activities.[28] The administration s FY˚2003 defence budget request kept overall funding for missile defence programmes essentially unchanged from the final FY˚2002 appropriation, allocating $7.76 billion.[29]

Reorganization of US missile defence programmes

The amended FY˚2002 defence budget contained a major reorganization of the Ballistic Missile Defense Organization (BMDO), the DOD office with primary responsibility for administering ballistic missile defence programmes.[30] These programmes were reorganized into six main areas, with the aim of facilitating the development and deployment of an integrated, multi-layer missile

[25]˚Center for Arms Control and Non-proliferation (formerly the Council for a Livable World Education Fund), CBO report indicates missile defense could cost $238 billion , 31 Jan. 2002, available at the Council for a Livable World Internet site, URL <http://www.shieldofdreams.org/cborept013102.shtml>.

[26]˚See chapter 8 in this volume.

[27]˚Garamone, J., Bush signs defense bill into law during Pentagon ceremony , American Forces Information Service, 10 Jan. 2002, URL <http://www.defenselink.mil/news/Jan2002/n01102002_200201104.html>. For more detail on the FY˚2002 defence budget as well as on trends in US military spending see Appendix 6E in this volume.

[28]˚The bill allows the President to use, at his discretion, up to $1.3 billion of the appropriated amount either for missile defence research and development programmes or for Department of Defense (DOD) activities to combat terrorism. US House Armed Services Committee, Conferees reach bipartisan accord on Fiscal Year 2002 Defense Authorization Bill , Press release, 12 Dec. 2001, URL <http://www.house.gov/hasc/pressreleases/2001/01-12-12confsummary.html>.

[29]˚ Details of Fiscal 2003 Department of Defense (DOD) budget request , Press release No. 049-02, Office of Secretary Defense (Public Affairs), 4 Feb. 2002, URL <http://www.defenselink.mil/news/Feb2002/b02042002_bt049-02.html>.

[30]˚In Jan. 2002 the BMDO was designated a DOD agency and renamed the Missile Defense Agency (MDA). DOD establishes Missile Defense Agency (note 18).

defence system employing complementary sensors and weapons[31] (see table 10.1). Among other changes, this involved dropping the distinction between

[31] Statement of Lt Gen. Ronald T. Kadish, Director, BMDO, Before the House Armed Services Committee, 19 July 2001, URL <http://www.acq.osd.mil/bmdo/bmdolink/html/kadish19jul01.html>.

Table 10.1. Funding of US ballistic missile defence programmes, FY 2002[a]
Figures are for budget authority, in US $m. at current (FY 2002) prices.

Programme	Description	Amount
Systems Engineering	Battle management, command and control (BMC2) system; communications; integration of multi-layered defences into interoperable BMD system	808.0
Terminal Segment	Ground- and sea-based systems designed to intercept target missile or warhead inside earth s atmosphere, in the final phase of its flight trajectory	200.1
Midcourse Defence Segment (MDS)	Ground- and sea-based systems designed to intercept a target missile or warhead above earth s atmosphere, in the mid-course phase of its flight trajectory[c]	3˚762.3
Boost Segment	Air, sea- and space-based systems, including directed energy weapons such as the Airborne Laser, designed to intercept target missile during the powered, ascent phase of its flight trajectory	599.8
Sensor Segment	Satellite-based sensors and other systems to detect ballistic missile launches and provide tracking data in all phases of flight trajectory[b]	335.4
Technology	Components, sub-systems and new concepts for sensors and weapons for future missile defence platforms	139.3
Theater Area High Altitude Area Defence (THAAD)	Truck-mounted launchers equipped with high speed hit-to-kill interceptor missiles, mobile ground-based radar (GBR) and BMC2 system; designed for defence of larger areas against short- to medium-range ballistic missiles inside and outside earth s atmosphere	866.5
Patriot PAC-3	Land-based, mobile launcher equipped with high speed hit-to-kill interceptor missiles and associated engagement radar; designed for defence of point targets/ limited areas against short- to medium-range missiles inside atmosphere	898.7
Navy Area Defence[d] (NAD)	Navy cruisers and destroyers equipped with reconfigured Aegis radar and upgraded Standard SM-2 interceptor missiles designed for defence of point targets/ limited areas against short- to medium-range missiles inside atmosphere	99.3
Other[e]		65.6
Total		**7˚775.0**

[a] ˚Figures include funding for US Air Force, Army and Navy missile defence programmes as well as for Missile Defence Agency (formerly known as the Ballistic Missile Defence Organization) programmes and related Defense Department activities.

[b] ˚Includes funding authorization for restructured Space-Based Infrared System—Low (SBIRS—Low) satellite programme.

[c] ˚Includes funding authorization for MDS Test Bed Facility ($786 million)

[d] ˚The NAD programme was cancelled by the DOD in Dec.˚2001 because of cost overruns and technology development problems.

[e] ˚Includes funding authorization for military construction ($8.2 million) and Joint Air Missile Defense Organization ($26.9 million)

Sources: Statement of Lt Gen. Ronald Kadish, Director, US Missile Defense Agency, Joint Hearing before the House of Representatives Procurement and Research and Development Subcommittees, 27˚Feb.˚2002, URL <http://www.house.gov/hasc/openingstatementsandpressreleases/107thcongress/02-02-27kadish.html>; and US Department of Defense, *Budget for Fiscal Year 2003: Program Acquisition Costs by Weapon System*, Feb. 2002, pp. 64—65, available at URL <http://www.dtic.mil/comptroller/fy2003budget/fy2003weabook.pdf>.

theatre missile defence (TMD) and NMD systems. These systems are now considered to be programme elements in a single BMD architecture and are grouped according to the stages of the flight trajectory boost, mid-course or terminal in which incoming targets are to be intercepted.[32] Congress rejected the administration s request to transfer funding responsibility for three lower tier missile defence programmes Patriot PAC-3, the Medium Extended Air Defence System (MEADS) and Navy Area Defence (NAD) from the BMDO to army and navy service accounts, citing concern that the services would not be able to adequately support them.[33]

Focus on RDT&E

The organizational changes were accompanied by a reorientation of BMDO programme activities towards research, development, testing and evaluation activities (RDT&E) and away from production and deployment.[34] Congress approved a large increase in RDT&E funding for BMD in the amended FY˚2002 budget, authorizing $7.0 billion, compared to $4.9 billion in FY 2001 and $3.1 billion in FY 2000.[35]

The Director of the BMDO, Lieutenant-General Ronald Kadish, testified before Congress that the new emphasis on RDT&E reflected a broader, more flexible approach to missile defence. It did not involve defining a specific defence architecture from the outset or committing the DOD to arbitrary dates for production and deployment.[36] In order to reduce the technology development risks, components would be deployed incrementally as they are proven through testing and meet specific performance criteria and programme milestones. Kadish emphasized that the new approach involved putting a

[32]˚For a description of these programme elements see chapter 11 in this volume.

[33]˚US House of Representatives, *National Defense Authorization Act for Fiscal Year 2002*, Conference report to accompany S. 1438, 12 Dec. 2001, p.˚595. These systems are designed to intercept incoming short- to medium-range missile warheads inside the earth s atmosphere.

[34]˚Associated Press, Bush s missile defense shifts focus to testing , *International Herald Tribune*, 10˚July 2001, p. 6.

[35]˚US Department of Defense, *Budget for Fiscal Year 2003: Program Acquisition Costs by Weapon System*, Feb. 2002, pp. 64—65, available at URL <http://www.dtic.mil/comptroller/fy2003budget/fy2003weabook.pdf>; and BMDO, A budgetary history of the Ballistic Missile Defense Organization , Fact Sheet no. 408-00-11, Nov. 2000, p. 2.

[36]˚Kadish (note 31). The ambitious schedule for deploying an initial NMD system had been criticized as a rush to failure in a 1998 report (the Welch Report) prepared by an independent team of experts appointed by the Pentagon. Report of the Panel on Reducing Risk in Ballistic Missile Defense Flight Test Programs, 27 Feb. 1998, URL <http://www.acq.osd.mil/bmdo/bmdolink/pdf/welchrpt.pdf>.

robust testing programme into place. This would more than double the number of planned tests and increase their complexity.

Continuing concerns about the development programme

These changes came against the background of the release of a DOD internal report, completed in August 2000, that re-ignited concerns about the deployment readiness and likely effectiveness of missile defences designed to protect the US.[37] The unclassified report had been withheld from Congress until the end of May 2001, prompting critics there to charge that the Pentagon was keeping the report hidden from view because it showed that there are critical flaws in the missile defense program .[38] The report, which had been prepared during the Clinton Administration s Deployment Readiness Review for the NMD system then under consideration, concluded that missile defence technologies were too immature to be able to assess the system s operational effectiveness or predict realistic deployment dates.[39] This conclusion was underscored in 2001, by the announcement of further delays in engineering development work on the Ground-based Interceptor (GBI) missile.

The report also identified problems with the BMDO s test and evaluation programmes. It pointed out that the integrated flight test (IFT) programme incorporated significant limitations on achieving realistic engagement conditions ; among other shortcomings, the BMDO was criticized for failing to schedule tests against multiple targets, even though multiple engagements are expected to be the norm .[40] The report also expressed concern that the components of the system were not being tested against the range of countermeasures expected to be available to a state with the capability to deploy a long-range ballistic missile.[41] It recommended that future flight tests be made more challenging and that more consideration be given to potential countermeasures that a missile defence system could realistically be expected to face.

Flight test developments

In 2001 the BMDO announced two successful interception tests in the integrated flight test programme. The first (IFT-6) came on 14˚July 2001, when a prototype interceptor missile successfully collided with a target vehicle carried by a modified Minuteman intercontinental ballistic missile (ICBM) over the

[37]˚Philip Coyle, Director, DOD Office of Operational Test and Evaluation, *Operational Test and Evaluation Report in Support of National Missile Defense Deployment Readiness Review* [The Coyle Report], 10˚Aug. 2000, URL <http://www.dote.osd.mil/reports/FY00/index.html>. Many of these concerns had been raised in previous reports by government-appointed panels and by independent experts. See Kile (note 2), pp. 431—32.

[38]˚Letter from US Representative John Tierney to Secretary of Defense Donald Rumsfeld, 12 June 2001, quoted in August 2000 Pentagon report on NMD technology , *Arms Control Today*, vol. 31, no. 6 (July/Aug. 2001), P.˚32.

[39]˚Coyle (note 37), pp. 45—46, 49. For adescription of the results of the Deployment Readiness Review see Kile (note 2), p. 432—33.

[40]˚Coyle (note 37), p. 20.

[41]˚Coyle (note 37), p. 5.

central Pacific Ocean.[42] The second test (IFT-7) was carried out on 3˚December 2001, when a prototype exo-atmospheric kill vehicle (EKV) successfully discriminated a target warhead from a large balloon decoy and manoeuvred to collide with it.[43] The purpose of the tests was to demonstrate that it was feasible for hit-to-kill technology to intercept and destroy a long-range ballistic missile target. In addition, the tests were designed to show whether prototype elements of the planned Ground-based Midcourse Defence (GMD) architecture including the SBIRS satellite-based early-warning system, a ground-based tracking radar, and a battle management and communications system could work together. A total of 26 tests are currently scheduled in the flight test programme to the end of FY 2006.

The successful interceptions followed two consecutive test failures in 2000 that had fuelled concern about the readiness and reliability of the technologies being developed for NMD. The BMDO s claim that the successful test interceptions had demonstrated the basic functionality of the proposed GMD system was greeted with scepticism by some analysts.[44] Critics charged that the flight test programme did not realistically simulate combat engagement conditions.[45] Among other shortcomings, they pointed out that the mock warheads carried transponders which served as a radio beacon to guide kill vehicles to the vicinity of their targets in space.[46]

BMDO officials acknowledged that the flight tests did not simulate realistic engagement conditions but added that this had not been an aim of the tests. They pointed out that artificialities are inherent in the early stages of weapon development testing programmes, when the main goal is to identify basic weaknesses and acquire confidence in new technology.[47] According to BMDO Director Kadish, the initial flight tests were never intended to be pass—fail tests of the system s operational effectiveness or the basis for an early deployment decision.[48] He emphasized that, over time, the test programme would employ more realistic scenarios and countermeasures designed to demonstrate increasing capability .[49]

[42]˚ Missile intercept test successful , News release no. 313-01, Office of Secretary of Defense (Public Affairs), 15 July 2001.

[43]˚ Missile defense intercept test successful , Press release, BMDO, Office of External Affairs, 3˚Dec. 2001, URL <http://www.acq.osd.mil/bmdo/bmdolin k/html/ift7.htm>.

[44]˚ Missile defense intercept test successful (note 42).

[45]˚Dao, J, Missile shield experts cautious on success , *International Herald Tribune*, 17˚July˚2001, p.˚3.

[46]˚For an overview of criticism of the Integrated Flight Testing programme, including a detailed analysis of the role played by the warhead transponder in the recent tests see Gronlund, L., *et al*., An Assessment of the Intercept Test Program of the Ground-Based Midcourse National Missile Defense System , *Briefing Paper*, Union of Concerned Scientists, 30 Nov. 2001, URL <http://ww.uc susa.org/ arms/ift7.html>.

[47] Graham, B., Missile defense test s value questioned , *Washington Post*, 2 Dec. 2001, p. 6.

[48]˚Graham (note 47). Some observers have argued that the missile defence R&D programme is, for political reasons, being prematurely pressed to justify an early deployment decision—apurpose which the initial flight tests were not intended to serve. See Graham, B., *Hit to Kill: the New Battle over Shielding America from Missile Attack* (PublicAffairs Books: New York, 2001).

[49]˚Kadish (note 31).

A test bed facility

The amended FY˚2002 defence budget approved the administration s funding request for a Midcourse Defense Segment (MDS) Test Bed Facility designed to enhance DOD missile defence testing capabilities.[50] The facility, which is scheduled to be completed by the end of 2004, is based on the Clinton Administration s plan to build an ABM interceptor site in central Alaska. It will consist of a set of launchers, radar, and command and control installations in Alaska, California, and at Kwajalein Atoll in the central Pacific Ocean. According to BMDO officials, the facility will allow for more realistic testing of the GMD system by providing trajectory, sensing and interception scenarios that resemble conditions under which the system might be expected to operate .[51]

The Test Bed Facility will provide several sites from which to launch interceptor and target missiles as part of the integrated flight testing programme.[52] The plan calls for the construction of two test launch silos on Kodiak Island off the southern coast of Alaska, for both target missiles aimed towards the continental USA and interceptors that could shoot down test missiles coming towards Alaska from either California or Kwajalein Atoll.[53] Some analysts have charged that there is no clear or convincing rationale for the test bed facility in terms of addressing specific testing shortcomings that have been identified by government-appointed commissions and panels of independent experts.[54]

The facility will also include an installation to be built at Fort Greely in central Alaska that will house five silos for ground-based interceptor (GBI) missiles. This installation is intended to be used as a missile storage site and a command centre for launching test missiles from Kodiak Island. However, BMDO officials stated that Fort Greely could also be used to provide an emergency missile defence capability if there were credible evidence of an imminent missile threat to the USA and if the technology were sufficiently mature.[55] This provoked criticism that the test bed facility was an attempt by the Bush Administration to move ahead with preparations for the early

[50]˚US House Armed Services Committee, Conferees reach bipartisan accord on Fiscal Year 2002 Defense Authorization Bill (note 28).

[51]˚Statement by Patricia Sanders, Deputy for Test, Simulation and Evaluation, BMDO, before the US Senate Committee on Appropriations, Subcommittee on Military Construction, 31 July 2001, URL <http://www.acq.osd.mil/bmdo/bmdolink/html/sanders .html>.

[52]˚US missile interceptors are currently tested solely at the Reagan Test Range at Kwajalein Atoll. Flight tests involve launching target missiles from Vandenburg Air Force Base in California toward Kwajalein, a distance of *c*. 7500 km.

[53]˚These flight tests are intended to simulate the speed and trajectory of ballistic missiles launched from north-east Asia more realistically than current flight tests.

[54]˚Gronlund, L. and Wright, D., The Alaska test bed fallacy: missile defence deployment goes stealth , *Arms Control Today*, vol. 31, no. 7 (Sep. 2001), p. 9.

[55]˚Dao, J., Pentagon to propose an ABM site in Alaska , *International Herald Tribune*, 11˚July 2001, p.˚3.

deployment of a rudimentary missile defence system under the guise of improved testing.[56]

US—Russian discussions on the future of the ABM Treaty

The shift in US position

The change in administration in 2001 resulted in a new US approach to the ABM Treaty. During the Clinton Administration, the USA had sought, unsuccessfully, to obtain Russia s agreement on a series of amendments to the ABM Treaty that would permit the USA to deploy a limited missile defence system but not interfere with the basic purpose of the treaty. US officials insisted that only modest amendments were needed to accommodate a system consisting of a single site with 100 missile interceptors based in Alaska.[57] This led to complaints from some missile defence advocates that Clinton was more concerned about preserving the ABM Treaty intact and not upsetting China, Russia and US allies than about considerations of operational effectiveness.

By contrast, the Bush Administration came to office deeply sceptical about the desirability of preserving the ABM Treaty. Senior officials identified two main problems with the treaty. The first had to do with its restrictions on the testing of anti-missile systems.[58] These restrictions were criticized for limiting the ability of the DOD to explore fully promising new BMD technologies.[59] At a NATO ministerial meeting in June 2001, Rumsfeld warned the allies that US plans to test various anti-missile technologies would begin bumping up against the ABM Treaty. While declining to specify what planned testing would violate the treaty or predict when this would occur, he declared that the Bush Administration would not be deterred from conducting tests that might violate the treaty.[60] In October 2001, however, it was reported that Rumsfeld had ordered the BMDO to postpone three anti-missile tracking tests that would have violated the ABM Treaty.[61]

[56] Dao (note 55); and Council for a Livable World, The Bush administration s national missile defense proposal , *Backgrounde*r, 1 Aug. 2001, URL <http://www.clw.org/coalition/nmdbkground 0801.htm>.

[57] Kile (note 2), pp. 435—36. This primarily would have involved amending the treaty to permit the USA to change the location of its designated ABM site. It would also involve amending the treaty s restrictions on early-warning and ABM engagement radars and its prohibition on the use of satellite-based sensors.

[58] The ABM Treaty imposes strict limitations on the testing of permitted ABM interceptors and components. In addition, it prohibits the development, testing or deployment of sea-, air-, space- or mobile land-based ABM systems or components.

[59] Transcript of press briefing by National Security Advisor Condoleeza Rice, 8 Nov. 2001, The White House, Office of Press Secretary, in US Information Service (USIS), *European Washington File* (US Embassy: Stockholm, 8 Nov. 1999).

[60] Dao, J., Rumsfeld outlines to NATO fast track for missile shield , *New York Times* (Internet edn), 8 June 2001, URL <http://www.nytimes.com/ 2001/06/08/world/08Nato.html>.

[61] One test would have involved using a ship-based Aegis radar system to track a missile interceptor while a separate tracking radar located at Vandenburg AFB, Cal. tracked a strategic target missile. The ABM Treaty bans the tracking of strategic missiles and anti-missile interceptors by sea-based radars or by other radar systems not initially designed for this purpose. The treaty also

The administration s second main criticism was that the ABM Treaty is an outdated agreement that does not reflect the fundamental transformation of the security environment that has taken place since it was signed 30 years ago. In his May 2001 address on missile defence, President Bush described the accord as an anachronism that enshrined the grim premise of mutual assured destruction.[62] He stressed that new concepts of deterrence were needed that rely on defensive as well as offensive forces among other benefits, missile defence can strengthen deterrence by reducing the incentives for proliferation . Bush declared that Russia was no longer an enemy and urged it to work together with the USA to forge a new framework for their strategic relations. This framework would supplant the ABM Treaty s cold war-era constraints and allow both countries to build missile defences to counter new threats emerging in a less predictable world.[63]

Bush did not follow up on his call for a new US—Russianstrategic framework by spelling out what its main elements should be. Statements made by senior administration officials offered a rationale for abandoning the ABM Treaty but were similarly vague on what should follow in its place. This suggested to some analysts that the administration had yet to formulate a coherent new framework beyond the idea that it would require the abandonment of the ABM Treaty.[64]

The administration s insistence on pushing forward with missile defences led to warnings from Democrat congressional leaders that they would block any move to unilaterally abrogate the ABM Treaty.[65] They complained that an abrogation of the treaty would maximize the political costs of developing as yet unproven technologies by damaging US relations with Russia, China and key US allies. In the Senate, where the Republicans had lost their majority position during 2001, the new Democrat chairman of the Appropriations Committee added a provision to the amended FY˚2002 defence authorization bill that prohibited the DOD from conducting missile defence tests that would violate the ABM Treaty without congressional approval. However, in the wake of the 11˚September terrorist attacks, Democrats shelved their objections to the administration s missile defence test plans in order to present a united front on national security issues.[66]

prohibits a radar like the one at Vandenburg AFB from being used to track strategic missiles unless it is located at a designated ABM test range. Shanker, T. and Sanger, D., US, awaiting Putin, delays missile defense tests , *New York Times* (Internet edn), 26 Oct. 2001, URL <http://www.nytimes.com/2001/10/26/international/ 26MISS.html>; and Gertz, B., Rumsfeld orders tests limited to comply with ABM Treaty , *Washington Times* (Internet edn), 26 Oct. 2001, URL <www.washingtontimes.com/national/20011026-27648144.htm>.

[62]˚Transcript of remarks by the President (note 12); and Knowlton, B., Bush calls for missile shield, saying ABM pact is outdated , *International Herald Tribune*, 2 May 2001, pp. 1, 10.

[63]˚Transcript of remarks by the President (note˚12).

[64]Miller, S. E., The flawed case for missile defence , *Survival*, vol. 43, no. 3 (autumn 2001), pp.˚95—110.

[65]˚Loeb, V. and Morgan, D., Democrats pare missile defense funds , *Washington Post*, 6˚Sep. 2001, p. A5.

[66]˚Loeb, V., Levin agrees to cut missile test curbs from defense bill , *Washington Post*, 19˚Sep. 2001, p. A3.

Russian concerns

In Russia, Bush's call to replace the anachronistic ABM Treaty with a new framework featuring a mixture of deterrence and strategic defence was greeted with considerable scepticism. Many Russian officials and analysts continued to view the missile defence issue primarily in terms of its impact on nuclear deterrence and the US—Russian strategic balance inherited from the cold war. Concern was expressed in some conservative quarters that the USA was seeking to dismantle the ABM Treaty in order to proceed with the development of a large-scale missile defence system capable of neutralizing Russia's nuclear deterrent; the USA would thereby achieve a multifold military superiority that would allow it to unilaterally shape the global order according to its liking.[67] Underlying this concern was the fear of a continuous expansion of the US missile defence system juxtaposed to the continuous decline, imposed by financial exigencies, in Russia's strategic nuclear forces.

Senior Russian officials also continued to express concern about the consequences of a US abandonment of the ABM Treaty. Defence Minister Sergei Ivanov emphasized that the treaty constituted a single whole with an entire series of other interrelated agreements in the overall arms control and disarmament system.[68] He warned that a unilateral US withdrawal from the accord would lead to a collapse of that system and usher in a phase of complete unpredictability in the sphere of global security.

In addition, Russian officials argued that the problem of ballistic missile proliferation must be considered within the broader framework of international legal and political non-proliferation arrangements; these could be supplemented by the creation of a new Global Control System for the Non-Proliferation of Missiles and Missile Technologies, as proposed by Foreign Minister Igor Ivanov at the 2000 Non-Proliferation Treaty (NPT) Review Conference.[69] The Bush Administration's missile defence plans were widely condemned in Russia as an inappropriate response to the problem of missile proliferation as well as a worrying sign that the USA was unwilling to engage in the patient, multilateral diplomacy needed to address proliferation incentives.

Improved political climate for US—Russian talks

During 2001 there was an important change in the tone of the missile defence dispute. As part of a broader rapprochement in US—Russian relations, Bush and Putin moved to defuse the political tensions between their countries arising from the dispute. At a series of meetings held in the summer and autumn,

[67] E.g., Ladygin, F., Major plan: will they not proceed?, *Tribuna* (Moscow), 22 Aug. 2001, in Col-Gen (ret.) Fedor Ladygin, former General Staff Main Intelligence Directorate chief, on US decision to deploy a missile defence, differing US/Russian threat perceptions, and viability of ABM Treaty, Foreign Broadcast Information Service, *Daily Report—Central Eurasia* (FBIS—SOV), FBIS-SOV-2001-0822, 22 Aug. 2001.

[68] Interfax (Moscow), 5 June 2001, in Russian defense minister: US withdrawal from ABM Treaty may destroy strategic stability, FBIS-SOV-2001-0605, 5 June 2001.

[69] See Kile (note 2), pp. 439—440. See also Chapter 14 in this volume.

the two presidents struck a conciliatory note in discussing the differences in their assessments of ballistic missile threats and in their approaches to addressing them. After the 11 September terrorist attacks, they expressed determination not to allow these differences to stand in the way of fostering better bilateral relations or creating a climate conducive to pragmatic cooperation.

Bush and Putin met for the first time at a summit meeting held in Ljubljana, Slovenia, on 16 June 2001. Following discussions characterized by an unexpectedly positive tone, they agreed to initiate a constructive dialogue between their countries on enhancing strategic stability.[70] This would consist of a series of regular, expert-level bilateral consultations to discuss potential new threats posed by ballistic missile proliferation as well as means of countering them.[71] Despite the cordial atmosphere, there was no sign of a convergence of views: Bush insisted that the ABM Treaty had been rendered obsolete by the transformation of the international security system; and Putin reiterated Russia s view that the ABM Treaty remained the cornerstone of the modern architecture of international security that must be preserved.

The two presidents met for a second time on 22 July 2001 at the meeting of the Group of Eight (G8) industrialized countries in Genoa, Italy. In a Joint Statement, they announced that they had agreed to begin intensive consultations on the interrelated subjects of offensive and defensive systems .[72] This meant that discussions on modifying or scrapping the ABM Treaty would be linked to talks on making further reductions in strategic offensive nuclear forces.

The Joint Statement issued at Genoa fuelled speculation that a US—Russian arms control deal was taking shape.[73] This would involve Russia s agreement to amend the ABM Treaty to permit the USA to proceed with the development of a limited strategic missile defence system. In return, the USA would agree with Russia to make further cuts in their respective strategic offensive nuclear forces (see section III below).

The prospects for reaching an agreement appeared to improve when the Russian Government indicated in the early autumn that it would be willing to consider adjustments to the present-day system of agreements on strategic stability , including the ABM Treaty.[74] According to Defence Minister Sergei

[70] Tyler, P., Bush and Putin: new era of trust? , *International Herald Tribune*, 18 June 2001, pp. 1, 4.

[71] Transcript of press conference remarks by President Bush and Russian Federation President Putin, Brdo Castle, Slovenia, The White House, Office of the Press Secretary, 16 June 2001.

[72] Joint Statement by President Bush and President Putin on Upcoming Consultations on Strategic Issues, The White House, Office of the Press Secretary, 22 July 2001

[73] There had been similar speculation about a possible grand bargain on strategic defensive and offensive forces prior to a June 2000 summit meeting between Putin and US President Clinton. Gordon, M., Moscow talks fail to forge the big breakthrough , *International Herald Tribune*, 5 June 2000, pp. 1, 4.

[74] Quoted by Tyler, P., Kremlin willing to review missile accords, aide says , New York Times (Internet edn), 7 Sep. 2001, URL <http://www.nytimes.com/2001/09/07/international/europe/07 MISS.html>.

Ivanov, changes which do not weaken the main part of the document the ban on the deployment of a national missile defence system may be introduced .[75] However, Foreign Minister Igor Ivanov declared that Russia would not make any swaps or bargains involving mutual reductions in strategic offensive arms in exchange for a joint withdrawal from the ABM Treaty. Ivanov noted that progress towards reductions in nuclear arsenals is possible only in the context of strategic stability . . . and it is the ABM Treaty and other related agreements that give this stability .[76]

Bilateral discussions on strategic stability

Informal discussions held during the summer and autumn of 2001 under the auspices of a bilateral working group on strategic stability yielded few results. Senior Russian officials participating in the discussions complained repeatedly that the USA had not provided any details about the basing modes and technical capabilities of its planned missile defence system.[77] They also complained that the US side s professed interest in forging a new framework of strategic stability appeared to have little substantive content beyond the idea of jointly withdrawing from the ABM Treaty in the near future. This idea was firmly ruled out by Russia, which also cautioned the Bush Administration against moving with undue haste to abandon the treaty. Russian officials stressed that extensive consultations were needed to clarify each other s positions on security matters in the twenty-first century before work could begin on the joint drafting of proposals for a new framework.[78] These talks might last for at least one year and probably longer.[79] In addition, the discussions would eventually have to be widened to take into account the views of the other nuclear weapon states China, France and the UK. [80]

Bush Administration officials grew increasingly impatient with what they saw as Russia s deliberate go-slow approach. There was speculation in the US that the Russians were essentially playing for time in the hope that the administration s ambitious missile defence plans would have to be scaled down or abandoned in the face of budget concerns and negative public opinion in the

[75]°Quoted by Interfax (Moscow), in Russian Defense Minister says changes to ABM Treaty possible , 10°Sep. 2001, in FBIS-SOV-2001-0910, 10°Sep. 2001; and Associated Press, New Russian declaration on ABM pact , International Herald Tribune, 11 Sep. 2001.

[76]°Quoted by ITAR-Tass (Moscow), 1 Nov. 2001, in Ivanov says Russia still sees ABM Treaty as cornerstone of strategic stability , FBSI-SOV-2001-1101.

[77]°Interfax (Moscow), 6 Aug. 2001, in Defense Minister hopes for more details on US national missile defense , FBIS-SOV-2001-0806, 6°Aug. 2001; and Vasilyev, Ye., Rumsfeld imagines enemies in Moscow , *Vremya MN* (Moscow), 18 Aug. 2001, in Response to US Defense Secretary Rumsfeld s negative characterization of Russia s NMD stance , FBIS-SOV-2001-0817, 18°Aug. 2001.

[78]°Interfax (Moscow), 6 Sep. 2001, in Adjustments in strategic stability agreements possible if ABM Treaty preserved , in FBIS-SOV-2001-0906, 6 Sep. 2001.

[79]°Interfax (Moscow), 6 Sep. 2001, in Russian official rules out quick deal on ABM issue with US , FBIS-SOV-2001-0906, 6 Sep. 2001.

[80]°Interfax (Moscow), 27 July 2001, in Russia says more countries should take part in ABM Treaty discussions , FBIS-SOV-2001-0731, 31 July 2001.

USA and abroad.[81] During a visit to Moscow in August 2001, the Undersecretary of State for Arms Control and International Security, John Bolton, reportedly told Russian interlocutors that the administration had an informal deadline of November to convince Russia to join the USA in withdrawing from the ABM Treaty and agreeing to a new strategic framework. In the event of Russia's refusal to withdraw from the treaty, the USA would proceed to do so unilaterally.[82] The White House subsequently denied that Bolton's comments were tantamount to an ultimatum. At the same time, however, Bush announced that he intended to give notice of a US withdrawal from the ABM Treaty "at a time convenient to America".[83]

Disagreement over missile defence testing

Against the background of US—Russian strategic cooperation following the 11 September terrorist attacks, Bush and Putin held a summit meeting in Washington and Texas on 11—13 November 2001. Prior to the meeting, there had been renewed media speculation that a US—Russian deal on missile defence and the future of the ABM Treaty might be imminent.[84] It was widely noted that the White House had ordered the Pentagon to postpone a series of missile defence tests scheduled for mid-November that had raised a number of ABM Treaty compliance questions.

However, high-level talks aimed at reaching a compromise solution reportedly broke down over the issue of missile defence testing.[85] Russia refused to agree to changes in the ABM Treaty that would open the door to unrestricted US testing. For its part, the Bush Administration was unwilling to engage in detailed discussion of each element of the BMDO's missile-defence testing programme, as insisted upon by Russia. It feared that doing so would effectively give Russia a veto over the US testing programme whenever Moscow deemed that a particular test would violate the ABM Treaty.[86] By the end of the summit meeting, according to one senior US administration official, both sides concluded that there was no way to accommodate an ambitious testing

[81] Baker, P., Kremlin rules out quick missile deal with US, *International Herald Tribune*, 7 Sep. 2001, p. 7.

[82] Wines, M., US disclaims deadline for Russia on missiles, *International Herald Tribune*, 24 Aug. 2001, p. 3.

[83] Sanger, D., Bush vows to quit ABM pact, *International Herald Tribune*, 25—26 Aug. 2001, pp. 1, 5.

[84] Donovan, J., Bush-Putin summit could mark historic shift in relations, Radio Free Europe/Radio Liberty (RFE/RL), *Weekday Magazine*, 13 Nov. 2001, URL <http://www.rferl.org/nca/features/2001/11/12112001075633.asp>; and Sanger, D. and Shanker, T., US gains on shield tests, *International Herald Tribune*, 29 Oct. 2001, p. 4.

[85] Mufson, S. and LaFraniere, S., ABM withdrawal: a turning point in arms control, *Washington Post*, 13 Dec. 2001, pp. A1, 13.

[86] Bogdanov, V., Treaty and provisos. From missile test site to courtroom, *Rossiyskaya Gazeta*, 8 Dec 2001, p. 7, in US NMD tests seen as possible ABM Treaty breach, FBIS-SOV-2001-1210, 12 Dec. 2001; and Tyler, P., US and Russia to complete talks on arms control, *New York Times* (Internet edn), 11 Dec. 2001, URL <http://www.nytimes.com/2001/12/11/international/europe/11DIPL.html>.

programme for a nationwide BMD system within the framework of a treaty designed to prevent the development of such a system.[87]

The US decision to withdraw from the ABM Treaty

On 13 December 2001 the United States gave formal notice to Russia and the other signatories that it would withdraw from the ABM Treaty in six months.[88] In explaining the decision, President Bush stressed that the USA wanted to move beyond the constraints of the ABM Treaty and forge a new strategic relationship with Russia that would replace mutual assured destruction with mutual cooperation.[89] He argued that, as the events of September 11 made all too clear, the greatest threats to the USA and Russia come not from each other, or other big powers in the world, but from terrorists who strike without warning, or rogue states who seek weapons of mass destruction. Bush insisted that since terrorist groups and some of the states which support them were known to be seeking the ability to deliver death and destruction to our doorstep via missiles, the USA must have the freedom and the flexibility to develop effective missile defences. He had therefore concluded that the USA could not remain in a treaty that hindered our ability to develop ways to protect our people from future terrorist or rogue state missile attacks.[90]

The Russian response

The Kremlin's reaction to Bush's announcement was a restrained one. President Putin expressed regret over the US decision, which he described as mistaken, but said that it had not come as a surprise to the Russian Government.[91] He characterized the unilateral move by the US as a difference between

[87] Sanger, D. and Tyler, P., Bush pulls out of ABM Treaty: aides recount road to deadlock, *New York Times* (Internet edn), 13 Dec. 2001, URL <http://www.nytimes.com/2001/12/13/international/13CND-MISS.html>.

[88] Text of diplomatic note sent to Russia, Belarus, Kazakhstan and Ukraine, (see note 1) Press Statement, Office of Spokesman, US Department of State, 14 Dec. 2001, URL <http://www.state.gov/r/pa/prs/ps /2001/ 6859.htm>. Article XV, paragraph 2 of the ABM Treaty gives each party the right to withdraw from the agreement if it decides that extraordinary events related to the subject matter of the treaty have jeopardized its supreme interests. The party must give notice of its decision six months prior to withdrawing from the treaty as well as a statement of the extraordinary events that prompted its decision.

[89] Remarks by the President on National Missile Defense, The White House, Office of the Press Secretary, 13 Dec. 2001, URL <http://www.whitehouse.gov/news/releases/2001/12/20011213-4.html>.

[90] Remarks by the President on National Missile Defense (note 89).

[91] Statement made by Russian President Vladimir Putin on December 13, 2001, regarding the decision of the administration of the United States of America to withdraw from the Anti-ballistic Missile Treaty of 1972, available at the Russian Federation Ministry for Foreign Affairs Internet site, URL <**http://www.ln.mid.ru/website/brp_4.nsf/english**>.

friends that should not, if properly handled, disrupt the spirit of partnership and even alliance between Russia and the USA.[92]

Putin and his senior ministers emphasized that Bush s decision did not pose a military threat to Russia. The country would continue to possess for the foreseeable future robust offensive forces capable of overcoming anti-missile defences.[93] They rejected calls to build up the Strategic Rocket Forces, in particular the widely mentioned idea of deploying multiple warheads on the single-warhead Topol-M (SS-27) ICBM. Defence Minister Ivanov declared that it would be senseless to waste lots of money on an arms race given that the US national missile defence system was a myth .[94]

At the same time, however, Russian officials predicted that the US decision would be likely to have a negative impact on global non-proliferation efforts and international stability. There was particular concern that it would lead China, India and Pakistan to build up their nuclear arsenals and spur other countries to pursue nuclear and other non-conventional weapon programmes.[95] Russian officials also renewed their complaints that US missile defence plans relied heavily on the use of space-based assets, which could lead to a destabilizing arms race in outer space.[96]

Reactions to the US decision from some commentators and analyst were less benign. According to one Russian defence analyst, the considerable anger and resentment felt throughout Russia s military—political elite was due in part toa perceived loss of prestige: the country s inability to respond in military terms meant that Russians had lost the last opportunity to pretend that we are equal with the USA .[97] It also reflected a widespread view that the move, coming in the midst of a potentially historic East—Westrapprochement, had been calculated to humiliate Russia.[98]

In the State Duma, there were warnings about a nationalist backlash in Russia that could put at risk the recent improvement in US—Russianrelations.[99] According to the deputy chairman of the Defence Committee, Alexei Arbatov, the decision would be likely to strengthen groups in Russia which argue that the USA cannot be trusted; these groups could be expected to exert

[92]°Gowers, A., *et al*., Interview with Vladimir Putin , *Financial Times* (Internet edn), 15°Dec. 2001, URL <http://news.ft.com>.

[93]° Statement made by Russian President Vladimir Putin (note 91).

[94]°Quoted by Interfax (Moscow), 18 Dec. 2001, in Russian DM rules out arms race after US exit from ABM Treaty , FBIS-SOV-2001-1218, 18°Dec. 2001; and ITAR-Tass, 2 Feb. 2002, in Russian official says end of ABM Treaty very destructive for Asia , FBIS-SOV-2002-0202, 2 Feb. 2002.

[95]°Interfax (Moscow), 13 Dec. 2001, in Russian MP: US withdrawal from ABM Treaty may trigger nuclear arms race , FBIS-SOV-2001-1213, 13 Dec. 2001.

[96]°See chapter 11 in this volume.

[97]°Alexander Golts, quoted by Traynor, I., Russia puts brave face on the inevitable , *Guardian* (Internet edn), 14 Dec. 2001, URL <http://www.guardian.co.uk/bush/story/0,7369,618542,00.html>.

[98]°Wines, M. Putin calls US withdrawal from ABM pact a mistake , *International Herald Tribune*, 14°Dec. 2001, p. 3.

[99]°Interfax (Moscow), 13 Dec. 2001, in Parliamentary leaders unified in criticism of US exit from ABM Treaty , FBIS-SOV-2001-1213, 13 Dec. 2001.

strong pressure on President Putin to slow down or even freeze the cooperation with the United states in Afghanistan and elsewhere .[100]

Agreeing to disagree

Despite the failure to reach a deal on the ABM Treaty, Bush and Putin continued to accentuate the positive development of US—Russian relations. Both leaders appeared determined to prevent an acrimonious falling out over missile defence that might jeopardize the recent warming in relations between their countries and, more specifically, their unprecedented intelligence and logistics cooperation in the war in Afghanistan. They also reaffirmed their pledge to make deep cuts in their countries strategic nuclear forces. This was an especially important consideration for Putin, since the size of Russia s nuclear forces was set to fall sharply over the decade owing to chronic underfunding. Aware that there was little that Russia could do to slow down or derail US missile defence plans, Putin may have expected that a pay-off for his muted reaction to the US move would come in the form of a treaty mandating mutual reductions in strategic offensive forces to an equal ceiling.

The presidents also had other motivations for playing down the impasse. Bush sought to allay the concerns of US allies, particularly those in Europe, and other foreign governments that his missile defence plans would lead to renewed rivalry with Russia and an unrestrained arms race. This was largely a tactical, damage limitation consideration: it was an attempt by the White House to reduce the short-term political and diplomatic costs of moving forward with the development of an expansive missile defence system.

By contrast, Putin s insistence that Bush s mistaken decision would not harm US—Russian relations reflected an underlying shift in his government s strategic priorities. As one analyst has argued, Putin s foreign policy serves his domestic economic goals: to stabilize, regularize and restructure the economy to support a twenty-first century Russian society and cultivate a newly confident Russian state .[101] The promotion of economic growth and integration into the global economy requires, above all, substantially improved relations with the United States. At the same time, for domestic political reasons Putin was seeking reassurance that the USA was not looking for confrontation or for unilateral strategic advantage at a time when Russia faced serious internal problems.

Putin s muted reaction also reflected a re-ordering of Russia s security policy priorities. The issue of missile defence and the future of the ABM Treaty, while important symbolically in terms of Russia s status as an equal partner with the USA, has been eclipsed on the security policy agenda by more pressing concerns about Russia s relations with NATO and the growing

[100]°Quoted by Wines (note 98).

[101]°Wallander, C., Russia s strategic priorities , *Arms Control Today*, vol.°32, no. 1, (Jan./ Feb. 2002), pp. 4—6.

instability along the southern rim of Russia. Implicit in this shift is an underlying judgement that the USA does not pose a military threat to Russia. By playing down the impact of Bush s decision on US—Russianrelations, Putin appears to be putting himself in a better position to extract tangible rewards from the US. In particular, this might involve gaining US backing for efforts to give Russia a more influential role in European security arrangements, including a greater voice in NATO s decision-making process.[102]

The Chinese response

The US decision to withdraw from the ABM Treaty also drew a subdued reaction from China. The Chinese Government expressed concern about the negative impact of the US retreat from the ABM Treaty, emphasizing that the agreement is of crucial importance to maintain the international disarmament control regime and global strategic stability .[103] Officials noted that the UN General Assembly had, in November 2001, overwhelmingly adopted a resolution sponsored by China (along with Russia and Belarus) calling for the parties to the ABM Treaty to preserve and strengthen the treaty through full and strict compliance .[104] They also reiterated their warnings that the USA s missile defence plans could spark an arms race in outer space.[105]

The restrained reaction from Beijing was part of a broader trend in 2001 in which Chinese officials toned down their criticism of US missile defence plans.[106] This was in part the result of the Bush Administration s consultations aimed at assuring China that it was not the intended target of a US strategic missile defence system. Many Chinese officials and analysts had maintained that the real purpose of the USA s missile defence shield was to neutralize the deterrent value of China s small force of ICBMs rather than to defend against attacks from states such as Iraq and North Korea, which do not have missiles capable of reaching US territory. For its part, the Bush Administration displayed relatively little public concern about China s ongoing programme to modernize and expand its strategic nuclear forces, which is likely to result in a significant increase in the number of Chinese ICBMs

[102] Wallander (note 101); and Litovkin, V., I and the last seven days: the love of peace is settling in the General Staff , *Obshchaya Gazeta* (Moscow), 13 Dec. 2001, in Deputy Chief of Staff Baluyevskiy on strategic arms reductions, missile defense, US presence in Central Asia , FBIS-SOV-2001-1212, 17˚Dec. 2001.

[103] ˚Zhuqing, J., State criticizes US for abandoning treaty , 14˚Dec.˚2001, *China Daily* (Internet edn), URL <http://www.1chinadaily.com.cn/cndy/2001-12-14/47905.html>.

[104] ˚**United Nations General Assembly, A/RES/56/24R, 29 Nov. 2001, text of resolution available at URL <http://www.un.org/Depts/dhl/resguide/r56c1.htm>.**

[105] ˚Xia, Z., ABM withdrawal a dangerous sign , *China Daily* (Internet edn), 21 Dec. 2001, URL <http://www.1chinadaily.com.cn/cndy/2001-12-21/48910.html>. For a description of China s efforts to open negotiations in the Conference on Disarmament on an international treaty to prohibit the militarization of outer space see chapter 11 in this volume.

[106] ˚Gill, B., Can China s tolerance last? , *Arms Control Today*, vol. 32, no. 1 (Jan./ Feb. 2002), pp.˚7—9.

capable of reaching the USA.[107] Another factor contributing to China s muted reaction was the US decision, in April 2001, to defer the sale of advanced-capability theatre missile defences to Taiwan. This proposed sale had aroused considerable unease in Beijing.[108]

The European response

In Europe, there was a muted reaction to Bush s announcement both from US allies and other states. The circumspect tone of European responses reflected in part a recognition that the US decision to move ahead with strategic missile defence was a foregone conclusion.[109] More important, however, was the unexpected equanimity with which Russia and China accepted the US move to withdraw from the ABM Treaty. Many European leaders, especially in France and Germany, had previously voiced serious concern that the abandonment of the ABM Treaty would complicate relations with Russia and China, sound the death knell for nuclear disarmament and possibly reverse the progress made to date. At the same time, however, the restrained reactions of Russia and China did not assuage European misgivings about what was seen as a worrying tendency in US foreign policy to eschew international agreements the promotion of which has traditionally been considered an important US national interest in favour of unilateral undertakings.

Bush s explanation of his decision to withdraw from the ABM Treaty underscored the gap in threat perceptions that separates the USA from many of its European allies on the missile defence issue. In Europe, US claims about the emerging ballistic missile threat posed by states such as Iran, Iraq and North Korea tend to be dismissed as exaggerated. At a meeting of NATO foreign ministers in May 2001, the alliance had refused to endorse a US call to take urgent measures to cope with the common threat posed by emerging long-range ballistic missile capabilities in potentially hostile states.[110] In addition, the events of 11˚September were seen by many Europeans as lending credence to those who argued that the real threat to security came from terrorists with no access to missile technologies.[111]

[107]˚Sanger, D., Bush won t oppose China missile buildup , *International Herald Tribune*, 3˚Sep. 2001, pp. 1, 5.

[108]˚Gill (note 106).

[109]˚Erlanger, S., Bush s move on ABM pact gives pause to Europeans , *New York Times* (Internet edn), 12 Dec. 2001, URL <http://www.nytimes.com/2001/12/13/international/13Euro.html>.

[110]˚Drozdiak, W., NATO divided on missile defense , *Washington Post*, 30˚May 2001, p.˚A15.

[111]˚Norton-Taylor, R., Europe resigned while Britain clicks its heels , *Guardian* (Internet edn), 14˚Dec. 2001, URL <http://www.guardian.co.uk/bush/story/0,7369,618487,00.html>.

III. US—Russian strategic nuclear arms control

Implementation of the START I Treaty

On 5 December 2001 Russia and the USA marked the completion of the third and final phase of reductions in deployed strategic offensive arms mandated by the START I Treaty.[112] Under START I, Russia and the USA undertook to make phased reductions to their strategic offensive nuclear forces over a seven-year period, starting from the treaty s entry into force on 5 December 1994, to no more than 1600 strategic nuclear delivery vehicles and 6000 treaty-accountable nuclear warheads. Interim limits on SNDVs and accountable warheads were to be reached within three and five years, respectively, after the treaty s entry into force. START I also placed limits on inventories of mobile and heavy ICBMs and on aggregate ballistic missile throw-weight (or lifting capacity).

The START I Treaty has a 15-year duration, which may be extended by agreement among the parties for successive five-year periods. The verification and inspection arrangements will continue for as long as the treaty remains in force. These include 12 types of on-site inspections as well as data exchanges and notifications regarding the parties strategic nuclear forces and facilities. The START verification and inspection arrangements are likely to be used, in streamlined form, to monitor compliance with the pledges made by Bush and Putin in November 2001 to further reduce their countries strategic nuclear forces. The parties will continue to meet as necessary in the Joint Compliance and Inspection Commission (JCIC), which START I established as the forum for resolving compliance questions and discussing ways to facilitate implementation.

START I accomplishments

The START I Treaty was signed by the Soviet Union and the USA on 31 July 1991, following over a decade of negotiation. It remains the only in force, legally binding agreement regulating the size and composition of the US and Russian nuclear arsenals. The treaty s ceilings on deployed strategic nuclear forces have brought about significant reductions in the US and Russian nuclear arsenals, albeit to levels that many arms control advocates find, more than a decade after the end of the cold war, disappointingly high. Between 1990 and 2001, the number of deployed treaty-accountable nuclear warheads declined by 44 per cent on the US side and 46 per cent on the Russian side.

The START I Treaty proved instrumental in settling the fate of the former Soviet strategic nuclear arsenal in Belarus, Kazakhstan and Ukraine. With the dissolution of the USSR these new states had inherited over 3400 strategic nuclear warheads carried on ICBMs and long-range heavy bombers based on

[112] US Department of State, Bureau of Arms Control, Fact Sheet: START Treaty Final Reductions , 5 Dec. 2001, URL <http://www.state.gov/t/ac/rls/fs/ index.cfm?docid=6669>.

their territories, although operational control over the weapons remained in Russian hands. A key concern in the international community, particularly in the United States, was to preserve a centralized command and control system for the post-Soviet strategic nuclear forces and to ensure their security and custodial safety. At a meeting of foreign ministers in Lisbon, Portugal, in May 1992, Belarus, Kazakhstan and Ukraine signed the Lisbon Protocol with Russia and the USA, making all five countries parties to START˚I; the three non-Russian former Soviet republics committed themselves in the protocol to meet the USSR s nuclear arms reduction obligations and pledged to accede to the NPT as non-nuclear weapon states. The START˚I Treaty thereby provided the basis for consolidating Soviet nuclear warheads in Russia and for eliminating the delivery vehicles and associated infrastructure in Belarus, Kazakhstan and Ukraine.[113]

Towards deeper reductions in strategic nuclear arms

In 2001 there was a breakthrough in the US—Russian strategic arms reductions process. Progress towards making deeper negotiated cuts in strategic nuclear arsenals had been blocked by an impasse in bringing into force the 1993 Treaty on Further Reduction and Limitation of Strategic Offensive Arms (START˚II Treaty).[114] The impasse had arisen in April 2000 when the Russian parliament passed a ratification law which, *inter alia*, stipulated that Russia would ratify the START˚II Treaty only after the US Senate ratified a package of legally-binding Agreed Statements signed in 1997 related to the ABM Treaty.[115] This led to a situation in which the START˚II Treaty had been ratified by both parties but could enter into force, since the so-called ABM Treaty demarcation agreement established by the Agreed Statements was unacceptable to the Bush Administration and was explicitly identified as being so in the 2001 Nuclear Posture Review (NPR). For its part, the Putin Administration showed no interest in asking Parliament to amend the ratification law. This linkage was set aside when Bush and Putin agreed at their November 2001 summit meeting to supersede, or leap over , the START˚II Treaty and undertake a new round of deeper arms reductions.[116] In doing so, they effectively rendered the long-

[113] Excerpts from the text of the Lisbon Protocol are reproduced in *SIPRI Yearbook 1993: World Armaments and Disarmament* (Oxford University Press: Oxford, 1993), appendix 11A.

[114] The START˚II Treaty was ratified by the US Senate in Jan. 1996 and, in amended form, by both houses of the Russian Federal Assembly in Apr. 2000. For a description of the provisions of the START˚II Treaty see Lockwood, D., Nuclear arms control , *SIPRI Yearbook 1993* (note 113), pp. 554—59.

[115] The Agreed Statements established a set of criteria for distinguishing between theatre (or non-strategic) missile defence systems, which are permitted by the ABM Treaty, and strategic missile defence systems, which are not. For a description of the Agreed Statements and related documents see Kile, S., Nuclear arms control , *SIPRI Yearbook 1998: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1998), pp. 420—23.

[116] In order for Bush to be able to proceed, the US Congress had to approve language contained in the FY 2002 amended defense authorization bill that lifted a 1998 restriction, effectively barring the president from unilaterally reducing US strategic nuclear forces below START I levels. Bleek, P.,

Table 10.2 US and Soviet/Russian strategic offensive nuclear forces, by delivery vehicles and START-accountable warheads, September 1990 and December 2001[a]

Category	1990 USSR	1990 USA	2001 Russia[b]	2001 USA	START I final limit
Strategic nuclear delivery vehicles (SNDVs)[c]	2338	1672	1136	1237	1600
Warheads attributed to ICBMs and SLBMs	9416	8210	4894	4821	4900
Total treaty-accountable warheads	10271	10563	5518	5948	6000

ICBM = intercontinental ballistic missile; SLBM = submarine-launched ballistic missile

[a] The numbers given in this table are in accordance with the START I Treaty counting rules and include delivery vehicles which have been deactivated in preparation for elimination or conversion but which remain treaty-accountable.

[b] The USSR s obligations under the START I Treaty were assumed by Russia as its legal successor state and later by Belarus, Kazakhstan and Ukraine. Only Russia retained SNDVs and nuclear warheads at the end of the implementation period.

[c] Deployed ICBMs and their associated launchers, deployed SLBMs and their associated launchers and deployed heavy bombers.

Sources: START I Treaty Memorandum of Understanding, 1 Sep 1990; US Department of State, Bureau of Arms Control, Fact Sheet: START I Aggregate Numbers of Strategic Offensive Arms , 1 Apr. 2002, URL <http://www.state.gov/t/ac/rls/fs/9075.htm>.

stalled treaty a dead letter. At the same time, however, they paved the way for progress towards further cuts in strategic nuclear forces where none had appeared possible.

Interest in further strategic force reductions

The idea of negotiating deeper reductions has become a particularly attractive one in Russia, since it holds out the prospect of requiring the US to reduce its forces to levels that Russia could afford to match as it eliminates missiles and submarines reaching the end of their service lives. In November 2000, President Putin proposed that Russia and the USA should reduce their strategic nuclear arsenals to below the 2500-warhead limit envisaged in a proposed START III accord. While not specifying a new limit, he called for radically reduced ceilings for nuclear warheads that could be reached either jointly or in parallel moves.[117] Russian officials subsequently proposed a ceiling of 1500 nuclear warheads for each side. They emphasized, however, that any deeper cuts in nuclear forces would depend on progress with preserving and strengthening the ABM Treaty.[118]

Bush, Putin pledge nuclear cuts; implementation uncertain , *Arms Control Today*, vol. 31, no. 10 (Dec. 2001), pp. 19, 24.

[117] Statement by the President of the Russian Federation Vladimir V. Putin , 13 Nov. 2000, Press release no. 48, Embassy of the Russian Federation in the United Kingdom, 14 Nov. 2000, URL <http:// www.great-britain.mid.ru/GreatBritain/pr_rel/pr48.htm>

[118] ITAR-Tass, 1 Feb. 2001, in Foreign Minister says Russia ready for talks with US on START III , FBIS-SOV-2001-0201, 1 Feb. 2001; Interfax (Moscow), 28 June 2001, in Sergeyev calls for immediate talks with US on arms cuts , FBIS-SOV-2001-0628, 28 June 2001; and Interfax

In the USA there has been renewed political interest in adjusting US nuclear targeting doctrine and nuclear force levels to reflect a strategic environment in which Russia is no longer seen as an enemy. One argument made by supporters of deeper cuts was that the USA was forcing Russia to retain nuclear forces beyond a level which it can afford to maintain safely.[119] Arms control advocates also argued that the current US nuclear posture has changed little from the cold war, which means that 'friends' are now targeting one another.[120] However, the US military has been noticeably unenthusiastic about embracing reductions below the 2000- to 2500-warhead level in the absence of new presidential targeting guidance.[121] Analysts note that cuts below this level would require the removal of targets from the US strategic war plan or reductons to the level of damage to targets believed necessary for deterrence.[122] In addition, reductions below this level would be likely to require the DOD to restructure its 'triad' (i.e., heavy bombers, submarines and land-based missiles) of strategic nuclear forces.

During the 2000 presidential campaign, Bush had vowed to pursue deep cuts in warheads and missiles based upon a new strategic doctrine and approach to arms control.[123] In his May 2001 address on missile defence, Bush stated that he would consider reducing US strategic nuclear forces 'possibly in a unilateral step to the lowest possible number consistent with [US] national security'.[124] He also said that he would consider reducing the alert status of US ICBMs, which remain primed for rapid launch. Some observers interpreted these statements as an attempt to overcome concern among US allies that the administration's missile defence plans would reverse the post-cold war trend towards lower nuclear force levels.[125]

(Moscow), 26 July 2001, in 'Russia repeated proposal to reduce nuclear warheads to 1500', FBIS-SOV-2001-0726, 26 July 2001.

[119] Pincus, W. and Dewar, H., 'Approved nuclear measure unlikely to affect Clinton', *Washington Post*, 8 June 2000, p. A12.

[120] Kimball, D., 'Fuzzy nuclear math', *Arms Control Today*, (Dec. 2001), vol. 31, no. 10, p. 2.

[121] 'Statement on Command Posture by Admiral Richard Mies, Commander-in-Chief, US Stratgeic Command, before the Strategic Subcommittee, US Senate Armed Services Committee, 11 July 2001, available at URL <http://www.senate.gov/~armed_services/hearings/2001/f010711.htm>.

[122] Despite the end of the cold war, there are currently 2230 vital Russian targets on the US strategic war plan (the Single Integrated Operating Plan, SIOP); targets in China were reintroduced into the SIOP in 1998—99 after an absence of nearly 20years. US strategic planners have traditionally set the required level of damage against vital targets at 80%. With current targeting guidance (which was last modified in 1997 by a Presidential Decision Directive), *c.* 2500 deployed strategic nuclear warheads are considered to be the minimum necessary to execute the SIOP. Blair, B., 'Background paper on the strategic war plan and START reductions', Center for Defense Information, 18 May 2000, URL <http://www.cdi.org/issues/proliferation/blairbckReduc.html>.

[123] Myers, S., 'Bush plans nuclear review, clearing way for unilateral reductions', *International Herald Tribune*, 9 Feb. 2001, p. 3; and Pincus, W., 'US considers shift in nuclear targets', *Washington Post*, 29 Apr. 2001, p. A23.

[124] 'Transcript of remarks by the President' (note 12).

[125] Fitchett, J. 'Europeans receptive to a broad strategy', *International Herald Tribune*, 2 May 2001, pp. 1, 10. Others point out that US allies and other foreign governments have traditionally seen arms control agreements, and not reductions alone, as an integral part of the process to reverse the arms race and curb the spread of nuclear weapons.

The Bush—Putin understanding on deeper reductions

During their summit meeting held in Washington in November 2001, Bush and Putin agreed to move ahead with making deeper reductions in strategic nuclear forces. At a joint White House news conference, President Bush announced that the United States would, over the next decade, unilaterally reduce the number of its operationally deployed strategic nuclear warheads to 1700—2200.This would involve a two-thirds cut in the current number of deployed nuclear warheads; it would also entail cuts substantially below the 3500-warhead ceiling mandated by the START˚II Treaty. Putin promptly pledged that his government would respond in kind by making reductions to 1500˚warheads, although he gave no timetable for doing so.[126]

A key question left unanswered by the summit meeting was in what form, if any, the unilateral reductions promised by Bush and Putin would be codified. Shortly after the meeting, the White House issued a statement pledging to work with Russia to formalize this arrangement on offensive forces, including appropriate verification and transparency measures .[127] While welcoming the US offer, the Russian Government insisted that this had to be done in the form of a treaty.[128] It emphasized that a legally binding agreement, containing streamlined verification arrangements based upon those in the START treaty regime, was essential to ensure predictability in US and Russian nuclear policies.[129] In Russia s view, this was a necessary precondition for the preservation of stability in US—Russianrelations. It was also seen as important to provide assurance to other states around the world, particularly China, about the future size and structure of their nuclear arsenals. The absence of formal commitments could encourage a build-up of nuclear forces by China and possibly by other states.[130]

Bush Administration officials made clear that they opposed Russia s call for codifying parallel but unilateral undertakings in the form of a legally binding arms control agreement.[131] This opposition reflected a deep-rooted scepticism, shared by key national security policy makers in the administration about the relevance of treaty-based, or traditional , approaches to strategic nuclear arms

[126]˚Statement made by Russian President Vladimir Putin (note 91).

[127]˚ Response to Russian statement on US ABM Treaty withdrawal , The White House, Office of the Press Secretary, 13 Dec. 2001, URL <http://www.whitehouse.gov/news/releases/2001/12/2001/20011213-8.html>.

[128]˚Interfax (Moscow), 14 Nov. 2001, in Defense Ministry sharply criticizes US idea of unilateral arms cuts , FBIS-SOV-2001-1114, 14 Nov. 2001; Fidler, S., Bush, Putin strive for arms accord , *Financial Times*, 15 Nov. 2001, p. 5; and Sipress, A., US seeks deal on arms cuts by summer , *Washington Post*, 11 Dec. 2001, p. A28.

[129]˚ITAR-Tass, 18 Jan. 2002, in Russian official says Moscow, Washington continue to disagree on arms reductions , FBIS-SOV-2002-0118, 18 Jan. 2002.

[130]˚ Commit to paper , *Washington Post*, 16 Nov. 2001, p. A46. available at URL <http://www.washingtonpost.com/ac2/wp-dyn?pagename=article&node=contentId=A38010-2001Nov15>.It was also argued that a formal treaty was essential in part because so much of the recent warming in US—Russianrelations seemed to hinge on the personal chemistry between Bush and Putin and might not survive a change in administrations.

[131]˚Baker, P. A familiar Bush strategy on disarmament , *Washington Post*, 14 Nov. 2001, p. A6.

control.[132] The Bush team had come to office with little interest in engaging in cumbersome, time-consuming negotiations leading to complex arms reduction agreements that mandated precisely equilibrial force limits accompanied by detailed verification provisions.[133] White House advisers argued that the USA could, through unilateral reductions, move to much lower force levels and still accomplish any conceivable military mission.[134] In this view, Russia will follow the USA s lead out of its own national interest, since it can no longer afford to maintain current nuclear force levels.

Furthermore, Bush Administration officials maintained that, with the end of the cold war, there was no need to begin another protracted arms control negotiation with a Russia that was no longer viewed as an enemy. For the same reason they also showed no interest in rescuing the START˚II Treaty, even though this meant abandoning the ban on land-based missiles carrying multiple warheads which had been a key US objective in negotiating the treaty.[135] Senior administration officials argued that the USA was facing an increasingly uncertain world. As a matter of prudence, it should seek to preserve its flexibility and freedom of action in responding to new or unforeseen threats.[136] It should therefore not lock itself into a new set of binding treaty limits. Rather, the USA should decide how many nuclear warheads its needs, based on a thorough review of nuclear strategy, and then reduce or restructure its nuclear arsenal accordingly.

The White House s reluctance to enter into legally binding arms reduction commitments drew criticism both from within the USA and abroad. In February 2002, the administration indicated that it would not rule out the possibility of reaching a legally binding agreement with Russia to reduce nuclear arsenals. US Secretary of State Colin Powell suggested the possibility of a treaty or an executive agreement that Congress could debate and approve as a joint resolution. Such a document would state US intentions, as in the preamble of many treaty documents, and set out in general terms the verification procedures to be applied but it would not specify undertakings and commitments in detail.[137]

[132]˚For a discussion of the Bush Administration s approach to arms control and nonproliferation see chapter 9 in this volume.

[133]˚For an influential study that provides a guide to the Bush Administration s thinking about arms control and nuclear doctrine see Payne, K., *et al*., *Rationale and Requirements for US Nuclear Forces and Arms Control,* National Institute for Public Policy, Jan. 2001, available at URL <http://www.nipp.org/publications.php>. Several of the individuals who contributed to the study now occupy high-level national security policy-making positions in the Bush Administration.

[134]˚According to William Odom, former director of the National Security Agency, if we spent 10˚years in arms control forums, we d never get it done . Quoted by Myers (note 123).

[135]˚Gordon, M, US arsenal: treaties vs. nontreaties', *New York Times* (Internet edn), 14 Nov. 2001, URL <http://www.nytimes.com/2001/11/14/international/14nuke.html>.

[136]˚See Payne *et al*. (note 133), pp. 12—15.

[137]˚Slevin, P. and Pincus, W., US now seeking binding deal with Russia on nuclear arms , *Washington Post*, 6 Feb. 2002, p. A15.

Irreversibility of nuclear reductions

A second question left unanswered at the November 2001 summit meeting between Bush and Putin was whether the two sides would require the verified elimination of surplus nuclear warheads identified for removal from operational deployment. Bush s statement announcing the unilateral reductions did not specify whether the warheads to be removed from operational deployment would be dismantled or held in reserve as a hedge against unforeseen future threats, as the Clinton Administration had done with surplus warheads under START˚I.[138]

The Bush Administration subsequently informed Congress that many of the nuclear warheads removed from delivery vehicles would be placed in reserve stockpiles and not be dismantled. This gave rise to a new dispute with Russia. Some Russian analysts complained that the US refusal to physically destroy warheads made the agreement on the reduction of strategic arms absolutely pointless .[139] The Bush Administration s position meant that Russia and the USA would not have equal rights in the sphere of strategic arms .[140]

The idea of requiring surplus warheads to be dismantled has gained support in Russia as a mechanism for addressing concerns about asymmetries in the reconstitution potential of the US and Russian strategic nuclear forces. These concerns were first raised during the debate in Russia over whether to ratify the START˚II Treaty.[141] Analysts there point out that major reductions in Russia s Strategic Rocket Forces are inevitable over the next decade as ageing ICBMs reach the end of their service lives and are not replaced. By contrast, the USA plans to move to a lower number of deployed strategic nuclear warheads primarily by downloading (that is, by removing one or more warheads from a missile carrying multiple warheads) and retaining most of its Minuteman˚III ICBMs and highly accurate, long-range Trident˚II SLBMs.[142] The USA also plans to continue to maintain reserve stockpiles consisting of thousands of nuclear weapons in various stages of readiness. Russian analysts argue that this has the effect of leaving the USA in a better position than Russia to rapidly reconstitute its strategic forces by uploading stored nuclear

[138]˚START I and START II do not require the dismantlement of the warheads removed from delivery vehicles as scheduled for elimination or conversion At a summit meeting held in Helsinki in 1997, Clinton and Russian President Yeltsin agreed that a future START˚III Treaty should contain measures relating to the transparency of strategic nuclear warhead inventories and the destruction of strategic nuclear warheads . The goal of these measures was to make permanent US—Russian reductions in their strategic nuclear forces. Joint Statement on Parameters of Future Reductions in Nuclear Forces, The White House, Office of the Press Secretary, 21 Mar. 1997.

[139]˚Alexander Pikayev, quoted by Interfax (Moscow), 10 Jan. 2002, in US refusal to destroy warheads makes strategic arms control accord pointless , FBIS-SOV-2002-0110, 10 Jan. 2002.

[140]˚Pikayev, quoted by Interfax (note 139).

[141]˚Kile (note 115), pp. 415—416.

[142]˚Many Russian defence analysts had argued during the START˚II Treaty ratification debate that a requirement in a future START˚III Treaty to dismantle warheads removed from ballistic missiles would help to compensate for the absence of a rule in START˚II requiring that a downloaded missile must be fitted with an entirely new bus , or front-end platform, able to hold only the smaller number of warheads.

warheads back onto its land- and sea-based ballistic missiles and thereby achieve a significant strategic advantage over Russia.[143]

Russian concerns were fuelled in January 2002 by the release of the results of the DOD Nuclear Posture Review, a comprehensive 10-month review of the US strategic and tactical nuclear force posture.[144] The NPR set out a three-phase schedule for reducing the number of operationally deployed strategic warheads to between 1700 and 2000 by the year 2012. According to Assistant Secretary of Defense J. D. Crouch, the USA would maintain a substantial number of nuclear warheads in reserve as a responsive capability. He noted, however, that there have been no final decisions made at this point on what should be the size of this capability or about the overall size of the US nuclear stockpile.[145]

IV. Cooperative nuclear security initiatives

Since 1991 the USA has funded an expanding range of cooperative initiatives to dismantle or convert the former Soviet Union's vast non-conventional weapon complexes and safeguard nuclear and other hazardous materials.[146] These initiatives have played a central, albeit sometimes controversial, role in the international community's efforts to manage proliferation risks in the former USSR and to address the challenges arising from the Soviet nuclear legacy. An important focus of US-funded cooperative initiatives in recent years has been to prevent former Soviet scientists working on nuclear, chemical or biological weapon programmes from selling their skills to unfriendly regimes or terrorist groups.

With regard to nuclear-related dangers, considerable progress has been made in eliminating former Soviet strategic nuclear weapons and enhancing the safety and custodial security of nuclear weapons remaining in Russia. However, the scale and scope of the former Soviet nuclear weapon complex mean that international efforts to prevent the leakage or misappropriation of fissile and other weapon-usable material will face formidable challenges for years to come. It is estimated that there are approximately 650 tonnes of weapon-usable nuclear material in the former Soviet Union, not including the contents of

[143] Frolov, V., A new start on the banks of the Potomac, *Vremya MN* (Moscow), 15 Jan. 2002, in Reconstitution potential: major issue in US—RF strategic arms consultations, FBIS-SOV-2002-0115, 15 Jan 2002

[144] US Department of Defense, Transcript of special briefing on the Nuclear Posture Review, 9 Jan. 2002, available at URL <http://www.defenselink.mil/news/Jan2002/t01092002_t0109npr.html> (News briefing slides available at URL <http://www.defenselink.mil/news/Jan2002/t01092002_t0109npr.html>). For more detail on the NPR see appendix 10A in this volume.

[145] US Department of Defense, Transcript of special briefing on the NPR (note 144).

[146] These initiatives have grown from the original Cooperative Threat Reduction (CTR) programme (also called the Nunn—Lugarprogramme after the two senators who co-sponsored the original authorizing legislation), which began in 1991 with funding from the US Department of Defense. The programme has since evolved to encompass a wide range of non-proliferation and demilitarization activities under the auspices of the Department of Energy (DOE) and the Department of State as well as the DOD.

nuclear warheads.[147] This material is currently held at 66 sites, of which 56 are located in Russia.[148] These include nuclear weapon R&D facilities, nuclear fuel

[147] Carnegie Endowment for International Peace and the Monterey Institute of International Studies, *The Nuclear Successor States of the Soviet Union: Nuclear Weapon and Sensitive Exports Status Report,* no. 6 (June 2001), p. 75.

[148] Of the 10 facilities outside Russia, 1 is in Belarus, 3 are in Kazakhstan, 1 in Latvia, 3 in Ukraine and 2 in Uzbekistan. Carnegie Endowment for International Peace and the Monterey Institute of International Studies, *The Nuclear Successor States of the Soviet Union* (note 147).

Table 10.3. Summary of funding for principal DOD and DOE non-proliferation programmes in the former Soviet Union, February 2002

Figures are for appropriated funds, in US $m. at current prices.

Programme activity	FY 2001[a]	FY 2002
Cooperative Threat Reduction Programme		
Strategic nuclear arms elimination (Russia and Ukraine)	206.9	184.9
WMD infrastructure elimination (Kazakhstan and Ukraine)	—	12.0
Nuclear weapon transportation & storage security (Russia)	103.7	65.5
Fissile material storage facility (Russia)	57.4	0
Weapons-grade plutonium elimination (Russia)	32.1	41.7
Warhead dismantlement processing (Russia)	9.3	0
Chemical weapons destruction	0	50.0
Biological weapons proliferation prevention	12.0	17.0
Military-to-military contacts	9.0	18.7
Management and support	13.0	13.2
Department of Defense programme total	**443.4**	**403.0**
Material Protection, Control & Accounting (MPC&A)	169.7	293.0
Arms control & non-proliferation[c]	148.5	75.7
Russian Transition Initiative[d]	—	57.0
Highly Enriched Uranium Purchase Agreement transparency	14.5	14.0
Fissile materials disposition[e]	226.5	252.0
Nonproliferation and verification R&D	244.5	322.3
International nuclear safety	19.3	20.0
Programme direction[f]	51.4	—
Department of Energy programmes total	**874.4**	**1˚034.0**[b]

[a] ˚Figures include $223 million emergency supplemental appropriation for non-proliferation and nuclear security programmes in the former Soviet Union.

[b] ˚Less use of $7.5 million of prior year unobligated balances.

[c] ˚Includes funding for Nuclear Cities Initiative (NCI) in FY˚2001

[d] ˚Created in FY˚2002 by the merger of the Nuclear Cities Initiatives with Initiatives for Proliferation Prevention (IPP) programmes.

[e] ˚Conducts activities in Russia and USA to eliminate surplus weapons-usable fissile material, including programmes to dispose of 68 tons of excess Russian and US military plutonium.

[f] ˚Programme direction transferred in FY˚2002 from DOE to National Nuclear Security Administration.

Sources: Center for Arms Control and Non-proliferation, Summary of Major US non-proliferation programs—FY 2002 , 24˚Jan. 2002, available atCouncil for a Liveable World Internet site, URL <http://www.clw.org/control/proliferation.html>; and US House of Representatives, *National Defense Authorization Act for Fiscal Year 2002*, Conference report to accompany S. 1438, 12 Dec. 2001.

production and fabrication plants, civilian research institutes and naval fuel facilities.

The security shortcomings identified at many of these facilities have raised concern about the possible theft or unauthorized diversion of highly enriched uranium (HEU), plutonium and other weapon-usable nuclear material.[149] This has inspired, since 1995, the launch of a variety of urgent measures aimed at creating an effective fissile material physical control and accounting (MPC&A) regime. In January 2001 a bipartisan panel report commissioned by the DOE had stressed the seriousness of the national security threat to the USA posed by the possibility that terrorist groups or hostile states could acquire weapons of mass destruction or weapon-usable material from the former Soviet Union. The report advocated a ten-fold increase in funding for US threat reduction programmes over the next decade.[150]

In March 2001 the Bush Administration announced that it would undertake a comprehensive review of over 30 US-funded non-proliferation and nuclear security programmes in the former Soviet Union.[151] The purpose was to examine the cost-benefit ratio of each programme and to assess whether they focused on priority threat reduction and non-proliferation goals.[152] It would also examine ways to improve the co-ordination of these programmes and consider possible new initiatives. The review was announced at a time when some senior administration officials were expressing doubts about the effectiveness of these programmes in reducing nuclear-related threats in the former Soviet Union.[153] The announcement came against the background of a Russian—USdispute over access rights to their respective nuclear weapon facilities. It also coincided with mounting concern in the US that Russia s sharing of nuclear and other sensitive technologies with Iran was undermining wider US non-proliferation goals.[154]

The Bush Administration s FY˚2002 defence budget called for modest reductions in funding levels for nuclear security initiatives in the former Soviet Union.[155] The proposed reduction came primarily at the expense of nuclear material security, disposition and safety programmes administered by the Department of Energy (DOE). However, these programmes enjoyed consider-

[149]˚For an analysis of incidents since 1991 involving illicit trafficking in nuclear and other radiological material see Appendix 10D in this volume.

[150]˚Pincus, W., Panel urges $30 billion to secure Russian arms, *Washington Post*, 11 Jan. 2001, p.˚A21.

[151]˚Miller, J., US will review its aid to Russia for stopping the spread of weapons, *International Herald Tribune*, 30 Mar. 2001, p. 3.

[152]˚Fact Sheet: 'Administration review of nonproliferation and threat reduction assistance to the Russian Federation, The White Office, Office of the Press Secretary, 27 Dec. 2001, URL <http://www.whitehouse.gov/news/releases/2001/12/print/20011217.html>.

[153]˚Pincus, W., Bush targets Russia nuclear programs for cuts, *Washington Post*, 18 Mar. 2001, p.˚A23.

[154]˚Luongo, K., Improving US-Russian nuclear cooperation, *Nonproliferation Review*, vol. 8. no. 3 (Fall 2001), pp. 85—91.

[155]˚Bleek, P., Bush seeks cuts in Pentagon threat reduction programs, *Arms Control Today* (Sep.˚2001), vol. 31, no. 7, p. 28.

able bipartisan support in Congress, which subsequently restored most of the funding for them.[156]

The events of 11˚September heightened concern in the USA about the danger of nuclear weapons from the former Soviet Union or of fissile or other hazardous material falling into the hands of terrorists groups. Congress approved a $223 million emergency appropriation to expand non-proliferation and nuclear security activities in the former Soviet Union. This included $120˚million for the MPC&A programme and $10 million to improve the safety of Soviet-era nuclear power reactors and facilities.[157] Congress also approved an additional $15˚million for the Russian Transition Initiative, which consolidated two programmes aimed at preventing a brain drain of experts from the former Soviet nuclear, chemical and biological weapon complexes by creating new, non-defence-sector jobs for them.[158]

In December 2001 the Bush Administration announced the results of its review of non-proliferation and threat reduction assistance programmes. The report concluded that most programmes work well, are focused on priority tasks and are well managed.[159] It identified four programme areas for expansion: MPC&A activities, including cooperation with Russia to install nuclear detection equipment at border posts; the DOE s Warhead and Fissile Material Transparency programme; the State Department s International Science and Technology Centres (ISTC); and the Redirection of Biotechnical Scientists programme. The review also recommended accelerating the CTR project to construct a pilot chemical weapons destruction facility at Shchuch ye in Russia.[160]

For FY˚2003, the Bush Administration has announced that it will seek an increase in funding for non-proliferation and threat reduction activities. The administration has requested $416 million for the Defense Department s CTR programme.[161] It has also asked for a record $1.11 billion for the DOE s defence nuclear non-proliferation programmes.[162] The largest increases in the budget request, compared to FY˚2002 appropriations, are earmarked for the DOE s MPC&A and Fissile Material Disposition programmes.[163]

[156] Johnson, J., Securing the nuclear threat, *Chemical and Engineering News*, (17 Dec. 2001), vol. 75, no. 51, pp.˚43—44.

[157]˚Russian-American Nuclear Security Advisory Council (RANSAC), Anticipated FY˚2003 budget request for the Department of Energy cooperative nuclear security programs in Russia, 9˚Jan. 2002, URL <http:// www.ransac.org/new-web-site/whatsnew/fy03budget.html>.

[158]˚RANSAC (note 157).

[159]˚Fact Sheet (note 152).

[160]˚For more detail see chapter 12 in this volume.

[161]˚Council for a Livable World, Quick analysis of Fiscal 2003 budget request US nonproliferation programs, Press release, 5˚Feb. 2002, URL <http://www.clw.org/control/03proliferation.html>.

[162]˚Council for a Livable World (note 161); and US Department of Energy, *FY˚2003 Congressional Budget Request: Budget Highlights*, DOE/ME-0008, Feb. 2002, p. 7.

[163]˚Council for a Livable World (note 161).

V. The Comprehensive Nuclear Test-Ban Treaty

On 11—13 November 2001 the Conference on Facilitating the Entry into Force of the Comprehensive Nuclear-Test-Ban Treaty was held at United Nations Headquarters in New York. The meeting was attended by the delegates of 109 states. The USA did not take part. As specified in Article XIV of the CTBT, its purpose was to consider what measures consistent with international law may be undertaken to accelerate the ratification process in order to facilitate the early entry into force of the treaty.[164] The Conference issued a Final Declaration that *inter alia* reaffirmed the importance of universal adherence to the CTBT for nuclear non-proliferation and disarmament efforts and called upon all states to maintain a moratorium on nuclear weapon test explosions or any other nuclear explosions.[165]

During 2001 five states signed the CTBT and 19 ratified it. As of 1 January 2002, the CTBT had been ratified by 89 states and signed by a further 76 states. The treaty will enter into force 180 days after it has been ratified by the 44 members of the Conference on Disarmament with nuclear power or research reactors on their territories, as listed in Annex 2 of the treaty. Of the 44 states whose ratification is required for the treaty to enter into force, 31 had ratified the treaty and an additional 10 states had signed but not ratified the treaty by the end of 2001.[166] The USA has signed the treaty but later voted not to ratify it.[167] There are three states among the 44 India, North Korea and Pakistan which have not signed the accord.

During the year the Provisional Technical Secretariat for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) continued to make progress toward implementing the global verification regime to monitor compliance with the test ban. The Secretariat is responsible for supervising the construction and certification of an International Monitoring System (IMS), which will consist of 321

[164] Article XIV of the Comprehensive Nuclear-Test-Ban Treaty provides for the convening of an annual conference by the states which have deposited their instruments of ratification (other states may participate as observers) **to consider what measures consistent with international law may be undertaken to accelerate the ratification process in order to facilitate the early entry into force of the treaty**. The text of the CTBT is reproduced in *SIPRI Yearbook 1997: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1997) , appendix 12A, pp. 414—31.

[165] Report of the Conference on Facilitating the Entry into Force of the Comprehensive Nuclear-Test-Ban Treaty, CTBT-ART.XIV/2001/6, Public Information Section, Preparatory Commission for the Comprehensive Nuclear Test-Ban Treaty Organization, Vienna, 15 Nov. 2001, URL <http://www.ctbto.org>.

[166] **The treaty will enter into force 180 days after it has been ratified by the 44 members of the Conference on Disarmament with nuclear power or research reactors on their territories, as listed in Annex 2 of the treaty.** For the parties and signatories of the CTBT see annex A in this volume.

[167] President Clinton signed the CTBT in Sep. 1996. However, the US Senate voted narrowly in Oct. 1999 not to ratify the treaty. See see Kile, S., Nuclear arms control and non-proliferation , *SIPRI Yearbook 2000: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2000), pp. 464—66.

monitoring stations and 16 laboratories located in 90 countries.[168] By the end of February 2002, installations had been completed at 122 stations.[169] Work also continued to connect the IMS stations through a satellite communication network to an International Data Center (IDC) in Vienna, Austria. The IDC is responsible for receiving, processing and distributing to member-states the raw data received from the IMS stations.

During 2001, the continuing uncertainty about the timing of the treaty s entry into force contributed to some erosion of international support for the CTBTO. This stemmed largely from concern about the rising cost of the organization. Brazil and Argentina took the lead in questioning the sizeable annual increases in the CTBTO s budget for building the IMS when it was unclear when or if the treaty might take effect.[170] In addition, China and Iran delayed or halted the transmission to the IDC of data from a number of monitoring stations on their territories. Some observers speculated that the Chinese and Iranian moves may been political reactions to the USA s announcement in August 2001 that it would contribute to paying only the costs associated with the monitoring system and not the other functions of the CTBTO.[171]

VI. Conclusions

In December 2001 the long-running controversy over the United States missile defence plans and the future of the 1972 ABM Treaty came to a head when President Bush announced that the USA intended to withdraw from the treaty in order to proceed with the development of a large-scale ballistic missile defence system. At its core, the missile defence controversy had involved a doctrinal dispute over the relationship between deterrence and strategic defence in the post-cold war world and the continued relevance of the ABM Treaty as the cornerstone of strategic stability . Bush s announcement, which drew a notably restrained response from Russia and China, effectively brought

[168] **These stations use four verification technologies seismic, infrasound, hydroacoustic and radionuclide to monitor the earth for evidence of a nuclear exlosion. Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization, The global verification regime and the International Monitoring System . *Basic Facts: Booklet 3*, 2001, available at URL <http://www.ctbto.org>.**

[169] **Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization, Provisional Technical Secretariat—FiveYears Old , Press release 303/06/Ann.5/02, 15 Mar. 2002.**

[170] **Johnson, R., Boycotts and blandishments: making the CTBT visibile , *Disarmament Diplomacy*, no. 61 (Oct./ Nov. 2001), available at URL <http://www.acronym.org.uk/dd/dd61/61ctbt.htm>. The CTBTO Preparatory Commission s bugdet for 2001 was $83.5 million, compared to $79.9 million in 2000 and $74.7 million in 1999.**

[171] **Giacomo, C., China, Iran said balking at test ban pact cooperation , *Reuters*, 7 Mar. 2002, URL <http://story.news.yahoo.com/news?tmpl=story&u=/20020307/wl_nm/arms_treaty_problems_dc_2&printer=1>.**

the debate to a close and heralded the **end** of one of the **main** pillars of the nuclear arms control framework inherited from the cold war.

The Bush Administration s decision to withdraw from the ABM Treaty came as part of its rejection of the relevance of traditional nuclear arms control treaties to US national security strategy. The new administration brought to office an ideological aversion ~~not only~~ to the ABM Treaty s constraints on strategic defence **and its codification of the cold war-era logic of mutual assured destruction. It also rejected as outdated** the complex **and painstakingly balanced arms limitations** agreements **developed as a means for regulating the superpower nuclear arms competition**. This type of agreement was **criticized** by the new administration as ~~being outdated and~~ inhibiting US flexibility in adapting to a new and changing security environment. Although Bush joined Putin in November 2001 in pledging to ~~make significant new~~ **cut** ~~to~~ their countries strategic nuclear forces, ~~levels,~~ US officials ~~have~~ insisted that these reductions **should** be carried out as ~~parallel~~, unilateral initiatives rather than in the form of a ~~legally-binding arms control~~ treaty, as insisted on by Russia.

The future of ~~the existing framework of~~ arms control and disarmament agreements is an uncertain one. The value of these agreements has come under increasingly critical scrutiny in recent years as a result of allegations that, or clear-cut cases in which, states have violated their legal commitmments. The ~~Bush Administration came to the White House with a philosophical conviction that formal arms control is neither a necessary nor a desirable element of the post-cold war international security system.~~ Underlying **the Bush Administration s disinterest in arms control** is a deep-rooted scepticism about the efficacy of the existing framework of restraint agreements and multilateral supplier arrangements designed to prevent the spread of weapons of mass destruction and the means to deliver them. ~~This is a~~ **Its conclusion that formal arms control is neither necessary nor desirable is a profound development one suggesting that a new strategic environment is emerging which is likely to be very different from that which existed in recent decades.**

It remains to be seen whether nuclear arms control will have a meaningful role to play in shaping this environment. However, ~~the USA s~~ a **turning** away from the arms control process creates a danger that even the limited progress made to date towards building smaller, more transparent strategic nuclear arsenals is in jeopardy. More generally, the clear disinterest in multilateral treaties by the dominant state in the international system is raising concern in ~~a growing number of~~ **many** countries about the prospects for building an ~~nuclear order~~ **international security system** based on stability, restraint and **deep** cuts in ~~nuclear arms~~ **armaments**.