sipri Stockholm International Peace Research Institute

FACT SHEET
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# MISSILE DEFENCE AND THE ABM TREATY

## *A STATUS REPORT*

## Introduction

The subject of missile defence has again emerged as the focus of an international controversy. The current debate is generated by the USA s efforts to modify a central pillar of the nuclear arms control framework inherited from the cold war the 1972 Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty) in order to permit it to develop and deploy a limited or thin national missile defence (NMD) system.

Underlying the missile defence controversy is a doctrinal dispute about the relationship between deterrence and defence in the post-cold war world and the relevance of the ABM Treaty as the cornerstone of strategic stability . In the USA there is an emergent consensus in favour of building a nationwide missile defence system the prohibition of which is the basic purpose of the ABM Treaty in order to meet perceived new proliferation threats.

The debate over the new missile defence concept is not confined solely to the USA. In Russia there is strong opposition to amending the ABM Treaty to permit even a limited national missile defence system, since this is viewed as undermining the stabilizing logic of mutual assured destruction codified in the treaty.

At the present stage it is a debate about a virtual missile defence system. This has become an increasingly important international issue, since its outcome is seen as affecting the security interests of many states. A key question is whether a cooperative, multilateral approach to missile defences can be forged that will address US threat perceptions and at the same time allay the security concerns of Russia, China and other states in Europe and Asia.

As evidenced by the discussions held during the Nobel Symposium on A Future Arms Control Agenda organized by SIPRI in the autumn of 1999, the arms control process stands at a crossroads. The specific choices to be made with respect to missile defence and the future of the ABM Treaty will for some time to come shape the possibilities for elaborating a nuclear order marked by stability, restraint and continuing deep reductions.

It is against this background that SIPRI has assembled the information and data contained in this fact sheet. The purpose is twofold. First, it is to describe recent developments in the USA s national missile defence programme, which is set to undergo a comprehensive overhaul. Second, it is to highlight the growing importance of the international political dimension of the missile defence controversy and to describe recent developments related to Washington s missile defence plans.

This fact sheet was prepared by Shannon Kile, SIPRI Researcher, in June 2001. It was edited by Connie Wall, Head of the SIPRI Editorial and Publications Department.

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### Contents

## The NMD consensus in the USA

In the USA there has been renewed interest in building a national missile defence system, especially among Republican leaders in Congress, in the light of perceived new proliferation threats. In the late 1990s this led to a partisan debate in Washington over NMD and the future of the ABM Treaty. This debate involved disputes over three related issues:

- the nature of the threat posed by the proliferation of nuclear, biological and chemical weapons and the means to deliver them;
- the technical feasibility of NMD and its likely effectiveness in meeting these threats; and
- the relationship between deterrence and defence in the post-cold war world and the relevance of the ABM Treaty as the cornerstone of strategic stability .

These disputes took place against the background of a wider debate about the adequacy of the existing framework of arms control treaties and multilateral supplier arrangements designed to prevent the spread of weapons of mass destruction and the means to deliver them. It was fuelled by growing scepticism among many US conservatives about the efficacy of the non-proliferation regime and about the value of arms control agreements in general.

### The US National Missile Defense Act of 1999

*Main provisions:*

- It is the policy of the United States 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).
- It is the policy of the United States to seek continued negotiated reductions in Russian nuclear forces.

In signing the legislation into law in July 1999, US President Bill Clinton stated that an NMD deployment decision would be based upon the following considerations:

(*a*) a determination that a new long-range ballistic missile threat to the USA is emerging;
(*b*) an assessment of the technological feasibility and operational effectiveness of a proposed NMD system;
(*c*) overall system cost; and
(*d*) the progress made in achieving US arms control objectives, including any amendments to the ABM Treaty that may be required .

*Rationale for a limited NMD system*

There is an emergent consensus in the USA that a limited NMD system is needed to protect US territory 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, Iraq and Iran. Since these states might not be deterred from attacking US territory or interests by the threat of devastating retaliation, such a system is seen as usefully augmenting nuclear deterrence. Some supporters of missile defence argue that a more realistic danger is that these states will start a regional armed conflict in the mistaken belief that the USA will be deterred by their ballistic missile capabilities from intervening in such a conflict. The deployment of an NMD system would force these states to reassess the risks they would face in confronting the USA and enhance the United States freedom of action.

A limited NMD system is also intended to provide protection against an accidental or unauthorized missile launch. In this regard, it has a mission similar to that of the Global Protection Against Limited Strikes (GPALS) system, which was proposed in 1990 as a scaled-down version of the Star Wars programme.

*National Missile Defense Act*

Domestic political support for NMD was galvanized by North Korea s launch in August 1998 of a three-stage Taepo Dong I missile that passed over Japan. The launch was widely seen in the USA as lending credence to the findings of an influential report (the Rumsfeld Commission Report), published earlier in 1998, which had concluded that the emerging ballistic missile threat is broader, more mature and evolving more rapidly than previously thought.

In May 1999 the US Congress passed the National Missile Defense Act. Its enactment was part of the broader shift in the US missile defence debate: the main point of contention was no longer whether a limited NMD system would be deployed but when.

However, there remains strong partisan disagreement on Capitol Hill in Washington over the scale and scope of an eventual missile

**Funding of US ballistic missile defence programmes, FY˚1998—2001**

Figures are for budget authority, in US $m., at current prices.

| | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|
| NMD | 936 | 1 687 | 961 | 2 034 |
| Theatre air & missile defence | 2 442 | 1 838 | 2268 | 2 000 |
| Support technologies & operations | 422 | 648 | 630 | 729 |
| Total | 3 800 | 4 173 | 3 859 | 4 763 |

*Source*: US Ballistic Missile Defense Organization.

defence system deployment as well as over the degree to which it should be concerned by the ABM Treaty. Related to these disagreements are concerns about the affordability of missile defences in the light of other budget priorities.

## Missile defence funding

Since President Ronald Reagan announced his Strategic Defense Initiative (SDI) in 1983, the USA has spent over $70 billion through the year 2000 on various systems designed to intercept incoming ballistic missiles.

Within the US Department of Defense, the Ballistic Missile Defense Organization (BMDO) is responsible for the overall management and direction of missile defence programmes. These programmes focus on three areas: NMD; theatre missile defence (TMD); and advanced ballistic missile defence technologies.

The BMDO budget for FY 2001 was $4.8 billion (including supplemental funding added by Congress in October 2000). The budget earmarked $4.05 billion for missile defence research, development, testing and evaluation (RDT&E), of which $1.85 billion was authorized for NMD-related programmes.

Spending on NMD is set to rise. For the five-year period FY 2001—2005, the Clinton Adminstration s budget allocated $10.5 billion for NMD, including funds for construction and procurement. The Bush Administration reportedly plans to request a substantial increase in spending on national missile defence in a revised FY 2002 defence budget request.

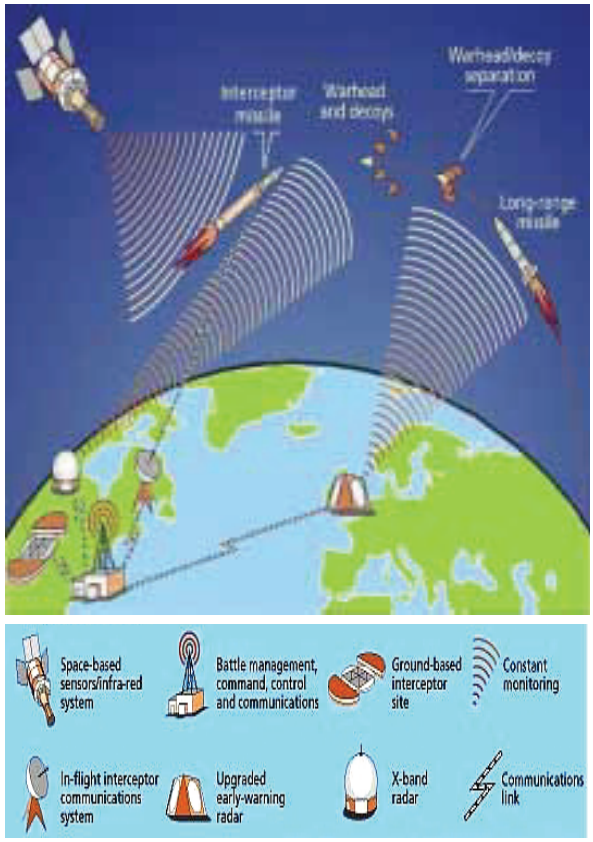
## NMD system

Current BMDO plans call for building a land-based NMD system of systems consisting of several elements:

*Interceptors.* The initial system would use 100 ground-based interceptor (GBI) missiles, deployed at a single site in central Alaska. These missiles would carry the exo-atmospheric kill vehicle (EKV) designed to collide with incoming missile warheads during the mid-course phase of their flight trajectories (i.e., after they have separated from their booster rockets) outside the earth s atmosphere.

*Radars.* The interceptors would be supported by high-frequency X-band tracking and guidance radars as well as by upgraded early-warning radars (UEWR) located in the USA, Thule, Greenland, and Fylingdales, UK. In order to upgrade and incorporate the latter two radars into the NMD system, the USA must obtain the consent of the British and Danish governments.

*Satellites*. The BMDO s plans envision the deployment of two constellations of space-based infrared system (SBIRS) satellites




**Architecture and operational concept of proposed land-based limited NMD system**

*Source: The Economist*, vol. 355, no. 8173 (1 June 2000), p.˚19.

**US national missile defence architecture and deployment options**[a]

| | Expanded Capability 1 | Capability 2 | Capability 3 |
|---|---|---|---|
| Mission | Intercept few tens of warheads accompanied by simple countermeasures and decoys | Intercept a few warheads accompanied by complex countermeasures and decoys | Intercept a few tens of warheads accompanied by complex countermeasures and decoys |
| Deployment date | 2007 (initial capability in 2005) | 2010 | 2011 |
| Interceptors | ¥100 interceptor missiles (1 site in Alaska) | ¥100 interceptor missiles (1 site in Alaska) | ¥250 interceptor missiles (1 site in Alaska, 1 in North Dakota) |
| Sensors | ¥1 X-band tracking radar (Alaska) | ¥4 X-band tracking radars (2 in USA, I in UK, I in Greenland) | ¥9 X-band tracking radars (6 in USA, I in UK, I in Greenland, 1 in South Korea) |
| | ¥5 upgraded early warning radars (3 in USA, I in UK, I in Greenland) | ¥5 upgraded early warning radars (3 in USA, I in UK, I in Greenland) | ¥6 upgraded early warning radars (4 in USA, I in UK, I in Greenland) |
| | ¥4 early-warning satellites (SBIRS—High) | ¥5 early-warning satellites (SBIRS—High) | ¥5 early-warning satellites (SBIRS—High) |
| | ¥warhead-tracking satellites (SBIRS—Low engineering prototype) | ¥24 warhead-tracking satellites (SBIRS—Low) | ¥24 warhead-tracking satellites (SBIRS—Low) |
| Cost of each phase[b] | $29.5 billion | $6.1 billion | $13.3 billion |

[a] Based on revised NMD programme guidance announced by US Secretary of Defense William Cohen in 2000.

[b] These estimates include one-time procurement costs as well as operations costs through FY 2015. They cover different periods of times based on when each level of capability will be initially operational. The estimate for operations for Expanded Capability 1 covers FY 2005—2015; Capability 2, FY 2010—2015; and Capability 3, 2011—2015.
These estimates do not include the $10.6 billion cost of the SBIRS-Low satellite system.

*Source*: US Congressional Budget Office, *Budgetary and Technical Implications of the Administration s Plan for National Missile Defense*, April 2000.

in high- and low-earth orbits. These satellites will detect missile launches and provide guidance information to the interceptors. The SBIRS—Low satellite programme, which is managed by the US Air Force, has experienced significant engineering development problems.

*Command and control*. The brains of the NMD system is a battle management command, control and communications (BM/$C^3$) system. This system is to be built at the North American Aerospace Defense (NORAD) headquarters at Cheyenne Mountain, Colorado. In the event of a missile attack, it would process data received from ground-based radars and space-based sensors. It would then use a network of communications facilities to transmit target assignments and guidance information (called cueing data) to interceptor missiles. This can be done after those missiles have been launched using the in-flight interceptor communications system (IFICS).

*System costs*

The US Congressional Budget Office (CBO) has published an estimate of the cost of the ground-based NMD system architecture outlined by the Clinton Administration. According to the CBO, the Expanded C1 phase of the system, consisting of 100 missile interceptors, launchers and associated radars, would cost $29.5 billion through the year 2015: $20.9 billion for one-time procurement costs and $8.5 billion for operations costs for the years 2000—2015. The CBO estimated that the cost of the full ground-based NMD system would be $48.5 billion. This does not include the cost of deploying 24 SBIRS—Low satellites, which the CBO estimated to be $10.6 billion. This would bring the total cost of the system to $59.1 billion.

## Programme problems

The ambitious schedule for deploying an initial NMD system was criticized as a rush to failure in a 1998 report (the Welch Report) prepared by an independent team of experts appointed by the Pentagon. Despite a restructuring of the NMD programme, the US General Accounting Office (GAO) warned in May 2000 that a series technical challenges, particularly in building the ground-based interceptor missile, continue to pose significant performance and schedule risks .

Concerns about the readiness and reliability of the NMD system technology have been underscored by the failures suffered in the BMDO s Integrated Flight Test Programme. Five flight tests have been conducted to date. Three of these (in Oct. 1999, Jan. 2000 and July 2001) have been interception tests using a prototype kill vehicle. A simulated target warhead was destroyed in the first test, although critics complained that the test was manipulated to enhance the chances of a successful outcome. The subsequent interception tests failed, which has led to a significant delay in the testing programme.

**Launch of Exo-atmospheric Kill Vehicle (EKV) on prototype missile interceptor as part of US NMD Integrated Flight Test programme, July 2000**

*Photo:* United States Ballistic Missile Defense Organization.

In addition to engineering development problems, there are doubts about whether the planned NMD system can overcome the decoys and other countermeasures (i.e., systems designed to evade or overwhelm missile defence interceptors). The BMDO has been criticized in reports produced by the both Pentagon agencies and independent experts for not testing the components of the planned system against the types of countermeasures that are expected to be available to a state with a long-range ballistic missile programme.

Following the conclusion of a deployment readiness review by the Pentagon, US President Bill Clinton announced in September 2000 that he had decided to postpone authorizing the deployment of a limited NMD system. According to Clinton, the NMD programme was sufficiently promising to justify continued development and testing; however, there was not enough information about the technical and operational effectiveness of the entire NMD system to justify moving ahead with actual deployment. The USA would instead continue an R&D programme that would permit the next president to decide whether to authorize deployment of national missile defences.

## Alternative NMD systems

Doubts about the reliability and likely effectiveness of the planned NMD system have fuelled growing interest in alternative missile defence architectures. The size and scope of the limited NMD system proposed by the Clinton Administration had been sharply criticized by Republican leaders in Congress, who argued that current plans were driven more by concerns with preserving intact the ABM Treaty than by considerations of operational effectiveness.

There are serious questions about the effectiveness and reliability of key missile defence technologies.

US President George W. Bush and Secretary of Defense Donald Rumsfeld have supported the idea of building a more robust, multi-layer NMD system. They have advocated pursuing technology development programmes that eventually could lead to the deployment of air-, sea- and space-based missile defence systems.

Experimentation on these options is prohibited by the ABM Treaty. According to Rumsfeld, the administration has consulted with key allies and will later seek agreement from Russia and China to lift the treaty s restrictions on development and testing. In the meantime, the USA is prepared to proceed with an initial near-term NMD capability based on current plans, even though the technologies remain unproven.

*Boost-phase intercept system*

There has been particular interest in the idea of developing a sea-based system to intercept missiles during the boost phase (i.e., during the powered ascent phase) of their trajectories. Such a system could be positioned relatively close to the shores of a state such as North Korea. Since it would intercept missiles before

**Summary of US theatre missile defence (TMD) programmes**

| Programme | Basing mode | System | Status |
|---|---|---|---|
| *Endo-atmospheric* [a] | | | |
| Navy Area Defense (NAD)[b] | Sea-based | Aegis cruisers and destroyers equipped with reconfigured AN/SPY-1 radar and upgraded Standard Missile SM-2 (Block˚IVA) | Low-rate initial production of Block IVA missile in FY 2001; projected FUE in FY 2003 |
| Patriot Advanced Capability-3 (PAC-3)[b] | Land-based | Mobile launcher, equipped with high-speed hit-to-kill interceptor missile, and associated X-band radar and engagement control station | Procurement of PAC-3 missiles to begin in FY 2001; projected FUE in FY 2001 |
| *Exo-atmospheric*[c] | | | |
| Navy Theater Wide (NTW)[d] | Sea-based | *Aegis* cruisers and destroyers equipped with new Standard Missile SM-3, carrying Lightweight Exo-Atmospheric Projectile (LEAP) kinetic hit-to-kill warhead, upgraded radar | Projected FUE for in FY 2010 for Block˚IC system, with contingency capability beginning in FY˚2006; Block˚II system planned as evolutionary option |
| Theater High Altitude Area Defense (THAAD) [d] | Land-based | Truck-mounted launchers equipped with high-speed hit-to-kill interceptor missiles, mobile X-band Ground-Based Radar (GBR) and command and control system | Entered into engineering and manufacturing development (EMD) phase in 1999; projected FUE for initial C1 capability in FY 2007; FUE for C2 capability in 2011 |
| *Boost-phase*[e] | | | |
| Airborne Laser | Air-based | Modified Boeing 747-400 aircraft carrying multiple laser modules to create megawatt-class chemical laser | Demonstration of laser lethality against an in-flight ballistic missile scheduled for FY 2005 |

FUE = first unit equipped

[a]˚Interception of target missile occurs inside earth s atmosphere, in the terminal phase of its flight trajectory

[b]˚The Patriot PAC-3 and NAD systems are designed to defend limited areas from short- and medium-range ballistic missiles, cruise missiles and aircraft.

[c]˚Interception of target missile occurs above earth s atmosphere, in the mid-course phase of its flight trajectory. THAAD is also able to engage missiles within the earth s atmosphere.

[d]˚The sea-based NTW and the land-based THAAD systems are designed to defend large areas from medium- and intermediate-range ballistic missiles.

[e]˚Interception of target missile occurs during the powered ascent phase of its flight.

they could deploy warheads and decoys, it would not face the target discrimination problem inherent in the mid-course intercept approach. In addition, its limited range would minimize the threat posed by the system to the intercontinental ballistic missile (ICBM) forces of China and Russia. However, Pentagon officials caution that there are significant technical obstacles to building a ship-based boost-phase interceptor. This means that a system is unlikey to be ready for deployment until after 2010.

Some analysts have suggested that a multi-layer missile defence system would cost at least $100 billion, and perhaps considerably more. Experience from the past two decades shows that missile defence programmes have encountered abnormal cost growth, much higher than the ordinary 20—30˚per cent rate of increase in the costs of strategic missile and space programmes. Concerned about the potential impact of a price shock on congressional support for NMD, administration officials emphasize that no decision has been taken on a new system architecture.

## Theatre missile defence programmes

The BMDO has developed a family of systems concept involving a combination of interoperable low- and high-altitude TMD systems (see table). They are designed to protect important overseas facilities and forward-deployed units of the US armed forces, as well as allied countries, in conflicts with adversaries which

might be armed with short- to intermediate-range (i.e., non-strategic) ballistic missiles. There is growing interest among missile defence proponents in incorporating TMD technologies the upper-tier versions of which are judged to have considerable inherent capability to intercept strategic missiles into a multi-layer NMD system.

There are several TMD development programmes under way involving international cooperation between the USA and key allies. The most mature of the collaborative programmes is the US—Israeli Arrow Weapon System (AWS), which uses a mobile two-stage interceptor missile carrying a blast-fragmentation warhead. The first Arrow-2 battery entered service with the Israeli Air Force in March 2000.

*Convergence of missile defence concepts*

In Europe, there is considerable interest in TMD systems. These systems are relatively uncontroversial, since their development and deployment would not require amending the ABM Treaty and thereby upsetting the existing framework of strategic stability. The main rationale of European TMD is to protect peacekeeping troops in areas of conflict. However, from a technical standpoint, a European TMD system could perform many of the tasks for which the United States is designing an NMD system.

In the light of European reservations about NMD, the Bush Administration has worked to erase the line between a strictly national system designed to protect the US homeland and a wider international, multi-tiered missile defence. Secretary of Defense Rumsfeld stated in March 2001 that in his view there was no meaningful distinction between national and theatre missile defences, since what is national and what is theater depends on where you live. Earlier, a senior administration

## Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty)

*Signed by the USA and the USSR at Moscow on 26 May 1972; entered into force on 3 October 1972*

The basic purpose of the ABM Treaty is to prevent the parties from deploying a nation-wide anti-ballistic missile system for defending the territory of their countries. It limits permitted missile defence systems in order to prevent circumvention of this basic purpose and to prevent the parties from being able to rapidly break out from the treaty regime.

Under the original terms of the treaty, each party was permitted two ABM deployment areas, one to protect the national capital and the other to protect an ICBM launch site. A protocol signed in 1974 limits the parties to a single deployment area.*

### Main provisions of the ABM Treaty

- limits each party to a single ABM deployment area containing no more than 100 ABM launchers and 100 single-warhead missile interceptors;
- limits the location, number and technical characteristics of permitted ABM radars;
- prohibits radars designed to give early warning of strategic ballistic missile attack from performing the function of ABM radars;
- prohibits the parties from transferring or deploying of ABM systems, or their components, outside their respective territories;
- bans the development, testing or deployment of sea-, air-, space- or mobile land-based ABM systems or components;
- does not limit air defence missiles and radars, provided that they adhere to two basic restrictions: (a) they may not be tested against strategic ballistic missiles in flight trajectory; and (b) they may not be given the technical capability to counter such missiles and their constituent elements.

The treaty has an unlimited duration, although parties have the right to withdraw from it for reasons of supreme national interests with six months notification.

*The 1997 memorandum of succession and demarcation agreement*

In September 1997 a Memorandum of Understanding on Succession (MOUS) was signed in New York by the foreign ministers of Belarus, Kazakhstan, Russia, Ukraine and the USA, pursuant to which the four former Soviet republics collectively assumed the rights and obligations of the USSR under the ABM Treaty. The MOUS has not been brought before the US Senate for a ratification vote. Some leading Republicans claim that the ABM Treaty has lapsed and is of no force and effect.

At the 1997 meeting in New York, a set of Agreed Statements was signed setting out technical parameters to clarify the demarcation line between strategic missile defences, which are covered by the prohibitions of the ABM Treaty, and non-strategic (or theatre) missile defences, which are not.

* The Soviet Union chose to deploy (and Russia continues to maintain) an ABM system around Moscow. The USA deployed an ABM system known as Safeguard at an ICBM launch silo complex at Grand Forks, North Dakota; it achieved an initial operating capability (IOC) in 1975 but was deactivated the following year.

official had proposed dropping the term national missile defence in favour of *allied* missile defence to better reflect the actual scope of US plans.

## Challenges to the ABM Treaty

The recent change of administration in Washington has resulted in a shift in the US position towards the future of the ABM Treaty.

During the Clinton Administration, the USA sought unsuccessfully to obtain Russia s agreement on amendments to the ABM Treaty that would permit the deployment of a limited NMD system but would not interfere with the basic purpose of the treaty. US officials insisted that only modest changes were needed to accommodate an NMD system consisting of a single site with 100 missile interceptors based in Alaska. 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 space-based sensors.

By contrast, President Bush has indicated that his administration is seeking to scrap the ABM Treaty rather than amend it. In a May 2001 address on missile defence, he described the ABM Treaty as an anachronism that enshrined the grim premise of mutual assured destruction. He called for negotiating a new framework with Russia that would move beyond the treaty s cold war-era constraints and allow the USA to build missile defences to counter the different threats of today s world.

In order to gain Russian cooperation in replacing the ABM Treaty, the Bush Administration reportedly is preparing to offer a package of sweeteners . These are likely to include an offer to purchase Russian-made S-300 surface-to-air missiles (also known as the SA-10) that could be incorporated into a European missile defence system. Other proposals involve holding joint anti-missile exercises and providing money to repair Russia s deteriorating early-warning radar system.

### *Russian perspectives on missile defence*

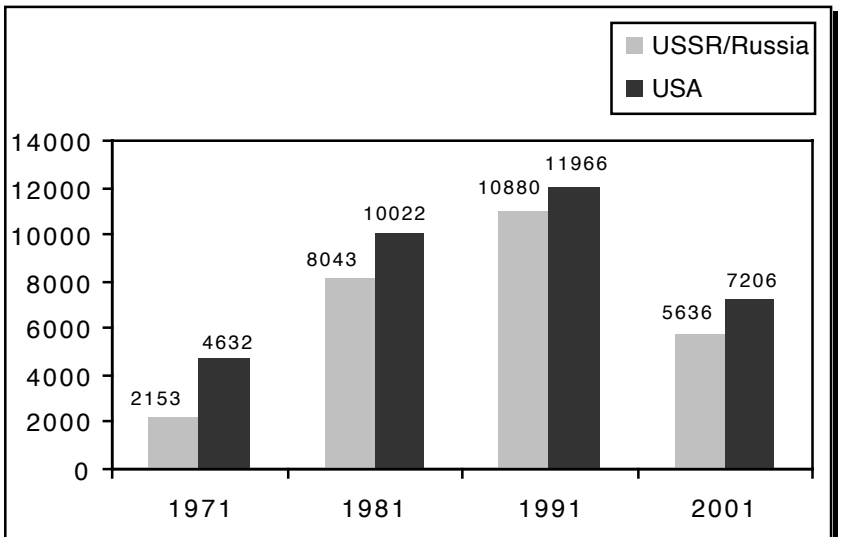
Russia has consistently ruled out the idea of amending or replacing the ABM Treaty in order to address perceived new threats.

In Russia, missile defence continues to be viewed primarily from the perspective of the US—Russian strategic nuclear balance. Washington s claims about the emerging ballistic missile threat posed by states such as Iran, Iraq and North Korea have been dismissed as largely exaggerated. On the whole, US missile defence plans are viewed as an attempt by the USA to unilaterally achieve security for itself at the expense of other countries.

Senior Russian officials have rejected President Bush s proposal to move towards a new strategic framework featuring a mixture of defence and deterrence. They emphasize that the ABM Treaty remains the cornerstone of the entire Russian—US nuclear arms control regime and warn that a US withdrawal from the treaty would lead to the collapse of that regime. The result would be a reversal of the arms control achievements of the past two decades, with the Russian and US strategic nuclear force postures becoming less transparent and more difficult to predict.

There also have been repeated warnings that Russia would respond to any unilateral US decision to deploy an NMD system with a variety of technical countermeasures. Some of these were originally developed in the 1980s as a response to SDI.

Russia s severe financial problems probably preclude it from




USSR/Russian and US strategic nuclear forces: deployed warheads, 1971—2001

*Source:* SIPRI Yearbook (various editions)

undertaking a large-scale build-up of its strategic nuclear forces, including making good on threats to deploy multiple warheads (which are banned under the terms of the 1993 START˚II Treaty) on its new single-warhead Topol-M (SS-27) ICBM. However,

One Russian response may be to re-emphasize its reliance on a launch-on-warning strategic nuclear force posture.

some analysts have expressed concern that one likely Russian response will be to re-emphasize its reliance on a launch-on-warning strategic nuclear force posture. This means that large numbers of nuclear warheads would continue to be maintained on hair-trigger alert and deployed on Soviet-era launchers coming to the end of their useful services lives, against the background of the deterioration of Russia s strategic early-warning radar and satellite networks.

## Russian alternatives to strategic missile defences

There has been a high-level dialogue between Russia and the USA regarding the threats posed by the proliferation of ballistic missiles and missile technologies.

In˚June˚2000 Clinton and Russian President Vladimir Putin issued a Joint Statement on the Principles of Strategic Stability. One point of convergence was that Clinton and Putin agreed that the international community faces a dangerous and growing threat of proliferation of weapons of mass destruction and their means of delivery, including ballistic missiles .

However, the two countries remain at odds over how best to address this threat. In general, Russian officials emphasize that the problem of missile proliferation must be considered within the framework of international legal and political non-proliferation arrangements.

*Global Control System*

In January 2000 Russia proposed the establishment of a multilateral Global Control System (GCS) to prevent the spread of ballistic missiles and missile technologies. The GCS would be open to all interested states on a voluntary basis to work out rules of conduct in the missile field and to reduce the dangers of using missiles in peacetime. Although the US response to the GCS proposal was lukewarm, the two countries agreed to discuss ways to integrate it with a US proposal for a missile code of conduct within the framework of the Missile Technology Control Regime (MTCR).

*Non-strategic pan-European missile defence system*

In June 2000 President Putin put forward a proposal for a non-strategic, pan-European ballistic missile defence system. The proposal envisions wide-ranging cooperation between Russia and the European member states of NATO as well as other countries in Europe.

To date the Russian proposal contains few details. It reportedly involves a mobile, land-based system that would use interceptor missiles to destroy incoming warheads. This could be based on the Russian S-300 missile system or its successors; since it involves non-strategic missile defences, the system would not violate the ABM Treaty. According to Russian Defence Ministry officials, the main idea is to create pan-European mobile missile defence units that can be moved to areas that might be faced with a missile threat. However, they point out that the proposal calls for first holding expert consultations to assess whether a missile threat to Europe actually exists.

For their part, US officials have said that the proposed pan-European system is not a substitute for NMD since it cannot defend US territory.

## International concerns

The missile defence debate continues to raise concern in China, which sees the deterrence credibility of its small strategic nuclear force as being jeopardized by the deployment of US missile defences. This force currently consists of about 20 DF-5 ICBMs. There is speculation that the USA s missile defence plans have given an impetus to China s long-term strategic nuclear force modernization programme.

In addition, China appears to be concerned about the political implications of cooperation between the USA and Taiwan on theatre missile defences. It worries that a missile defence shield will reduce its leverage over the island and might encourage greater assertiveness among pro-independence Taiwanese political factions.

*The European dimension*

In Europe, US allies and other states have expressed serious concerns about the potential negative consequences of the USA s missile defence plans for international security. They have expressed particular concern that the abandonment of the ABM Treaty by the USA would complicate relations with Russia and might spark a new nuclear arms race. The NATO allies also have

worried that a US NMD shield would contribute over the long term to decoupling transatlantic security by creating a situation in which Europe would be vulnerable to missile attack emanating from a regional trouble spot such as the Middle East while the USA would not be. France and Germany have been especially vocal in their disapproval of the proposed NMD system.

The Bush Administration has launched intensive consultations with US allies to explain its approach to missile defence and the ABM Treaty. It has also reiterated its predecessor s pledge to share missile defence technology with the USA s friends and allies . European resistance to US missile defence plans appeared to be softening in the spring of 2001.

However, at a meeting of NATO foreign ministers in May, the alliance 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. Several European countries expressed scepticism about whether NATO faced a serious risk of missile attack. The disagreement highlighted the gap in threat perceptions that separates the USA from much of the rest of the alliance.

## The ABM Treaty and nuclear force reductions

The ABM Treaty forms the central pillar of the traditional approach to nuclear arms control that emerged during the cold war. In signing the treaty, the USA and the Soviet Union came to accept the notion that strict limitations on missile defences were a precondition for restraining the nuclear arms race.

This relationship between the limitations on strategic defences imposed by the ABM Treaty and the prospects for reducing offensive nuclear arms is being questioned in the USA. There is a political consensus that the US nuclear force posture needs to be adjusted to bring it into line with changed political and financial circumstances. However, the Bush Administration has expressed interest in making this adjustment outside the framework of traditional arms control treaties, perhaps in the form of unilateral measures

Upon taking office Bush ordered the Pentagon to undertake a comprehensive defence review. Among other tasks, this review will examine the USA s nuclear targeting strategy and the number of nuclear weapons needed for deterrence.

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 . He also said that he would consider lowering the alert rate of US ICBMS, which remain primed for rapid launch. Some analysts have interpreted these statements as an attempt to overcome concern in the capitals of US friends and foes alike that the administration s missile defence plans will reverse the post-cold war trend towards lower nuclear force levels.

Earlier, in November 2000, President Putin proposed that Russia and the USA should reduce their strategic nuclear arsenals below the 1500-warhead level envisioned in a proposed START˚III agreement. 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. Putin added, however, that any deeper cuts in nuclear forces would depend on progress in preserving and strengthening the ABM Treaty.

## Nuclear arms control at a crossroads

The debate over national missile defence and the future of the ABM Treaty has moved to the forefront of the nuclear arms control and non-proliferation agenda. The likely outcome of that debate is difficult to predict at this point. However, it is clear that nuclear arms control is approaching a watershed. The specific choices to be made in the near future will for some time to come shape the possibilities for elaborating a global nuclear order marked by restraint and further reductions in nuclear weapons.



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