Contents

Purpose ................................................................................................................................. 3
Method ................................................................................................................................. 3
Description of sources ....................................................................................................... 4
Topics for discussion ......................................................................................................... 4
Disposition ........................................................................................................................ 4
Introduction ......................................................................................................................... 6
Ballistic Missile Defense ..................................................................................................... 9
  US Ballistic Missile Defense: Organization and technology ................................................. 9
    Block 2004-2005 ............................................................................................................ 12
    Block 2006-2007 .......................................................................................................... 13
  US Ballistic Missile Defense System components ............................................................ 14
  Chinese Ballistic Missile Defense: Organization and technology ..................................... 16
  Russian Ballistic Missile Defense: Organization and technology ..................................... 17
Pre-2002 historical evolution of the Ballistic Missile Defense System in a political context .......... 20
  United States of America .................................................................................................. 20
    The 1972 Anti-Ballistic Missile Treaty ......................................................................... 20
    The Reagan era ............................................................................................................. 21
    The end of the Cold War and the “New World Order” .................................................. 22
  US collaboration with foreign countries on strategic defenses ........................................... 25
  China .................................................................................................................................. 26
  Russia ............................................................................................................................... 29
The post-2002 BMD debate ............................................................................................... 31
  An increased international interest in Ballistic Missile Defense ........................................ 32
Russian and Chinese ambitions and concerns............................................................ 33
US space policy as an offshoot of the missile defense Program ........................................... 36
Russia and the post-ABM Treaty period .................................................................................. 37
Prospects of a US-Russian cooperation in Missile Defense..................................................... 38
Criteria for a successful joint US-Russian BMD-effort............................................................. 39
China’s reaction to US withdrawal from the ABM Treaty....................................................... 41
Discussion and Conclusions................................................................................................. 44
Sources.................................................................................................................................. 46
Purpose

The aim of this paper is to discuss ballistic missile defense (BMD) systems and their role in international relations. Different types of technological advancement are known to have had and continue to exert a massive impact on international relations. The discussion of BMD is nothing new, having begun already in the early 1960s. However, it has reemerged as a major political issue in the late 1990s and remains relevant to this day. My interest in the correlation between technological innovation/improvement and changes in the international political landscape is deep. I have therefore chosen the impact of BMD on global politics as the subject of discussion in my paper.

Method

Of the two main methods concerning collection and studies of data relevant to the thesis I have used the qualitative text analysis. In the kind of research I have conducted for the paper I considered detailed studies of texts (articles, research projects) as essential in order to be able to grasp the issue and present a conclusion of my own. Diligent studies of text paragraphs while placing them in the right context is at the core of the qualitative text analysis- method (Esaiasson m.fl, 2002, p.233). This method requires active, not passive reading, where the reader poses questions to the text and anticipates whether or not the text can answer those or whether or not the reader himself can (Esaiasson m.fl, 2002, p.233-234). Some of the questions which need to be kept in mind when studying a text are: What is the point the author is trying to make? What is the author actually saying? Is his conclusion supported by the arguments? What are his real arguments and on what premises to they lie? (Esaiasson m.fl, 2002, p.234). In order to be able to answer these the text has to be read multiple times, using both quick and detailed reading (Esaiasson m.fl, 2002, p.234). These recommendations constitute the foundation for analyzing complex texts (Esaiasson m.fl, 2002, p.234).

Missile defense is not even a theme on the Swedish political agenda which explains the complete lack of debate regarding it. Therefore, I did not consider interviews or inquiries as valuable means of obtaining information.

This paper was prepared and written by myself. Regular consultations were held between my tutor and me for reporting the progress I have been making on the paper as well as the problems I have encountered along the way.
Description of sources

The sources I have used for finding information needed for the paper have consisted of written literature and the internet. I deem the utilized sources credible. However, some of the main sources are official government-sponsored sources, where government interests are represented and protected. Therefore, those sources should be critically observed. Most of the information on Chinese strategic defenses was obtained from US documents and reports due to the lack of Chinese sources of information on the subject. A lot of the information used in the paper comes from internet websites. Since addresses of some of the websites are long and impractical to have in the text as references I have labeled them “Source” 1-7. At the end of the thesis under the heading “Sources” the real website addresses can be found. I have also printed out a lot of the material from the used websites in order to be able to provide page numbers so the reader can easily find the information on his own.

In the thesis I have only used secondary sources of information.

Topics for discussion

In the paper I discuss the following questions:

1. Which are the actors pursuing different types of BMD, and what are the underlying reasons for their quest?

2. How has the BMD-issue affected international relations over time and what effect will it have on the same in the future?

Disposition

After describing the purpose, method, sources of information used, and the main focus of this paper I set the background for further discussion of the topic in the introductory chapter. There I describe the impact new technology has had on international relations during the course of history and I present the current hot potato in the strategic discussion: the Ballistic Missile Defense (BMD), and the importance of BMD-discussion taking place now rather than the future. Then follows a presentation of the BMD-technology and the organizational structures currently available to the three main players in the field: the United States of America, China, Russia. These chapters, under the main heading “Ballistic Missile Defense”, contain detailed technological information regarding the countries` BMD-systems.

The discussion of the technological aspect of Ballistic Missile Defense is succeeded by the description of the historical evolution of the BMD-systems set against a political backdrop. Here,
also, the chapter “Pre-2002 Historical Evolution of the BMDS in a Political Context” is divided into a USA, China, Russia parts.

What follows is a chapter entitled “The Post-2002 BMD-debate” which is also the most important piece of the paper since it deals with the issue after the 2002 US withdrawal from the highly restraining Anti-Ballistic Missile (ABM) Treaty of 1972. There I discuss the divided world opinion as regards strategic defenses, Russian and Chinese concerns about US plans, as well as their own goals and ambitions in the field.

I conclude the thesis with a discussion-part of my own, where I present my view on the issue and why the United States of America is not to be allowed to pursue “invulnerability” without debate and concrete measures taken by the international community to stop it.

After the “Discussion”-chapter follows the list of sources I have used to obtain information necessary for the thesis.
Introduction

Scientific and technological advancement has marked the advancement of human kind. Some might even argue that technological innovation and improvement are the main driving forces behind the progress of man toward an ever more enlightened age. Technological progress seems to be unstoppable, with countless innovations and improvements spinning off of each technological novelty. Scientific and technological progress affects our everyday lives, both on an individual and a state level. From the point of view of a political science student technology is primarily divided into that used for peaceful purposes and that used in the military sphere. It is the latter that I am concerned with in this paper, because technology does indeed influence politics on a global level.

This has been evident since the beginning of time, especially in the way new inventions affected the conduct of war: gunpowder, canons, airplanes, tanks, battleships, nuclear weapons, satellites have all marked the transformation of political and military thinking. The later major inventions such as the nuclear bomb, satellites, missile technology, and now ballistic missile defense, exert a variety of impacts on the global political landscape. These strategic assets have multiple purposes. They serve as powerful political tools in negotiations, where one party is given an edge by the latest technological progress. Negotiations are often held in order to limit the quantity or quality of new technology being deployed for military purposes, but often during the talks even newer items come along and radically change the premises for the talks. US-Soviet Union strategic limitation talks of various kinds during the Cold War are an example of this.

These strategic advantages are used as means of coercion by those who possess them. They are great instruments of bullying and blackmail. However, they also serve the purpose of deterrence. During the Cold War nuclear weapon build-ups by the two opposing ideological blocs were conducted toward this goal, referred to as Mutual Assured Destruction (MAD). MAD is the point in strategic build-ups where one party cannot destroy the entire strategic arsenal of its opponent in a first strike, and therefore must brace itself for a retaliatory attack which would inflict unacceptable damage upon it. Both the USA and the Soviet Union could destroy each other many times over (“overkill”) and this is deemed as the primary reason for there never having erupted a nuclear war between the two.

The pacifying influence of nuclear weapons on international relations can be debated, but they have managed to establish themselves as “weapons of peace”, notwithstanding the fragility of a “nuclear peace”.

The latest of the agenda-shaping, relations-altering weapons is not even a weapon in a
conventional sense of the word. Ballistic missile defense, as the name says it, has a stated purpose of protecting one or several parties from a variety of threats. For instance, the USA, the leading country in the field, officially states that it seeks to protect itself, its allies and friends from a nuclear weapon launch by a “rogue” state, from an accidental launch, among others. In order to do that it is developing both a national missile defense (NMD) and a theater missile defense (TMD). The NMD’s goal is to protect the territory of the United States of America through an integrated, multilayered shield, whereas the main purpose of a TMD is the protection of US forces stationed abroad as well as that of US allies and friends.

Neither of the two systems is nearing a completion, not even mentioning perfection, and ballistic missile defense has indeed to be near-perfect in order for it to be efficient. In spite of that the debate about it is very tempered. Why such controversy over something with a very limited capability today? The answer is rather simple: tomorrow might be too late. Ballistic missile defense, when and if completed, would be far more than just an impressive technological achievement. It offers absolute security. However, it is not the right to security of every nation that is the problem, it is the “absolute”-part of it. Absolute security is destabilizing because it provides one party with an ability to coerce, blackmail, invade, occupy and exploit others without the fear of retribution. The risk of this happening increases with the tendency of states to intervene and interfere in other states’ affairs.

Today, the situation in the world is such that the country most vigorously pursuing ballistic missile defense on all levels, among others destabilizing strategic weapons, is also the country most prone to interference and intervention in other countries and regions of the globe. In June 2002, the United States of America had officially abandoned the 1972 Anti-Ballistic Missile Treaty (ABM) agreed upon with the Soviet Union. The ABM-treaty did much more than just set rules and regulations for deployment of limited ballistic missile defense. By coming into existence it recognized the potential and the dangers of this strategic asset. According to the ABM-treaty USA and the Soviet Union were only allowed to protect two sites within their territories. Later, the treaty was amended so as to limit protection to a single site, where USA and the Soviet Union chose their respective capitals.

As paradoxical as it may seem, the mutually agreed protection of a single site instead of more or even of all of the territory was a stabilizing move. The MAD-balance was not disrupted.

Now, the United States of America has left the most important international agreement concerning strategic defenses, because it was hindering its pursuit of absolute security. Russia and China, the other two primary actors on the BMD-stage, have furiously campaigned against a US withdrawal from the treaty. Their attempts have failed.
Since June 2002 a new strategic map of the world is being drawn. A new kind of strategic competition is on: the quest for absolute security by one country vs. the responses of others. Knowing the aggressive interventionist nature of US foreign policy, the country’s sense of a “mission” in the world, and its crystal clear hegemonic ambitions, all combined with an impenetrable ballistic missile defense make the United States of America the gravest danger to global security and stability.
Ballistic Missile Defense

US Ballistic Missile Defense: Organization and technology

The United States of America is the country most vigorously pursuing a ballistic missile defense on all levels. Russia, China, Israel and others have either developed on their own or in cooperation with others partial strategic defenses. Since the USA is the leading player in this field, and since information about its program is easy to obtain from open sources I will describe how the US Missile Defense Agency (MDA) goes about developing and fielding strategic defenses and the technology it uses. Missile Defense Agency is a US government agency responsible for developing the national and theater ballistic missile defenses. It has an annual budget of around $ 7-8 billion (http://www.mda.mil/mdalink/html/faq.html, 16/03/2006).

In a nutshell, the purpose of ballistic missile defense (BMD) is to intercept and destroy incoming enemy missiles. The US Department of Defense (DoD) considers the development and fielding of such strategic defenses one of its major challenges. The altitude, speed, and range of ballistic missiles make them difficult to defeat. Therefore, the goal of the MDA is to develop a system able to destroy hostile ballistic missiles in each of the three phases of flight: boost, midcourse, and terminal (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.1). This capability necessitates accurate missile identification and tracking with sophisticated sensors; advanced interceptor missiles or directed energy weapons (lasers); and quick reaction time provided by reliable command and control, battle management, and communications (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.1).

The USA has already fielded a limited BMD-capability which provides protection from short- and medium-range ballistic missiles using Patriot Advanced Capability-3 (PAC-3) and Aegis Ballistic Missile Defense Standard Missile-3 (SM-3). The limited BMD-capability currently deployed is also capable of engaging intermediate-range and intercontinental ballistic missiles in the midcourse phase utilizing ground-based interceptors (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.1). The command and control, battle management, and communications network is the nervous center of the Ballistic Missile Defense System through which the different layers of strategic defense are integrated (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.1).

However, the US plans for strategic defense do not stop at this initial capability. The limited initial capability is constantly to be upgraded and improved through MDAs extensive research and development program. For the period 2006-2007, the MDA seeks to expand the breadth and depth of the initial capability by adding more networked, forward-deployed sensors, and

The Ballistic Missile Defense System (BMDS) deployed by the USA is comprised of elements and components which are integrated to achieve best possible performance against a full range of potential threats. The 1972 Anti-Ballistic Missile Treaty restricted some of these elements to act as independent systems, but the 2002 US withdrawal from the treaty enabled the Missile Defense Agency to enjoy the benefits of integrating these elements (www.mda.mil, “A day in the life of the BMDS”, 3rd edition p.4). A successful fielding of strategic defenses demands a joint effort of the Missile Defense Agency, the Office of the Secretary of Defense, the US Combatant Commanders, the Military Services, the Joint Chiefs of Staff, other federal agencies, more than 17 major defense contractors, the Congress and US allies and friends (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.4).

Currently, the MDA is focused on the following objectives:

1. “Complete development, initial fielding, and verification of the initial capability.

2. Execute an increasingly complex test program.

3. Provide the U.S. Combatant Commanders with support and sustainment for the Ballistic Missile Defense System.

4. Develop a totally integrated capability during 2006 and beyond based on a strong core research and spiral development program.


In December 2002, US President George W. Bush ordered the Department of Defense to begin fielding limited missile defenses to meet the near-term ballistic missile threat to US territory, deployed forces, US allies and friends. The Missile Defense Agency responded to President’s directive by fielding the initial Ballistic Missile Defense System by late 2004. This initial capability can intercept and destroy an incoming ballistic missile before it can strike any of the 50 US states (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.5). The initial BMDS is just a foundation which is continuously being developed and upgraded.
The US plan is that “an integrated, layered Ballistic Missile Defense System will complicate our adversaries’ efforts and reduce the military utility of ballistic missiles, discouraging the proliferation of such technology, as well as providing an effective deterrent” (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.5).

The key to success in missile defense is development of the right technologies into sensor and weapon components to perform numerous missile defense functions (target detection, discrimination and acquisition). Efforts directed into integration of the Ballistic Missile Defense System need to be paralleled by an advanced Command and Control, Battle Management, and Communications architecture. This architecture must be capable of coping with enhanced capabilities being integrated into the system in the future, and the BMD must be ready to provide operational capability while preserving the system`s ability to function as a test bed (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.5). Therefore, systems integration in almost all aspects of BMDS is vital (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.5).

In January 2002, the US Defense Secretary Donald Rumsfeld, laid down some missile defense priorities for the DoD:

2. Employ a layered Ballistic Missile Defense System to intercept missiles of all ranges in all phases of flight.
3. Develop and test technologies, use prototype and test assets to provide early Ballistic Missile Defense System capability, and improve the effectiveness of deployed capability by inserting new technologies as they become available or when the threat warrants an accelerated capability.

In order for the MDA to be able to realize these priorities, the agency launched a single development program for all work needed to design, develop, and test the elements of an integrated BMDS. The MDA is using an evolutionary acquisition approach for the Ballistic Missile Defense System that develops an initial capability after which it evolves that capability through block upgrades (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.5-6). The MDA work on the BMDS is divided into two-year blocs, where the work conducted in each bloc will build upon the development from the previous blocs (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.6).
The Missile Defense Agency is carrying out a capability-based acquisition strategy in order to develop and field the Ballistic Missile Defense Program according to the direction set forth by the Secretary of Defense. A capability-based approach allows the development of capabilities and objectives based on technology feasibility, disciplined engineering analyses, and the Agency’s understanding of the threat. The very foundation of the MDA’s work is an aggressive research, development, test and evaluation effort guided by capability-based planning and utilizing spiral development (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.6). Spiral development supports an evolutionary acquisition approach to missile defense in which there is no ultimate or fixed missile defense architecture, but instead a continued emphasis on improving the effectiveness of defensive capabilities over time (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.6). “The MDA uses knowledge-based decision making as an implementation mechanism for capability-based acquisition” (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.6).

All of the engineering development for the BMDS is defined, managed and integrated by the Missile Defense Agency’s System Engineering Directorate (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.8). A successful single, integrated BMDS is not only dependant upon development of the right technologies to perform various missile defense functions (target detection, discrimination, acquisition), but also on achieving a high level of synergy among multiple, geographically dispersed sensor and weapon components (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.8).


**Block 2004-2005**

During 2005 MDA enhanced the initial capability by adding sensors and interceptors, accomplishing the following:

1. “10 total Ground-Based Interceptors, with two at Vandenberg Air Force Base, California and eight at Fort Greely, Alaska

2. Upgraded Cobra Dane radar (Alaska)
3. Upgraded Beale radar (California)

4. 10 Aegis Long-Range Surveillance and Track Destroyers

5. Two Aegis Engagement Cruisers with Standard Missile-3 Interceptors

6. 277 Patriot Advanced Capability-3 missiles


A number of goals were accomplished by the Missile Defense Agency in 2005: “The Ground-Based Missile Defense Program successfully completed two more interceptor emplacements, an interceptor flight test, and a static fire test. The Sea-Based X-Band Radar was completed, transported, achieved satellite tracking, accomplished sea trials, and made the transit from the Gulf of Mexico to the Pacific. The Terminal High Altitude Area Defense Program completed a successful flight test and a tracking exercise after six years of intensive reengineering effort. The Patriot Advanced Capability-3 Program achieved another successful intercept test. The Aegis Ballistic Missile Defense Program achieved a sixth successful “hit-to-kill” intercept flight test and continued Standard Missile-3 ground testing. The Airborne Laser Program concluded initial flight tests of its aircraft, YAL-1A, and the first phase of laser testing, culminating in a full duration laser at operational power of the main engagement laser” (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.12).

**Block 2006-2007**


Development of new and evolving technologies is supported by the fielded Ballistic Missile Defense System Test Bed. The ability to test and operate parallel with each other allows the Missile Defense Agency to pursue a wide range of flight and ground test scenarios in a diverse set of basing modes and collect an increasing amount of data. With future progress the test bed will enable Missile Defense Agency testing to become ever more realistic and representative of operational testing (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.10).

Development of the missile defense capacity requires the involvement of US Combatant Commanders and the Military Services. The Missile Defense Agency, therefore, cooperates with the Combatant Commanders and the Military Services through a warfighter involvement
process and a range of other venues such as exercises, war games, seminars, and other events (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.11). This process creates opportunities to work together with warfighters in defining, advocating, and prioritizing requirements for additional BMDS capabilities. The involvement process helps warfighters develop operational concepts, formulate logistical sustainment policies and procedures, conduct training, and facilitate timely fielding of missile defense capability (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.11-12).

The Missile Defense Agency is also fielding a Distributed Multi-echelon Training System to enable crews, staffs, supporting headquarters, and command authorities to maintain expertise in the challenges facing them as they operate the Ballistic Missile Defense System. Participants in the program will train in world-wide locations on operational equipment (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.12).

US Ballistic Missile Defense System components

The US Ballistic Missile Defense has several components. What follows is a brief description of those.

The Command and Control, Battle Management, and Communications component is the backbone of integrated, layered Ballistic Missile Defense and serves as the nerve center of the BMDS by enabling the flow of information vital for the survival of the USA, its friends, and allies (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.15).

In the operations of the initial BMDS the primary role of Aegis Ballistic Missile Defense (ABMD) has been that of a forward-deployed sensor being deployed on ABMD-capable destroyers with the aim of extending the battlespace and providing early warning of an intercontinental ballistic missile launch, as well as transmitting track data to the Ground-Based Midcourse Defense command center via the BMDS (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.17). Since 2005, Aegis Ballistic Missile Defense also contains an emergency engagement capability with two ABMD-Cruisers being equipped with the Standard Missile-3 Block 1, capable of intercepting short- and medium-range ballistic missiles (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.17). As technology evolves the mission of the Aegis Ballistic Missile Defense within the BMDS will expand (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.17).

The Airborne Laser is a developmental boost-phase component of the US BMDS. Its role is to detect, track, and destroy enemy ballistic missiles soon after they are launched. “The Airborne Laser will represent the world’s first use of a directed energy weapon system in an airborne
Ballistic Missile Defense System **Sensors** and **radars** form a crucial part of the overall BMDS. One of the radars worth mentioning is the Transportable, Forward-Based X-band Radar which detects ballistic missiles in early stages of their flight and provides precise tracking information for use by the BMDS (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.19).

The Missile Defense Agency is also pursuing the space-based sensor component of a layered Ballistic Missile Defense System to detect, track, and intercept ballistic missiles. The **Space Tracking and Surveillance System** will employ optical and infrared sensors to detect and track ballistic missiles from launch through midcourse flight and eventual intercept or reentry. The system, consisting of satellites and ground stations, will also be added a capability to discriminate lethal warheads from non-lethal objects such as decoys (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.21).

The **Ground-Based Midcourse Defense Program** is developing and fielding a capability to defend US territory against intermediate- and long-range ballistic missile attacks in the midcourse phase of flight (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.25).

The **Terminal High Altitude Area Defense (THAAD)** component will provide the Ballistic Missile Defense System with rapidly deployable ground-based missile defense elements that deepen, extend, and complement the BMDS to enable any Combatant Commander to defeat ballistic missiles of all types and ranges while in all phases of flight (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.27). THAAD is a land-based component which is able to shoot down a ballistic missile, both inside and just outside of the atmosphere, using “hit-to-kill” technology (destroying the incoming missile by hitting it directly), providing regional or limited area terminal defense (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.27). THAAD provides an effective defense against ballistic missiles carrying weapons of mass destruction by making it probable that their lethal payloads will burn up before reaching the ground (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.27).

The purpose of the **Multiple Kill Vehicles** is to deny Intercontinental Ballistic Missile (ICBM) threat clusters in the midcourse phase of flight with a single engaging interceptor missile. Utilizing data from existing and planned sensors and algorithms, Multiple Kill Vehicles payloads are able to attack the potentially large number of credible targets in a threat cluster, significantly improving the probability of a kill in favor of the defender (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.29).
Patriot Advanced Capability-3 (PAC-3) is referred to as the most mature element of the Ballistic Missile Defense System. It is a land-based system and is considered to be the best defense available against short-range ballistic missiles. The system was deployed to the Middle East during the US invasion of Iraq in 2003 where its success in engaging all hostile ballistic missiles within its scope of operation was total (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.31). Even though the US Army is now responsible for Patriot Advanced Capability-3/Medium Extended Air Defense System combined aggregate development program, the Army and the Missile Defense Agency continue to work together to ensure the successful integration of this element’s capabilities into the BMDS (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.31).

“The Kinetic Energy Interceptor program will develop next-generation, mobile multi-use intercept capabilities to destroy medium-range, intermediate-range and intercontinental ballistic missiles. Land-mobile or sea-mobile capabilities will use hit-to-kill technologies and a high-acceleration booster to engage ballistic missiles in boost, ascent, and midcourse phases of flight” (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.33).

The Missile Defense Agency’s Deputate for Advanced Technology “identifies and develops high-payoff technologies, whose developmental risk levels are proportionate with their potential benefits” (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.35). These are developed by using spiral development within two-year bloc upgrades. The Agency invests in technology which offers both evolutionary and revolutionary improvements with a potential for major returns to the Ballistic Missile Defense System (www.mda.mil, “A day in the life of the BMDS”, 3rd edition, p.35).

Chinese Ballistic Missile Defense: Organization and technology

While Chinese policy as regards ballistic missile defenses in general as well as its own BMD-posture has been widely debated and described, little is written about the technology of the Chinese strategic defenses in open sources. According to the annual Pentagon report from 2005 on Chinese military power, in August 2004 China received the final shipment from Russia of four S-300PMU-1/SA-20 surface-to-air missile (SAM) battalions. “China has also agreed to purchase follow-on S-300PMU-2, the first battalion of which is expected to arrive in 2006” (www.missilethreat.com, China). With an advertised intercept range of 200 km, the S-300PMU-2 provides increased lethality against tactical ballistic missiles along with some electronic benefits (www.missilethreat.com, China).

According to the same report, China is also pursuing an active counterspace policy. The report states that China “can currently destroy or disable satellites only by launching a ballistic missile
or space-launch vehicle armed with a nuclear weapon”, but that it is pursuing various other
anti-satellite (ASAT) options (www.missilethreat.com, China). China is investing in research to
develop ground-based laser ASAT weapons, and, according to the US Defense Intelligence
“these weapons may pose a legitimate threat to American satellites, either to destroy them, or
to use lower-energy lasers to blind sensors on low-Earth orbiting satellites”
(www.missilethreat.com, China). However, it is not clear whether or not China actually tested
that capability (www.missilethreat.com, China).

As Taiwan began deploying some limited missile capabilities in hope of deterring China`s
massive short-range ballistic missile threat, China is pursuing short-range ballistic missile
defenses in order to cancel out the Taiwanese response and preserve strategic superiority
(www.missilethreat.com, China). These missile defenses are based in part on Russian versions
which China continues to purchase, including the S-300V and S-300PMU, which it tests, very
likely deploys, and reverse-engineers to develop their HQ-series of missiles
(www.missilethreat.com, China).

The December 2004 issue of Jane`s Missiles and Rockets noted that China is developing two
versions of the FT-2000 air and missile defense system, namely the FT-2000A and FT-2000B
(www.missilethreat.com, China). The full system, which China hopes to sell around the globe,
would include a “passive radar”, twelve launchers with one missile each, a single support
station, and three slave and relay stations (www.missilethreat.com, China). The A and B versions
differ in range and capability, and are based on the Chinese HQ-2 and HQ-9 respectively
(www.missilethreat.com, China).

In 2004 the PLA Daily reported that China had tested an interceptor for its S-300P (SA-10
“Grumble”) air and missile defense system (www.missilethreat.com, China). Some 120 S-300
systems were sold to China by Russia, but China is also developing indigenous versions, the HQ-
10 or HQ-15, together with more advanced missile interceptors which incorporate technology
acquired from the American Patriot system, the HQ-9 and the FT-2000 (www.missilethreat.com,
China).

**Russian Ballistic Missile Defense: Organization and technology**

The components of Russian strategic defense (missile defense, the early-warning system, space
surveillance, and anti-satellite systems) are included into the 3rd Space and Missile Defense
Army, which constitutes a part of the Space Forces (http://russianforces.org/sprn/). “The Space
Forces are a separate branch of Russia`s Armed Forces, subordinated directly to the General
Staff” (http://russianforces.org/sprn/).
The Army is responsible for “continuous observation of missile launches and space objects and delivering early-warning information to the command centers of the Supreme High Command and General Staff, as well as for space surveillance and defense of Moscow from ballistic missiles and their warheads” (http://russianforces.org/sprn/).

As of March 2006, the space component of the Russian early-warning system includes three operational satellites: two on highly-elliptical orbits (HEO) and one on a geostationary orbit (GEO) (http://russianforces.org/sprn/).

The particular configuration of the HEO satellites allows them to maintain 24-hour coverage of the US territory. However, the reliability of this coverage is rather low (http://russianforces.org/sprn/).

The land-based part of the early-warning system includes eight stations, also referred to as radio-technical nodes (ORTU). “Each of them includes one or several radars, which transmit information to the command center in Solnechnogorsk. Five of the eight stations are located outside of Russia” (http://russianforces.org/sprn/). Complementing the dedicated early-warning radars is the Don-2N radar of the Moscow missile defense system which is also used for early-warning (http://russianforces.org/sprn/).

The A-135 Moscow missile defense system is operated by a division of the 3rd Army. The system’s main command center and the battle management radar are located in Sofrino (Moscow Oblast) (http://russianforces.org/sprn/). The system contains the Don-2N battle-management phased-array radar, command center, and interceptors of two types: 68 short-range 53T6 (Gazelle) and 32 long-range 51T6 (Gorgon) (http://russianforces.org/sprn/). These interceptors are deployed in silos around Moscow at several sites. The Moscow missile defense system was accepted for service in 1995, while the last test launches of its interceptors were conducted on 2 October 2002 (51T6) and 29 November 2004 (53T6) (http://russianforces.org/sprn/).

The space surveillance system is run by a space-surveillance division of the 3rd Army. The system uses the early-warning radar network to monitor objects on low-earth orbits and to determine the parameters of their orbits (http://russianforces.org/sprn/). The space surveillance network also includes the Krona complex at Zelenchukskaya in the North Caucasus, which includes dedicated X-band space surveillance radars (http://russianforces.org/sprn/).

In order to monitor objects on high-altitude orbits, the space-surveillance system uses optical observations. The most important optical observation station, Okno, is located in Tajikistan (http://russianforces.org/sprn/). Its telescopes facilitate detection of objects at altitudes of up to 40,000 km (http://russianforces.org/sprn/). The station became operational in 1999. Space-
surveillance assignments are also given to observatories of the Russian Academy of Science (http://russianforces.org/sprn/). The Russian anti-satellite system was accepted for service in 1979 but withdrawn from it in 1994 (http://russianforces.org/sprn/).
Pre-2002 historical evolution of the Ballistic Missile Defense System in a political context

**United States of America**

The origins of the US missile defense program are intimately connected to the Nazi missile program of World War 2. Discovering the German plans for the world’s first intercontinental ballistic missile (ICBM) after the war, the US Army Air Forces began in-depth studies of interceptors that could destroy incoming enemy ballistic missiles. In the aftermath of these discoveries the US Army began similar work (Source 1, p.1, 16/03/2006). The first Soviet missile defense ambitions also date from the early days of the post-war period (Source 1, p.1, 16/03/2006).

Until 1950s ballistic missile defenses were not a top US priority. US progress of the 1950s in developing long-range missiles combined with evidence that the Soviet Union was developing the same capability, intensified US efforts to develop missile defenses (Source 1, p1, 16/03/2006). In 1958, US Secretary of Defense Neil H. McElroy put the responsibility for developing strategic defenses on the Army, and until the early 1980s the Army remained the biggest proponent of missile defenses (Source 1, p.1, 16/03/2006).

The “Nike Zeus”-missile’s first successful intercept of a dummy ICBM warhead in July 1962, stimulated the Army to push for the deployment of a national missile defense system (Source 1, p.1, 16/03/2006). Robert McNamara, the US Secretary of Defense, opposed such a deployment and any other strategic defense initiative which did not fit in the context of strategic nuclear deterrence (Source 1, p.1, 16/03/2006). By the mid-1960s the Soviet Union began fielding its own missile defenses, and the US President Lyndon Johnson and Secretary McNamara could not convince them to stop. Johnson retaliated by ordering the deployment of the “Sentinel” missile defense system whose purpose was to provide population protection against a light missile attack (Source 1, p.1-2, 16/03/2006).

**The 1972 Anti-Ballistic Missile Treaty**

Following Richard Nixon’s victory in the presidential election of 1968, he initiated a review of US strategic requirements. As a result of the review, Nixon refocused the US missile defense deployment so that its primary purpose would be to protect US deterrent forces. He renamed the system accordingly to “Safeguard”. The US congress approved the deployment of the “Safeguard”-system in August 1969, two months after Nixon had invited the Soviet Union to discuss reductions in strategic arms (Source 1, p.2, 16/03/2006).
The first round of the Strategic Arms Limitation Talks (SALT) began in November 1969, and just over two years later these talks resulted in the Anti-Ballistic Missile (ABM) Treaty of 1972 (Source 1, p.2, 16/03/2006). This landmark agreement limited the USA and Soviet Union to two missile defense sites, each one with no more than one hundred interceptors. The 1974 protocol to the ABM-Treaty reduced the number of protected sites to just one (Source 1, p.2, 16/03/2006). The protocol came at a time when the USA was finishing its one “Safeguard” site near Grand Forks, North Dakota, and in February 1976, shortly after it became operational Congress ordered the Defense Department to close down the facility (Source 1, p.2, 16/03/2006).

A major problem with “Safeguard” was that its missiles had to carry nuclear warheads in order for them to be efficient. Therefore, from 1976 until the early 1980s, the main objective of the Army`s missile defense program was to develop interceptors which did not necessitate nuclear warheads (Source 1, p.2, 16/03/2006). By the early 1980s, the Army had succeeded in developing the sensor and guidance technologies that would enable a defensive missile to destroy an attacking warhead by physically colliding with it. This capability was demonstrated by the Army in the Homing Overlay Experiment (HOE) in June 1984 (Source 1, p.2, 16/03/2006).

Parallel with the US Army`s development of hit-to-kill interceptor technology the Soviet Union was improving its offensive missile capabilities, even though the USA was defenseless against already existing Soviet missiles. In the early 1980s some strategic analysts began voicing their worry that the Soviet Union had acquired a first strike capability that would allow them to neutralize US strategic forces and still have enough nuclear weapons to destroy US cities (Source 1, p.2, 16/03/2006). This resulted in the Joint Chiefs of Staff recommending President Ronald Reagan in February 1983 that the US begin placing greater emphasis in its strategic plans on developing missile defenses (Source 1, p.2-3, 16/03/2006).

The Reagan era

President Reagan entered the White House with a favorable posture toward missile defenses and he was quick to embrace the recommendations of the Joint Chiefs of Staff. In a nationally televised speech on 23 March 1983, he declared his decision to initiate an expanded research and development program to check if ballistic missile defenses were achievable (Source 1, p.3, 16/03/2006). After a year of wide-ranging studies to determine how best to pursue the president`s goal, the Department of Defense established the Strategic Defense Initiative (SDI) Organization in April 1984. The purpose of the organization was to implement the SDI program of research and development (R&D) in order to establish whether or not strategic defenses were feasible (Source 1, p.3, 16/03/2006).
At the end of 1986, President Reagan together with the Secretary of Defense decided to incorporate a missile defense system into the defense acquisition process (Source 1, p.3, 16/03/2006). In September 1987, the Strategic Defense System (SDS) Phase 1 Architecture was approved. The architecture consisted of six major sub-systems: a space-based interceptor (SBI), a ground-based interceptor, a ground-based sensor, two space-based sensors, and a battle management system (Source 1, p.3, 16/03/2006). This architecture was a foundation which would be improved and upgraded over time.

The replacement of the space-based interceptor with an interceptor concept known as “Brilliant Pebbles” marked the most important change in the initial SDS architecture (Source 1, p.3, 16/03/2006). SBI was to have been a large satellite containing several individual hit-to-kill interceptors. Several hundred SBIs were to orbit the earth, and they would be capable of destroying a large number of Soviet missiles, if launched, in their boost-phase while they still contained their multiple warheads and decoys (Source 1, p.3, 16/03/2006).

However, there were two downsides to SBI. First, it was large which made it an easy target for Soviet anti-satellite (ASAT) weapons. Second, it was extremely expensive (Source 1, p.3, 16/03/2006). The response to these problems was the “Brilliant Pebbles” which would make Soviet ASATs compete with several thousand small, hard to find interceptors orbiting the earth in a constellation that would cover relevant regions of the world (Source 1, p.3, 16/03/2006). Since “Brilliant Pebbles” interceptors were to be mass-produced they were also expected to be relatively inexpensive, which, in turn, would lower the total cost of SDS Phase 1 (Source 1, p.3-4, 16/03/2006).

The end of the Cold War and the “New World Order”

In 1989, the new director of SDIO decided to integrate “Brilliant Pebbles” into the architecture. Aside from replacing the SBI system, the new interceptors enabled the elimination of one constellation of space-based sensors, lowering the cost of SDS Phase 1 even more (Source 1, p.4, 16/03/2006). However, as the “Brilliant Pebbles” concept was becoming accepted, the strategic relationship between the USA and Soviet Union was changing dramatically. The destruction of the Berlin Wall in December 1989, with Gorbachev’s support, signified the beginning of the end of the Soviet Union and thereby the Cold War (Source 1, p.4, 16/03/2006).

Also in late 1989, the administration of President George Bush initiated an examination of US strategic requirements in what was perceived as the emerging “new world order”, including the SDI program (Source 1, p.4, 16/03/2006). In March 1990, Ambassador Henry F. Cooper, who was in charge of the review, concluded that as the Cold War was ending the most dangerous threat to the USA would be from unauthorized or terrorist attacks by limited numbers of
missiles (Source 1, p.4, 16/03/2006). He also noted that US troops stationed abroad would be facing an increasing threat from shorter-ranged missiles, in the face of increased proliferation of ballistic missile technology and weapons of mass destruction. In order to meet these new challenges, Cooper argued that SDI program be transformed to concentrate on developing defenses against limited attacks rather than massive ones coming from the Soviet Union. When he was appointed the third director of SDIO in July 1990, he sought to implement his own recommendations (Source 1, p.4, 16/03/2006).

Cooper’s vision proved to be right. When the USA and its allies, in January 1991, initiated Operation Desert Storm against Iraq and its armed forces after they had invaded Kuwait in August 1990, Iraq responded with attacks by Scud missiles against targets in Saudi Arabia and Israel (Source 1, p.4, 16/03/2006). Iraqi missile attacks marked a new era in military history, as it was the first operational engagement between a ballistic missile (an Iraqi Scud) and a missile defense system (the American Patriot) (Source 1, p.4, 16/03/2006). Iraqi missile attacks illuminated the grave threat posed by theater ballistic missiles.

As a consequence of this new type of threat, President Bush declared on 29 January 1991, that the Department of Defense was shifting the focus of the SDI program from its emphasis on defending against a massive Soviet missile attack (SDS Phase 1) to a system known as GPALS (Global Protection Against Limited Strikes) (Source 1, p.5, 16/03/2006). GPALS consisted of three main elements: a ground-based National Missile Defense (NMD), a ground-based Theater Missile Defense (TMD), and a Space-Based Global Defense (Source 1, p.5, 16/03/2006). GPALS was a result of and a clear reflection of the growing concern about the protection of deployed US troops against missiles. President William Clinton continued in the same footsteps (Source 1, p.5, 16/03/2006).

In 1993, US Secretary of Defense, Les Aspin, changed the name of the Strategic Defense Initiative Organization to the Ballistic Missile Defense Organization (BMDO). Aspin credited the SDI for having played a significant role in ending the Cold War. Other prominent personalities, including the former UK Prime Minister Margaret Thatcher, shared his view (Source 1, p.5, 16/03/2006). The Defense Department, led by Aspin, also initiated a large-scale review of US post-Cold War defense requirements. The examination was completed in September 1993 and was called the Bottom-Up Review (BUR) (Source 1, p.5, 16/03/2006). It presented a three-fold missile defense program. Theater missile defense program was BUR’s top priority and was to be allocated $12 billion over the course of five years. The TMD program consisted of three major projects (Source 1, p.5, 16/03/2006). The second component presented in the review was a national missile defense program which would receive $3 billion over the course of five years, and its primary goal would be to shorten the time needed for fielding an efficient national defense (Source 1, p.5, 16/03/2006). The third component outlined in the Bottom-Up Review
was a technology program stretching over five years, whose goal was to produce advances applicable to both national and theater defenses. This element was to receive $3 billion (Source 1, p.5, 16/03/2006).

The Ballistic Missile Defense Organization had to shift its focus from the GPALS program of the Bush Sr. administration to the Bottom-Up Review program of the Clinton administration (Source 1, p.6, 16/03/2006). However, this enormous re-orientation and transformation proceeded in a highly efficient way without disturbing the development schedules for crucial theater missile defense programs (Source 1, p.6, 16/03/2006). In 1994, another milestone in missile defense history was achieved when the US Army selected the Extended Range Interceptor (ERINT) as the new interceptor missile for the advanced Patriot system. ERINT differed from previous interceptors in that it was hit-to-kill technology, as opposed to the earlier interceptors which carried warheads with either nuclear or conventional payload (Source 1, p.6, 16/03/2006). This is why integrating ERINT into an operational system marked a revolution in missile defense technology. The drawbacks of both earlier warheads were overcome by kinetic kill interceptors like ERINT (Source 1, p.6, 16/03/2006).

In 1996, voices from the US Congress argued ever louder for a greater emphasis on national missile defense, moving the program from its technology readiness orientation to a deployment readiness program. The Defense Department answered these congressional calls (Source 1, p.6, 16/03/2006). “Known as the “three-plus-three”, this new approach to NMD, called for BMDO to support three more years of developmental work leading to a systems integration test in 1999” (Source 1, p.6, 16/03/2006). After the test, the USA would be able to deploy a national missile defense in three more years, should the need for that emerge. If a fielding of NMD were not warranted in 1999, then improvement and upgrades of the system would continue by the BMDO, but there would always be an ability to field the system in three years following any decision to do so (Source 1, p.6, 16/03/2006).

The perception of the threat to US homeland by ballistic missiles was evolving parallel with the structure of the NMD program. National Intelligence Estimate (NIE) of the missile threat to US homeland, of November 1995, concluded that no such threat was in sight over the next fifteen years. Republican congressmen then claimed that the report had been unfairly influenced by politics, and as a result of that a new independent commission under Donald Rumsfeld was assigned to re-evaluate the missile threat posed to the USA (Source 1, p.7, 16/03/2006). The Rumsfeld Commission came to different conclusions in July 1998, when it stated that “concerted efforts by a number of overtly or potentially hostile nations to acquire ballistic missiles with biological or nuclear payloads pose a growing threat to the United States, its deployed forces and its friends and allies” (Source 1, p.7, 16/03/2006). Even though the systems of the hostile countries do not measure up to those of the USA regarding reliability and
accuracy, they would still be able to inflict massive destruction upon the country within five years from a decision to acquire such weapons. The Rumsfeld Commission`s fears were confirmed by successful Iranian and North Korean missile tests just months after the report was published (Source 1, p.7, 16/03/2006). The North Korean test caused particular concern in Washington because the country had displayed significant capabilities connected with ICBMs, “including staging and the use of a third stage on the missile” (Source 1, p.7, 16/03/2006).

These tests performed by countries hostile toward the USA caused a shift toward greater emphasis on the NMD program. In early 1999, Secretary of Defense William Cohen announced that the Department of Defense was allocating an additional $6.6 billion to the NMD program to ensure that a deployment within three years from a decision to do so remains feasible. He also changed the date for deployment from 2003 to 2005 (Source 1, p.7, 16/03/2006). The BMDO was subjected to another major reorganization after Lieutenant General Ronald T. Kadish was appointed BMDO Director in 1999. He also defined the Agency`s mission: “To deliver what we promise. And what we promise is missile defense- theater and national- that responds to a changing and growing threat” (Source 1, p.8, 16/03/2006).

The TMD program was evolving parallel with DoD`s NMD program. The Bottom-Up Review had originally outlined three chief TMD programs: Patriot PAC-3, Navy Area Defends (NAD), and Terminal High Altitude Area Defense (THAAD) (Source 1, p.9, 16/03/2006). All of the mentioned TMD programs were to be fully interoperable. Thereby they would operate synergistically to provide a highly effective, theater-wide missile defense system capable of protecting deployed US troops as well as the troops and populations of US allies (Source 1, p.10-11, 16/03/2006).

US collaboration with foreign countries on strategic defenses
The United States of America also works in cooperation with other countries on joint missile defense projects. One such project is MEADS, where the USA collaborates with Germany and Italy. The purpose of MEADS is to be a highly mobile system able to protect maneuvering units against air-breathing and ballistic missile threats that might approach from any conceivable direction (Source 1 p.11, 16/03/2006). There are three other US cooperative programs worth mentioning. The most significant one of these is the Arrow cooperative project with Israel, which was initiated in 1988. Arrow is today operational (Source 1, p.11, 16/03/2006). As a response to North Korean ballistic missile tests between 1993 and 1999, Japan and the USA signed, in August 1999, a memorandum of understanding which outlined a two-year, $72 million joint developmental missile defense program (Source 1, p.11, 16/03/2006). RAMOS (Russian-American Observation Satellite) is another collaborative project, with Russia and the USA as partners. Aside from providing valuable technical information, the project was meant to be a reconciliatory one and help the two countries leave their Cold War-animosity behind them.
The 2003 report on Chinese BMD-thinking and policy written by the US Institute for Defense Analyses (IDA), at the request of the Defense Intelligence Agency (DIA), details Chinese thinking and ambitions regarding ballistic missile defenses.

The report divides the development of Chinese thinking and policy on BMD into five periods:

1. Strategic Infancy: 1955 to 1982
2. The Star Wars Era: 1983 to 1991
4. Full Court Press Against TMD and NMD: 1999 to 2001

In the period from 1955 to 1980, China`s strategic priorities revolved around developing a nuclear deterrent capable of surviving a first strike and providing credible retaliation. The whole purpose of the Chinese strategic force was to ensure freedom from outside interference and coercion (Roberts, 2003, ES-2). The sincerity of China to purse these objectives became apparent in decisions taken by most senior Chinese leaders in the period from 1955 to the early 1980s. In 1955, Chairman Mao launched the development of nuclear weapons with Project 02 (Roberts, 2003, p.3). He was afraid that the opponents of the communist revolution would attempt to interfere, just as other foreign powers had interfered in China`s internal affairs for decades (Roberts, 2003, p.4). In the Korean, Indochina, and Taiwan crises China was threatened with nuclear attack seven times by the United States of America: two times during the Korean war (February and May 1953), three times in order to deter Chinese intervention in Indochina (1952,1953, and 1954), and two times in the Quemoy and Matsu crises (1955 and 1958) (Roberts, 2003, p.4). China was also threatened with a nuclear attack by the Soviet Union during the military clashes on the Ussuri river 1968 (Roberts, 2003, p.4). China had adopted a “no-first-use”-rule, meaning that it would never attack with nuclear weapons unless it was attacked first. The country`s primary goal was to secure the revolution and the safety of the modern Chinese state (Roberts, 2003, p.4). China is thought to having pursued a nuclear doctrine of “minimum deterrence” from the very beginning to this day. This nuclear doctrine can be summarized in the following 7 points:

1. “no first use
2. minimum retaliation

3. small but better (meaning limited but reliable)

4. small but inclusive (meaning an arsenal of many types of weapons)

5. soft-target kill capability

6. no tactical nuclear weapons

7. quick recovery of Chinese society when attacked” (Roberts, 2003, p.6).

However, even though the report concurs on China having employed this doctrine in the early stages of its strategic planning, it has in the course of the first 25 years built a strategic force which enabled it to attack the main political as well as operational centers of potential enemies (Roberts, 2003, ES-2). There are some indicators that China, in this period, also had ventured into BMD research. One possible explanation of Chinese ambitions to develop some operational ballistic missile defense capability would be US and Soviet developments in the field. However, there is very little evidence of this (Roberts, 2003, ES-2).

Chinese strategic thinking was altered by Ronald Reagan’s “Star Wars” initiative of March 1983 (Roberts, 2003, ES-2). The initial Chinese response to it was subtle, while some Chinese officials even supported the Strategic Defense Initiative by claiming that it was an appropriate response to Soviet ambitions of gaining strategic supremacy (Roberts, 2003, ES-2). The Chinese government also distinguished between research and deployment, opposing the latter but not the former. Beijing’s thinking about its own strategic position in the world, which could be compared to that of France and Britain, pushed it toward a diplomatic effort to establish a common position on SDI with the two. While the USA and Soviet Union were discussing arms control, China also sought to establish itself in the international arms control environment (Roberts, 2003, ES-2).

The potential destabilizing effects of the militarization of outer space caused a formation of a strong Chinese stance on the issue. China also recognized the destabilizing potential of SDI on global stability and security, as well as the danger it posed to its own small nuclear deterrent: “The primary military significance of this (SDI) is the possibility of possessing the ability to launch a first strike...This is quite different from the mutually assured destruction strategy which aims primarily at launching the second strike...Therefore, the new strategy is an important escalation of the original nuclear strategy. It is absolutely not a strategy of defense as publicized by the US administration, but is a strategy which integrates attacks with defense, capable of dealing deadly blows to the enemy” (Roberts, 2003, p.13).
Chinese operational developments of its posture, which resulted from some limited modernization of its force, prompted a debate about the actual Chinese nuclear doctrine, and whether or not it was shifting from “minimum deterrence” toward the more forceful “limited deterrence” (Roberts, 2003, ES-2). However, the sudden end of the Cold War, the collapse of the Soviet Union, the beginning of a prosperous era of arms control, and the fading US interest in SDI alleviated some significant Chinese concerns and brought this phase of Chinese BMD-thinking and policy to an end (Roberts, 2003, ES-2).

The Persian Gulf War and its aftermath were another turning point in BMD history in general, and in Chinese BMD-thinking and policy in particular. The favorable US position toward theater missile defense (TMD) was strengthened even further after its benefits became evident in the war, and Chinese officials started worrying about the consequences of possible US TMD deployments in East Asia (Roberts, 2003, ES-3). This occurred at the start of major build-ups of Chinese theater missiles. The country’s primary concern was a potential US deployment of TMD to Taiwan. The concern was of both military and political nature: an effective TMD could cancel out the Chinese theater missile force, and political consequences of a closer US-Taiwan military cooperation. Chinese officials had frequently stated that the USA was “playing with fire” (Roberts, 2003, ES-3).

Parallel with the build-up of its theater missile force China sought to improve both its conventional and nuclear warfighting capability. Once again, the debate in the USA about whether or not China was moving toward a “limited deterrence”-doctrine reemerged. This period was also marked by intensified Chinese efforts to develop a missile defense system of its own (Roberts, 2003, ES-3).

The Chinese government, as well as most of the country’s analyst community, conducted a full court press against US ballistic missile defense plans between 1999 and 2001. The reason for open and forceful Chinese criticisms of US plans was the radical response of USA to North Korean missile tests of 1998, when Washington decided to deploy a national missile defense as soon as practicable (Roberts, 2003, ES-3). Chinese Ambassador Sha Zukang led the political crusade against the US missile defense plans. No argument against US BMD was spared. US ballistic missile defense was criticized as a direct threat to the Chinese nuclear deterrent as well as to strategic stability by undermining the arms control regime. It would have a profoundly negative effect on the de-escalation effort of the preceding decade while paving the way for nuclear and missile proliferation as well as a new arms race in outer space (Roberts, 2003, ES-3). BMD was criticized as a tool used for strengthening the US global hegemony.

Another group of anti-BMD arguments was related to the security of the Asia-Pacific region: it would worsen the Taiwan situation, transform Japan’s role, and deepen US interference in the
region when China wanted it to ease (Roberts, 2003, ES-3). Therefore, Ambassador Sha partnered with Russia in its prediction of grave consequences of a potential US abandonment of the ABM Treaty in order to pursue ballistic missile defense. At the same time, China’s missile force modernization efforts resulted in some considerable new operational capabilities. Some parts of the US academic community saw another move away from the nuclear doctrine of “minimum deterrence” and toward that of “limited deterrence”. During this period, China also increased its own BMD efforts (Roberts, 2003, ES-3).

**Russia**

The Soviet Union was the first to begin constructing a working ABM system in 1962-1963, meant to protect Moscow. The plan was to build eight complexes each containing 16 interceptors (128 interceptors total) in the Moscow area, but due to construction obstructions only four sites, with 64 interceptors combined, were finished by 1969-70. Further construction plans were abandoned due to the signing of the ABM Treaty in 1972 which limited the Soviet Union and the United States of America each to two ABM sites with 200 interceptors combined. The protocol to the treaty, which was signed in 1974, reduced the size of the two countries’ ABM-systems to one site containing 100 interceptors (Source 2).

For long-range tracking and battle management the Moscow ABM system depended on an enormous A-frame radar, referred to in the West as the “Dog House”. A radar known as the “Cat House” substituted this radar and performed the same function. Early warning and missile acquisition information was provided by a vast network of “Hen House” radars dispersed along the periphery of the Soviet Union. The Soviet system, much like the US Safeguard system, used a nuclear-tipped missile (the “Galosh”) as its interceptor. The yield of the warhead carried by the interceptor was several megatons (Source 2).

The Soviet system also reminded of the US Safeguard system in that it was vulnerable to “blackout” or blinding by nuclear explosions, including the blasts from its own interceptors. The system was also unable to cover all the directions from which missiles could strike, making missiles coming from certain directions undetectable. Countermeasures posed another major problem for the Moscow defense system because it could not cope with decoys and chaff, and could also be defeated by US missiles armed with MIRV warheads, which were cheap in comparison to the maintenance and expansion costs of the defense system. The system was also constructed for defending against an attack by only six to eight ICBMs. Since the BMD-idea originated in 1959, ICBM forces of both the USA and Soviet Union had reached tremendous levels, rendering the Moscow missile defense system worthless in the 1970s. Therefore, the US intelligence concluded that Soviet ability to protect Moscow against a US attack was little (Source 2).

In 1978, the Soviet Union initiated a major upgrade of its system which is still in progress. The new system consisted of two layers of defense using two types of nuclear-tipped interceptors:
“an improved version of the Galosh, for intercepting warheads outside the atmosphere, and the high-acceleration Gazelle (similar to the US Sprint) for intercepts within the atmosphere” (Source 2). The upgraded system, which is still operational, relies on the phased-array Pillbox radar at Pushkino for coverage and a network of large phased-array radars, together with the initial Hen House radars. The system is believed to include the maximum 100 interceptors permitted by the ABM Treaty, and is still a system to defend just Moscow and is not a national missile defense (Source 2).

US military and intelligence sources state that, in spite of improvements, the Moscow anti-ballistic missile system would still be easy to overcome. A high-level US DoD official said in 1987 that the expensive and prolonged improvements of the Soviet system could still be defeated with a small number of Minuteman ICBMs equipped with decoys, and in case the Soviets field even more advanced defenses they could still be penetrated by using new penetration aids. A US report on Soviet Military Power of 1989 stated that: “with only 100 interceptor missiles, the system can be saturated, and with only the single Pillbox radar at Pushkino providing support to these missiles, the system is highly vulnerable to suppression” (Source 2).

Even though the Soviet Union researched both traditional and new technologies for use in ABM systems, the US Department of Defense estimated in 1988 that its program is at some ten years behind US accomplishments in the field. The dissolution of the Soviet Union and the subsequent economic difficulties in Russia have seen a major deterioration in the existing system, as well as a shortage of funding to complete the improvement program or to undertake new research (Source 2).

At the time of the Soviet Union's collapse in 1991, the new ABM system had still not reached full operational capability. Improvements in the early warning radar program, an essential part of an ABM system, had not been finished, and the radars that had been upgraded were located in the newly independent republics of the former Soviet Union. Due to radically decreased funds being appropriated to the Russian defense budget most of the work on the early warning system was ended, which led to the continued rapid deterioration of the system. However, the system has remained operational, although at reduced capability, and a secret presidential decree in 1995 officially declared that it was still operational (Source 2).

Recent deployments of nuclear-armed interceptors close to Moscow and the high costs of maintaining the system had drawn widespread criticism in Russia. Some Russian officials have even recognized the system’s increasing irrelevance in the new strategic environment. In 1998, Russian defense minister, Igor Sergeyev, said that Russia was de-alerting a number of ABM system’s missiles. The present status of readiness of the interceptor missiles is unknown. The ABM system’s radars remain operational because they perform other functions in addition to supporting the system. Because so many resources have been devoted to the ABM system over the years it is not likely that it will be deactivated in any near future. On the other hand, the Russian Defense Ministry is unwilling to allocate enough resources to keep the system operational. Therefore, the Moscow missile defense system will probably just keep deteriorating (Source 2).
The post-2002 BMD debate

In December 2001, President George W. Bush announced that the United States of America was officially withdrawing from the 1972 Anti-Ballistic Missile Treaty. The withdrawal took effect on 13 June 2002. However, since the debate around a US pull-out started in 1999, Russia, China and others concerned were preparing themselves for the inevitable.

In his December 2001 announcement, President Bush declared that the ABM Treaty was old and hindering the US government from protecting its people from accidental missile launches, launches by “rogue” states, and terrorists. Even though only the “accidental launch”-part was aimed at them, Russia and China saw the US BMD program as directed against them. For this reason they were able to form a somewhat unified front, at least in the beginning, against US plans.

Since 2002, the Bush administration has managed to complicate the whole issue even further by incorporating national and theater missile defenses into an all-encompassing global missile defense (GMD). This has resulted in a definitional and policy confusion (Source 3, p.1, 13/04/2006). Those countries that had previously supported only theater missile defenses now tacitly support the global missile defense by association. However, they claim that they are only taking part in non-destabilizing forms of missile defense (Source 3, p.1, 13/04/2006). This is how Russia’s earlier policy of supporting TMD but adamantly opposing NMD became compromised. This strategy by the US administration seems to have worked, as the number of countries supporting the GMD increases (Source 3, p.1, 13/04/2006).

The main reason for an increasing number of countries to lend their support to US missile defense plans was Russia’s acceptance of US withdrawal from the ABM Treaty in December 2001. Now, other countries did not have to fear that their support of US plans would endanger their relationship with Russia (Source 3, p.1, 13/04/2006). There are four chief reasons behind the increased support of US BMD ambitions.

First and foremost, countries realized that US administration was going to go ahead with its plans whether or not they received international support. Therefore, they were left with the choice of hopping aboard and being able to influence US policy, or distancing themselves and having no policy input. Second, there were political benefits to be reaped from cooperation with the United States of America. Russian president, Vladimir Putin, seems to have concluded that limited cooperation was a better way to curb the uncompromising US unilateralism than a condemnation of US missile defense plans. For other countries, a good relationship with the USA is of vital importance (Source 3, p.1-2, 13/04/2006). The third major reason is a conviction that the countries’ cooperation with USA will result in valuable financial, technical, and industrial gains. Russia was looking forward to receiving lucrative missile defense contracts, much like European and Asian partners already have. Fourth, collaboration with the USA will result in significant military advantages derived from missile defenses, mainly in troop protection (Source 3, p2, 13/04/2006).
An increased international interest in Ballistic Missile Defense

US cooperation with its North American and European partners is conducted mainly through the existing security arrangements. Canada had agreed in April 2004 that an early warning system for North America be operated by the North American Aerospace Defense Command (NORAD), only to abandon the agreement in 2005 (Source 4, 13/04/2006).

NATO summit in Prague, in November 2002, resulted in an agreement by the member states to start a missile defense feasibility study to examine options for a layered TMD. Since September 2003 the study has been gradually progressing. Some member states are developing their own missile defense capabilities, which may later be integrated with a NATO system. Germany has a number of American Patriot 1 TMDs and is collaborating with the United States of America and Italy on the Medium Extended Air Defense System. Great Britain has reached an agreement with the United States to upgrade the Fylingdales early-warning radar, and also has established the British Missile Defence Centre for contacts with the US Missile Defense Agency. The British also continue to emphasize the importance of not allowing missile defenses to disrupt global nuclear deterrence. Therefore, Britain’s main focus is on TMD and troop protection, while also expecting significant benefits for its defense industry (Source 3, p.2, 13/04/2006).

French and Italian firms are collaborating on development of the Aster TMD system. Much like Russia, France thinks that TMDs are useful, while NMD is destabilizing. France and Britain oppose global missile defense out of fear that it will substitute cooperative diplomacy and result in an arms race in “a futile search for invulnerability” (Source 3, p.2, 13/04/2006).

While Japan’s Patriot-2 systems and its Aegis destroyers operate independently, the country is still working with the USA on TMD programs. What prompted Japan to examine missile defense options was a 1998 North Korean missile test, when North Korea fired a Taepodong-1 missile across the sea of Japan. Japan would not dare to decline USA cooperation for fear of disrupting their vital strategic relationship. The country declared in December 2003 that it would build a layered missile defense system, using Aegis destroyers and Patriot-3 missiles. Japan also launched two military satellites in March 2003, distancing the country even further from its traditional pacifist posture (Source 3, p.2, 13/04/2006). In December 2003, even Australia declared it was willing to participate in the GMD project, strengthening it even more. Australia motivates its participation by emphasizing the North Korean threat as well as the potential commercial benefits. However, Indonesia warned that Australian participation may lead to an arms race and undermined regional stability. US cooperation with India aggravates its relationship with Pakistan and China. There is, however, a strong opposition toward Indian support for the USA within the highest circles of Indian political life (Source 3, p.2, 13/04/2006).

In the Middle East, Israel is the only country collaborating with the USA on missile defense. Israel was the home of American “Patriot” missiles during the first Gulf War, and the country also managed to develop its own Arrow missile defense capability in cooperation with the USA. The Arrow was fielded in 2002 and operates alongside Patriot-3 installations, without ever being tested in combat (Source 3, p.2-3, 13/04/2006).
Russian and Chinese ambitions and concerns

Three issues motivate Russia`s theater defense policy: “to be a key player in the development of regional security structures; to ensure that regional structures are not directed against Russia; and to foster a multipolar international system, curbing perceived American unilateralism” (Source 3, p.3, 13/04/2006). According to Russia, theater missile defense cooperation is a part of the global war on terrorism, and also has a potential for economic benefits for its defense industry. Within the framework of the NATO-Russia Council, established in May 2002, some major TMD exercises have already been conducted. In Asia, in 2002, Russia had proposed a regional missile defense system comprising of Russia, China, the United States, and Japan, as well as bilateral cooperation with Japan and Pakistan. However, the deep US missile defense interests in the region had managed to contain Russian aspirations there. This led to Russia only concluding a deal with China in June 2004 about the sale of S-300 surface-to-air missiles to China (Source 3, p.3, 13/04/2006).

Since September 2002, statements by high-level Russian foreign and defense department officials have given strong indications that Russia was willing to collaborate with the USA on missile defense. This effort became official when President Putin publicly lent his support to it in January 2003. However, the lack of political will on both sides has already ruined several projects linked to missile defense, including the American pledge to help Russia improve its early warning system. These recent failures to jointly work on relatively simple missile defense projects do not predict a bright future for continued US-Russian missile defense cooperation (Source 3, p.3, 13/04/2006).

Russia has stated several conditions for its cooperation with the USA on ballistic missile defense:

1. Global Missile Defense cannot threaten Russian national interest. The country has made clear that Russia is joining missile defense project in order to construct systems capable of defending against accidental missile launches, launches by a rogue state, or by terrorists. Russia has no fear that US NMD will threaten its massive strategic deterrent in any near future (Source 3, p.3, 13/04/2006).

2. Russia is entering the partnership on basis of equality, not as a junior partner of any sort (Source 3, p.3, 13/04/2006).

3. Russia must be able to protect its technologies and intellectual property. Because Russia has been operating a missile defense system around Moscow since the late 1960s, they think that they now sit on a pool of expertise and technology in that field, with a high profit-generating potential (Source 3, p.3, 13/04/2006).

4. “Fourth, space must be demilitarized and GMD prevented from extending into space” (Source 3, p.3, 13/04/2006).

5. Russian policy is that missile defense cooperation must proceed within a legal framework, something the USA has repeatedly rejected. Hereby, Russia seeks to uphold the link between
offensive and defensive weapons with the aim of protecting strategic stability within a legal framework which defines Russia and the United States of America as equal strategic partners (Source 3, p.3-4, 13/04/2006).

US missile defense program provides two main concerns for Russia and China: first, that their nuclear deterrent will be negated and second, that US missile defense program will destabilize arms control. However, China is far more worried about the former because its strategic arsenal fades in comparison in size towards that of Russia or USA. Since the US pull-out from the ABM Treaty, Russia and China have been developing asymmetrical measures to counter any threat posed by US missile defenses. Russia had abandoned the START 2-agreement which has enabled it to continue deploying multiple independently targetable reentry vehicles (MIRVs) on intercontinental ballistic missiles. Russia has also continued upgrading and modifying its Topol-M ICBMs, which it considers to be a “silver bullet” against US missile defenses (Source 3, p.4, 13/04/2006).

In February 2004, Russia had successfully tested the new hypersonic “Crazy Ivan” warhead, capable of changing flight altitude and course repeatedly, making it virtually impossible to track and target. President Putin claims that Russia is able to penetrate any missile defense system. He also said, sarcastically, that just as the US withdrawal from the ABM Treaty was not directed at Russia, Russia’s improvements of its nuclear arsenal and the development of new weapons are not directed against the United States of America (Source 3, p.4, 13/04/2006). Russia has continued upgrades of its A-135 missile defense system around Moscow, and since 2002 works on a TMD capability by developing a number of sophisticated missile interceptors, such as the S-500. Russia has also conducted successful tests of ship-based interceptors (Source 3, p.4, 13/04/2006).

In spite of these steps taken by the government, Russia has made clear that it has no intention of participating in a missile defense race with the USA. Putin did not discount the possibility of Russia deploying a national missile defense some time in the future, but such a decision would largely be based on the progress of other countries in the field. Russian priorities now are to improve its early warning system and the constellation of its military satellites. Since 2002, Russia has also conducted a number of significantly ambitious and large military exercises: “The May 2003 exercises even involved hypothetical nuclear strikes on the United States and the neutralization of American satellites to blind Pentagon planners” (Source 3, p.4, 13/04/2006). Russian defense spending is on a steady rise, while at the same time Putin and other high-level Russian officials had increased the number of visits to strategic military installations (Source 3, p.4, 13/04/2006).

Russia and China remain skeptical to US claims that missile defenses are not directed against them. The planned US upgrades of the radar stations in Great Britain and Greenland have been described by the Russian Defense Minister Sergei Ivanov, in January 2003, as worrisome since the likely routes of missile launches from rogue states do not cross those areas (Source 3, p.4, 13/04/2006). US plans to develop “bunker buster” nuclear weapons also worry Russia and China, because of the negative impact they could have on current strategic balance and the
threshold for the use of nuclear weapons (Source 3, p.4, 13/04/2006). US officials have also said that they have no intention of reducing the country's nuclear arsenal to the levels defined by the Moscow Treaty of May 2002. Missiles and warheads will simply be transferred into storage, "just in case".

China views US missile defense plans as one of many expressions of US unilateralism, and a major component in US aspirations toward global domination. As a country whose nuclear deterrent is significantly threatened even by a limited US national missile defense, China has a reason to worry. A US NMD is not all. China is also gravely concerned about the proliferation of theater missile defenses in the Asia-Pacific region. The US has already decided to sell Patriot-3 missiles to Taiwan, which aggravated the situation in the region. “China remains fearful of nuclear blackmail on the Taiwan issue, and the deployment of TMD could encourage China to adopt a preemptive escalatory posture” (Source 3, p.5, 13/04/2006). Another possible consequence of a US TMD deployment in Taiwan could be a formation of an overt US-Taiwanese military alliance against mainland China, where Taiwanese military forces would come under US command. One such alliance already exists between USA and Japan. Realizing the escalatory and destabilizing effects of a progression of this kind, Taiwan began distancing itself from missile defense by cancelling maintenance contracts for its Patriot-3 missiles defense systems (Source 3, p.5, 13/04/2006).

The modernization process of Chinese strategic forces has long been under way, but the effort was enhanced by US missile defense plans. China is seeking to develop a diversified, invulnerable, and combat-ready operational nuclear triad. In addition to this, China can equip its missiles with multiple nuclear warheads as well with decoys to deceive US defenses. With a situation such as exists in the Taiwan strait, missiles on high alert are bound to increase the possibility of escalation or accidental or preemptive war (Source 3, p.5, 13/04/2006).

The combination of a heavy US reliance on its space-based assets and the simultaneous vulnerability of those assets, have prompted China to enhance its military space program in order to be able to neutralize US military satellites in case of conflict (Source 3, p.5, 13/04/2006).

Another Russian and Chinese worry is that US missile defense plans will undermine the existing arms control regimes. According to Russian officials, resources allocated to the GMD program should instead be devoted to the global war on terrorism. GMD is also seen as contradicting the Bush-Putin agreement to reduce nuclear arsenals. China has also expressed concern about Japanese missile defense ambitions warning that it would destabilize the region and lead to a new arms race (Source 3, p.5, 13/04/2006).

Weaponization of space is another hot-button issue related to missile defenses. Here, Russia and China have support of many countries which want to prevent this from happening. Russia and China have proposed an accord for the non-weaponization of space in 2003, and negotiations proceed at the Conference on Disarmament in Geneva. “Both Moscow and Beijing maintain that nonproliferation measures and policing regimes are a better way of dealing with
weapons of mass destruction than attempts to develop missile shields” (Source 3, p.5, 13/04/2006).

The United States of America has managed to garner some international support for its global missile defense program, but that support has little to do with countries actually agreeing with US strategic aspirations, and all to do with cold calculations of how to best deal with the USA. The double danger of GMD lies in its destabilizing effects on global and regional security combined with its potential to lead to development and deployment of new strategic weapons. The aftermath of the US withdrawal from the ABM Treaty has seen increased efforts by the USA, Russia, and China to expand their offensive weapons programs (Source 3, p.5, 13/04/2006).

Mohammed El Baradei, chief of the International Atomic Energy Agency, commented on the dangers posed by GMD: “If we don’t stop using double standards, we shall be piled high with an even greater number of nuclear weapons” (Source 3, p.5, 13/04/2006). This would lead to the absolute opposite of the stated aim of global missile defense: “security for all who want it” (Source 3, p.5, 13/04/2006).

**US space policy as an offshoot of the missile defense Program**

The aggressive US space policy is closely linked to the missile defense program. In April 2002, William Schneider Jr., chairman of the Defense Science board, told the Washington Post that the Bush administration was considering arming its interceptor missiles with nuclear warheads in order to defeat incoming ballistic missiles. They would substitute the kinetic-energy hit-to-kill weapons (Source 5, 13/04/2006). The hit-to-kill technology has some serious drawbacks: it has to be phenomenally accurate in order to be efficient, and it is easily overcome by different types of countermeasures, such as decoys, which accompany the actual warhead in what is referred to as “threat clouds”.

If the USA is to switch from hit-to-kill to nuclear warheads, interceptor missiles would have to be equipped with “micro-nukes”. Nuclear warheads of large yield can easily destroy the US satellite structure in space, dealing a major blow to US defensive and offensive capabilities. USA is heavily dependent on its intelligence, surveillance, reconnaissance, communication, and navigation satellites (Source 5, 13/04/2006). While hit-to-kill interceptors cannot afford to miss their target even by an inch, since they have to collide with it in order to destroy it, a micro-nuke need only come close enough. It would be able to vaporize an entire threat cloud without having its radiation cause much damage to the satellites.

However, the technology used in a mid-course missile defense system is almost the same as that in a “direct-ascent” anti-satellite (ASAT) system. US governments have always considered the control of space a national priority. The Joint Chiefs of Staff have even stated that they seek to establish the “full-spectrum dominance” of the “battlespace” (Source 5, 13/04/2006). No space dominance is possible unless US satellites are safe. The Space Commission, headed by Donald Rumsfeld just before he was appointed Secretary of Defense, warned that US
adversaries might launch a “Space Pearl Harbor”- attack and take out the vital US intelligence, reconnaissance, maybe even the Global Positioning Satellites. Hence, total domination in space requires ASATs. It no longer seems to be enough for the US government to jam, degrade, or disable enemy satellites. They have to be able to destroy them (Source 5, 13/04/2006).

If the US government was to try to sell to the American people the idea of spending billions of tax-dollars on a project as superfluous as developing ASATs, it most likely would not receive the support it needs to proceed with the program. However, the ballistic missile defense system has a different kind of public appeal, selling itself on the notion of providing security from a grave threat posed by US adversaries possessing ballistic missiles capable of reaching US homeland (Source 5, 13/04/2006).

This is why the US government will be able to arm its interceptors with nuclear warheads if it should choose to do so. As mentioned above, the technology is virtually the same. Since it is improbable that an ASAT interceptor will collide with an enemy satellite with annihilating force, the nuclear-armed interceptor need, once again, just get close enough. No collision is necessary (Source 5, 13/04/2006).

This is just one example of issues linked with missile defenses which worry proponents of arms control and nonproliferation regimes.

**Russia and the post-ABM Treaty period**

Since the day Russian leadership realized that the USA was going to proceed with the planned missile defense regardless of what anybody else thought, it was hoping to be invited to partake in it. After all, Russia was much better off being part of this significant project than looking in as a bystander. The importance of Russian participation in the US-led missile defense effort is thus both psychological and financial. However, the vast majority of lucrative contracts will most certainly be given to US contractors. President Putin’s top priorities are Russia’s international prestige and the state of its economy (Source 6, 12/04/2006).

Many Russian leaders see a US step forward as one step backward for Russia. This is why US ballistic missile defense is of great concern to Russia. Russian Defense Minister Sergei Ivanov said in March 2002 that “We are going to do everything possible to counter these threats when they take shape” (Source 6, 12/04/2006). His prediction is that missile defense will not be realized until at least 2015 or 2020, by which time Russian army will be thoroughly modernized. President Putin also admitted that the reason for his unwilling acceptance of US missile defense plans is that they do not pose a threat to Russian nuclear deterrent. However, there are widespread fears in Russia that this first stage of US missile defenses, the initial capability, will evolve into an all-encompassing and efficient defense which would reduce the principle of Mutual Assured Destruction (MAD) to nothing (Source 6, 12/04/2006).

Russia has objected to US missile defense plans as having potential to lead to a new arms race. China is seen as the country most seriously affected by US missile defense, because of its small
strategic arsenal, and therefore it might accelerate its strategic nuclear build-up. India and Pakistan may also find themselves drawn into the arms race. At the same time, Russian nuclear arsenal is diminishing. According to one Russian member of parliament, China may soon surpass Russia as the second biggest nuclear power (Source 6, 12/04/2006).

**Prospects of a US-Russian cooperation in Missile Defense**

Russia has been expressing a desire since the early 1990s to work with the USA on missile defense. Since the US abandonment of the ABM Treaty this desire has received backing in the Russian parliament and from President Vladimir Putin. As critical as Russia is of US missile defense plans it would still like it to be a joint effort. Pavel Podvig, a researcher at Georgetown University, claims that while some limited cooperation is conceivable, missile defense area is just too broad and complicated for the two to collaborate in, because United States of America and Russia lack the institutional infrastructure which is necessary to enable any kind of joint missile defense technology program. Attempts by government officials to politicize the issue and show it as a proof of close US-Russian partnership will, according to Podvig, probably make any successful cooperation impossible (Source 7).

Russia, as well as other countries developing missile defenses, recognizes the fact that Russia possesses a unique set of advanced technologies in the field of missile defense. This is one of the reasons why the idea of cooperation with the USA is popular. However, Podvig writes that this fact is more or less irrelevant for a potential US-Russian joint undertaking (Source 7).

Every form of cooperation between Russia and the United States of America is highly politically charged, where Russia has to show that it is an equal partner in the project. Even though both countries continue emphasizing the importance of any kind of joint work for the US-Russian relationship, they pay very little attention to the few joint projects that actually exist in the field of missile defense. This is illustrated by the problems Russian-American Observation Satellites (RAMOS) project has been experiencing since its inception. The lack of high-level Russian political support for the project may be explained by the fact that Russian leaders consider it too small (Source 7). This program seeks to launch two satellites which would conduct simultaneous observations of the Earth’s surface (Source 7). Out of the program’s $344 million budget, spread over five years, about a third will go to Russian contractors. Even though these numbers are big for Russian defense industry standards, this program still cannot serve as a symbol of US-Russian cooperation (Source 7).

Russia and the United States of America are currently involved in several joint projects within the defense sector, the biggest of which is the HEU-LEU agreement. Under this arrangement Russia supplies the USA with low-enriched uranium for nuclear reactor fuel. This was a $20 billion contract spanning ten years, with a beginning in 1993. However, the USA has paid Russia an annual average of $300 million (Source 7). The HEU-LEU project can be used as a symbol of successful US-Russian cooperation. On the other hand, Russia has used technology dating from the times of the Soviet Union, which is considerably cheaper than US technology, but which also resulted in Russia supplying uranium which is more of a raw material than a highly technological
product (Source 7).

Another major US-Russian joint effort is the Cooperative Threat Reduction (CTR) program. The program aims at US assisting Russia in dismantling their weapons of mass destruction. However, most of the Russian $250-300 million program budget is spent in the USA, and the program rather seeks to eliminate the capability of Russian defense industry than to utilize it (Source 7). Therefore, the CTR does not make for a good example of a cooperative effort.

There is also a number of cooperative projects between the two countries concerned with downsizing of the Russian nuclear sector and providing job opportunities for its scientists and engineers (Source 7). Some of these projects are Initiatives for Proliferation Prevention, the Nuclear Cities Initiatives, and the International Science and Technology Center (Source 7). However, these programs remain small.

One program which truly is an example of successful US-Russian collaboration is the International Space Station (ISS). Here, Russia is an equal partner which provides vital hardware and launch services (Source 7). Even though Russia is expected to finance its own part of the project as an equal partner, it is receiving funds from the USA for granting the USA access to the Mir orbital station. In this project Russia is indeed a key player, unlike in the HEU-LEU agreement or CTR. The ISS program also generated one major commercial deal, when Boeing subcontracted work on the base ISS module to the Khrunichev Center. The deal was signed in 1995 and the work was finished in 1998. The contract was worth $190 million (Source 7). There are other examples of successful cooperation in the space sector, but with very limited military relevance.

After illustrating the nature of US-Russian cooperation Pavel Podvig draws a conclusion that Washington and Moscow are currently capable of only joint programs with an annual budget of a few hundred million dollars and the total worth of about a billion dollars (Source 7). However, projects of this size are big enough to draw high-level political backing. If there is a genuine political will on both sides to find a missile defense project which could benefit from Russian expertise, then it should not be impossible to do so (Source 7).

Criteria for a successful joint US-Russian BMD-effort

According to Podvig, there is certain criteria which has to be fulfilled in order for a joint US-Russian program to be successful. First, a project has to be found which appeals to the leadership of the two countries and which has a potential of showing important technical results. Then, it has to receive high-level political support. Governments have to show their commitment to the project and their willingness to make it work. This, on the other hand, is no assurance that the cooperation will be successful. One more significant criteria is the “support of institutions that have stakes in the program and their ability to work with each other across the border” (Source 7).

In non-commercial joint projects Russia is represented by either Ministry for Atomic Power
Podvig writes that two factors seem to be crucial for the organizational success of a program. The first precondition is that the institutions involved must have a significant stake in the program. This is the case in Russia almost all of the time, “since the financial support usually provides a sizeable contribution to budget of the managing organization” (Source 7). United States of America has somewhat different motives. Joint Department of Energy-Minatom programs demand access to Minatom facilities in Russia and some influence of Minatom policies, for a continued support in the USA. NASA’s decision to participate in the ISS project was largely based on Russian participation and the savings resulting from it. Until recently NASA had maintained its strong support for the program, but both NASA and Rosaviakosmos have been showing signs of stagnating interest for cooperation (Source 7).

One illuminating example of a joint project which had received high-level political support but which never even really started is the Joint Data Exchange Center (JDEC). The aim of JDEC was to facilitate the sharing of almost real time early-warning data. However, the US and Russian military never showed enough enthusiasm to execute the project (Source 7).

The second precondition for organizational success of a joint program is the compatibility of the institutional cultures of the organizations involved. The US Department of Energy and Minatom, on one side, and NASA and Rosaviakosmos, on the other, have many similarities regarding “their mission, technical culture, and responsibilities within their governments” (Source 7). The similarities tend to be even more evident in joint commercial or scientific projects.

RAMOS is one program that does not follow this logic. The US representative in the project is the Missile Defense Agency, which subcontracts it to the Space Dynamic Laboratory. Russian main contractor in this deal is TsNPO Kometa, while the program in general is directed by Rosoboronexport (Source 7). This way, no agency involved has a substantial interest in the project. MDA and Rosoboronexport do not even have the same institutional culture which is an essential component in a successful joint project. Their influence in the governments of the United States of America and Russia, respectively, is also limited and cannot be compared to that of Department of Energy or Minatom. As a consequence the program has been undergoing difficulties with funding and has constantly been in danger of being terminated (Source 7).

After this discussion, Pavel Podvig concludes that the likelihood of a successful US-Russian joint effort in missile defenses is minimal. He writes that it is highly unlikely that the MDA would be willing to subcontract work to Russian companies. He continues: “A high level political arrangement might provide the incentive, as it was the case with RAMOS, but MDA does not have the influence to either lobby for such an arrangement or to sustain the political pressure
necessary to get a program implemented” (Source 7). Russia has an even more serious problem in that it lacks a counterpart to the US Missile Defense Agency. There is no agency to assume responsibility for a joint missile defense project and support it inside the Russian government.

According to Podvig, this “management challenge” is the most severe obstruction standing in the way of a successful US-Russian cooperation in missile defenses (Source 7). Attempts to politicize and display the US-Russian cooperative effort as a sign of close ties between the two countries impede the effort even further. A fruitful joint effort requires strong institutional support, which in the area of missile defense is still non-existent (Source 7).

Podvig is not, however, entirely pessimistic. According to him, the only way to make missile defense cooperation work is to allow for a direct contact between US and Russian companies, clear of governmental intervention. Political involvement is bound to hinder the implementation of a project by linking it to intergovernmental relationship and thereby making it vulnerable to all sorts of political pressures and disagreements (Source 7). Podvig’s advice to the Russian government is to avoid politicizing the issue of cooperation if it seeks to enable its companies to establish successful joint arrangements with US companies, whether in missile defense or some other field (Source 7).

**China`s reaction to US withdrawal from the ABM Treaty**

While China was putting extraordinary pressure on the USA not to pull out of the ABM Treaty, once the USA officially announced its withdrawal China changed its tactics radically. Only an official from the Chinese Foreign Ministry commented on the actual US withdrawal on June 18, 2002 by expressing regret over the death of the treaty and hoping that the United States of America will go about “prudently” on the issue (Roberts, 2003, p.32). The shift in Chinese strategy might have been influenced by a number of factors:

1. The newly elected President Bush promised unconditional support and protection to Taiwan, while Pentagon planners considered an unnamed rising power in Asia to be the next peer competitor of the United States of America.

2. The aftermath of the 11 September attacks on the USA and Bush`s call to choose sides, resulted in a closer bilateral US-China relationship. The two have partnered on the issues of strategic stability, nonproliferation, regional security issues, and war on terrorism. The Bush administration also sought to reassure Chinese leaders that US BMD plans were not directed against China.

3. The informal Track Two dialogues where Chinese and US experts and officials participate in their private capacity included less and less harsh language on BMD, something which was all too common in the 1990s.

4. China realized that the Sino-Russian partnership would not do much good in preventing the USA from deploying missile defenses. As the US stance on the issue became clearer Russia began moving closer to the USA and away from China. China realized that a US deployment of
missile defenses was inevitable, but it still considered Russian behavior as a betrayal (Roberts, 2003, p.32,33,34).

At the 16th Congress of the Chinese Communist Party, in 2002, some rearrangements were made in the Chinese leadership resulting in the emergence of a new generation, which saw positive relations between USA and China as a top priority (Roberts, 2003, p.34).

Since the announcement of US withdrawal from the ABM Treaty a debate has been underway about potential Chinese responses to it. Logically, a response will be evident in China’s posture of strategic forces. This conclusion springs out from the decade-long Chinese priority of preserving a credible nuclear deterrent in order to ensure protection from outside coercion. China has also been placing an increased importance on its ballistic missile forces in fighting future regional wars under high-tech conditions (Roberts, 2003, p.34). Alterations of China’s strategic forces, as a response to US withdrawal, can be divided into quantitative and qualitative (Roberts, 2003, p.34).

On the quantitative side, we could see an increase in the number of missiles, launchers, and warheads. However, the Chinese nuclear doctrine will most likely remain one of minimum deterrence. China will most likely conduct the modernization of its strategic forces in a careful way, because of two reasons. First, a rapid strategic build-up could help strengthen the view of China in the minds of Americans and others as a hostile state with hegemonic aspirations. Second, a dramatic build-up could actually benefit those Americans who are hoping that they can use missile defense on China the way Star Wars was used on the Soviet Union, meaning that it would dupe the Chinese into extreme military spending which could eventually break the regime (Roberts, 2003, p.36). The quantity of the Chinese strategic force is most likely to be determined according to the scope of US missile defenses, since China only seeks to maintain a minimum, credible retaliatory capability.

As far as qualitative improvements of the Chinese strategic force are concerned, its missiles and warheads will be upgraded, its C4ISR (command, control, communication, computer, intelligence, surveillance, reconnaissance) capabilities will be improved. A greater effort will be devoted to development of penetration aids such as decoys, chaff, and maneuverable warheads. Development of anti-satellite (ASAT) weapons may also be considered (Roberts, 2003, p.37). The driving forces behind an accelerated qualitative improvement of Chinese strategic forces are the aging deployed systems and the availability of improved technologies both internally and from Russia (Roberts, 2003, p.37).

The modernization effort of the Second Artillery (Chinese strategic units) seeks to improve its operational characteristics. By reducing their size and shifting to solid fuel systems China seeks to reduce the vulnerability of its strategic missiles toward a first strike. The mobility of the Chinese strategic force in general needs to be increased, “while also adding to their stealthiness during launch and flight. Other planned improvements include methods for hardening missiles to survive a nuclear attack and to reduce the pre-launch and mid-course vulnerability. Another key task for China’s missile forces is to increase their accuracy, as well as their ability to
penetrate strategic defenses” (Roberts, 2003, p.38).

Chinese insistence upon the destabilizing effects of US ballistic missile defense plans has left the USA almost unmoved, mainly because the “stability” argument has been used against the USA whenever the country’s critics disagreed with US policy. This is also evident in the US administration’s National Security Strategy, where stability is mentioned rarely while a “bold use of power to create a Just Peace” is far more frequent (Roberts, 2003, p.46). As regards the US view of strategic stability among nuclear powers, USA seeks to establish itself as a state whose strategic capabilities no other country will even think of competing with. Issues such as the relationship between “Just Peace” and stability and the requirements of stability in the absence of a balance of power should become the top priority in the US-China strategic discussion. Another important thing is to see how the bilateral discussions among USA, China, and Russia, as well as the different strategic relationships among them, can best be utilized to promote shared interests in stability (Roberts, 2003, p.46).
Discussion and Conclusions

I will start off this chapter with a question: Why is USA pursuing missile defenses, national and theater? The answer to this question is rather simple: complete global domination. Since this is an academic paper an answer like that requires arguments supporting it. Let us begin the analysis.

For the sake of those uninitiated as regards international relations, I will begin with a short analysis of US foreign policy in the past hundred years. USA is a modern-day empire. No country in the world has in the past hundred years shown such strong tendency, bordering to addiction, to intervene and interfere in other countries’ affairs. From staged coup-de-etats throughout Latin America, and the mass murder of the Vietnamese, to the recent, blatant aggression on and ongoing occupation of Iraq, USA has sought to eliminate any and all perceived or real threats to its interests. USA has gone to wars, most recently in Iraq, for purely economic reasons. Not to protect the American people and the security of the United States of America, but to exploit a country’s natural resources. The 2003 invasion of Iraq is only the latest example of this, where oil is the resource in question. The invasion of Afghanistan in 2001 seems to have been motivated primarily by Unical’s desire to build a major gas pipeline through the country than to neutralize Osama bin Laden and his al-Qaeda network. Other similar examples include US intervention in Guatemala in the 1950s on behalf of United Fruits company, and assassination of the democratically elected leader of Chile, socialist Salvador Allende, and his replacement with a military dictatorship in 1973. Augusto Pinochet and his military junta, which ruled Chile for nearly two decades, are guilty of murder of thousands leftwing activists. The reason for US interference in Chile was the fear that Allende’s socialist policies would stand in the way of US corporations exploiting Chile’s vast copper reserves. The state coup in Chile was orchestrated by Henry Kissinger, then the US national security adviser. Commercial interests have always had a major impact on the conduct of US foreign policy. US foreign policy, whether driven by commercial or strategic interests, is the most illuminating example of “realpolitik”.

The list of US interferences, invasions, and interventions in other countries is far longer than the few examples I have mentioned here. However, they do help the understanding of its vigorous pursuit of missile defenses.

With missile defenses, national and theater, United States of America seeks to achieve invulnerability. “Missile defense” is a deceptive term. One is naturally inclined to think in terms of protection, shield, defensive capability. It appears only logical that a country would desire protection of its territory, its population, and its troops against enemy attacks. Missile defenses may sincerely even have that purpose elsewhere in the world. However, all-encompassing national and theater missile defense in the hands of the United States of America transforms the program’s “noble” cause of protection into a lethal integrated defensive-offensive capability. The very purpose of missile defense, particularly that of a national BMD, is no longer to “protect” but to enable USA to attack without fear of reprisal. It becomes a tool in an ever more aggressive US foreign policy.
Even though an efficient national missile defense seems inconceivable in any near future, the very intention of the USA to field one is a proof of US plans for the future “world order”. USA is the most dominant power in the world today in almost every aspect of state life, even without missile defenses. Few perceived or real US adversaries would dare to launch a ballistic missile attack against US territory, even if they possessed the capability to do so. However, very few of them do and those that do would think twice before launching a single or even a handful of missiles toward USA knowing that they would be annihilated in a nuclear holocaust, which the USA would unleash upon them in retaliation. USA today is threatened primarily by militant Islamist movements. That particular threat, however, does not warrant in any way the fielding of national missile defenses. Another major reason why USA is pushing for a national ballistic missile defense is a fear of accidental launch by another state. That is a real possibility and a real threat. In that case, only a limited national missile defense would do since an attack of that nature would also be reduced to a single or very few missiles.

However, nothing exceeds like excess, and both the Clinton and Bush administrations were aware of that. Why stop at a justifiable, limited missile defense when one can extend that initial capability to a full-scale NMD, which has managed to enrage and petrify an entire world? The only logical answer to this question is also the oldest cliché linked to the modern-day US foreign policy: world domination.

If those doubting the US hegemonic ambitions still consider missile defenses as a “safety precaution”, there is a large body of evidence to convince them otherwise. How would they explain the massive US effort to develop earth-penetrating nuclear weapons, known as “bunker-busters”? Or the US ambition to acquire “full-spectrum” space dominance, as the US Joint Chiefs of Staff so aptly put it? All of the mentioned and unmentioned US weapons development projects point in the same direction. One only needs to open his eyes and realize what is in the making. Even though any efficient national missile defense, even a limited one, is far away in the future it must not be ignored. So far, the missile defense project has cost US taxpayers close to $100 billion over a period of two decades. Many countries, understandably, lent their support to theater missile defenses as their benefits became apparent. Theater missile defense does not have quite the destabilizing effect national missile defense does. In some cases, however, such as the China-Taiwan situation even TMDs have an escalating effect on a crisis.

My conclusion is that, while theater missile defense should be pursued with the highest degree of prudence, there is absolutely no justification for a national missile defense, especially not for the United States of America.

These latest unjustifiable US attempts at achieving “invulnerability” are just another proof that, contrary to American thinking, there is no such thing as a “reluctant superpower”.
Sources

Internet websites

- [www.missilethreat.com](http://www.missilethreat.com), China
- [http://russianforces.org/sprn/](http://russianforces.org/sprn/)
- Source1
- Source 3
- Source 4
- Source 5
- Source 6
- Source 7
Literature

