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Implications of Strategic Defense Deployments for US-Russian Relations

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Pragmatic steps toward ideal objectives

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IMPLICATIONS OF STRATEGIC DEFENSE DEPLOYMENTS FOR US-RUSSIAN RELATIONS

Executive Summary

This report, edited by Dr. Alexei Arbatov, Director of the Moscow-based Center for Arms Control and Strategic Stability, concludes that the ABM Treaty remains a fundamental bulwark to strategic stability and warns that major changes to the Treaty would be ill-conceived.

Russian views on the deployment of strategic defenses are far from uniform, however. This report, which draws on assessments written by "think tanks" associated with the Strategic Rocket Forces, Air Defense Forces, Space Systems Command, Russian Foreign Ministry and various groups in the Russian Academy of Sciences, clearly demonstrates the vitality of the strategic debate currently underway in Moscow and differences of opinion on essential points.

President Boris Yeltsin's contradictory United Nations proposals of January 1992 "to deploy and operate jointly a global system of protection," and to continue support for the ABM Treaty, "came as a complete surprise" to most experts in Russia which "had not been preceded by any comprehensive study" and which appeared to be "motivated by political rather than strategic calculations." (page 9)

The report notes a "general trend" of greater support in three influential Russian circles for the idea of deploying (including jointly with the US) a large-scale anti-missile system" (10). First, support for SDI comes from "a powerful lobby in the military-industrial complex with vested interests in development, testing, and deployment of new generation anti-missile defenses" (10). The heads of these defense and space corporations "insisted on inserting" the clause on building a joint defense system in Yeltsin's UN speech. (11)

Second, Russian support for SDI comes from new officials in the Russian Government and Parliament with little background in strategic issues, but who are intent on improving political and economic relations with the West. (12) Third, a loose coalition of academics, politicians and journalists support SDI apparently "to acquire popularity in the West and to contrast themselves against the established academic arms control community." (13)

The report concludes that "the majority of the arms control academic community is opposed to the deployment of large-scale ground- and space-based" defenses. (13) They believe the US "is unlikely to share with the Russians its advanced space technologies," and that parallel defensive deployments "would create additional complications for the US-Russian strategic relationship and arms reduction efforts." (13)

In this view, ballistic missile threats "are inflated" and more useful political and military measures should be taken to address the nuclear proliferation problem. (13) Opponents of SDI within Russia include "the older diplomatic establishment", the Strategic Rocket Forces and think tanks, research and industrial corporations linked to strategic offensive forces and some Air Defense institutions. (14)

Arbatov himself proposes "the complete renouncement of a space ABM system and the retention of mobile theater ABM systems to protect overseas armed forces of the US and its allies, as well as certain peripheral southern areas of Russia." If needed in the future, "additional ground-based ABM sites may be deployed." (16) This view has also gained support from the PVO Strany (air defense forces). (16)

Arbatov and a Deputy Director of the Center for Arms Control and Strategic Stability, Gennady Lednev, conclude that "the probability of an unauthorized launch should not be ruled out", but that its rectification through "a major revision" of the ABM Treaty "would involve serious political and legal problems." (18)

The next essay, "Strategic Offensive Forces and Ballistic Missile Defense" written by Vladimir Dvorkin (Deputy Director, Main Institute of the Armed Forces, Strategic Rocket Forces) and Victor Surikov (Deputy Director, Central Scientific Research Institute of Machine-Building), argues that "a limited ABM system combined with deep strategic offensive force reductions may become an extremely powerful destabilizing factor." (27) As a result, the authors argue that the US and Russia would have to"negotiate qualitative, quantitative, and deployment limitations" on strategic defenses in order "to facilitate follow-on to START agreements." (30)

The following essay, "Strategic Defense Options for Russia" written by four experts from the Central Institute of the Armed Forces, Air Defense Forces, adopts a more positive view of strategic defenses. Two types of defenses are proposed: a point defense of ICBM launchers and of key installations, especially those representing "a danger to the environment." (37) Space-based defenses, however, are strongly opposed as upsetting "the strategic balance, based on the principles of nuclear deterrence," and as posing a strong break-out and anti-satellite capability. (41) Finally, this essay proposes conditions for a hypothetical collective defense system (42).

The final essay, "Prospects of ABM Programs and Agreements" by A. Arbatov argues that "the economic, political, and administrative turmoil" in Russia "is certainly not conducive to abrogation" of the ABM Treaty. (45) While Moscow could entertain some modifications to the Treaty, "any US decision to withdraw unilaterally and proceed with deployment would be perceived as a great setback in US-Russian relations." (46) In the tradition of "historic compromises", it may be possible for Moscow and Washington to negotiate an expansion of ground-based ABM defenses, initially emphasizing cooperation on the development of mobile anti-tactical systems, and on the deployment of space-based sensors, while prohibiting space-based interceptors. (47-48)

Preface

This study was commissioned in December, 1991 to address what have been heretofore under-researched questions: Is there a cohesive "Russian" position on ballistic missile defenses? What are the motivations, expectations and interpretations of key segments of the Russian national security community regarding "cooperative" work with the United States on ballistic missile defenses? Will pursuit of ballistic missile defenses in the next decade augment or detract from the security relationship between the United States, Russia and the other former Soviet republics?

American debate on whether and how to pursue GPALS (Global Protection Against Limited Strikes) or more modest variants of ground-based ballistic missile interceptors has not included careful and informed analysis of Russian positions on these matters. For the most part, US decision makers and the media have inferred Russian views, based on selected and contradictory signals from Russian sources.

This study clarifies why Russian signals have been mixed, and lends clarity to the diverse views held on the subject of strategic defenses in the former Soviet Union. In the past, many Sovietologists assumed a unitary strategic view from the Kremlin. Whether or not this assumption was ever valid, it no longer can guide U.S. policy. Our choices on strategic defenses will be made in the context of a complex political environment in the former Soviet Union. Our choices can also help shape that environment.

The authors of this study--a diverse team of Russian arms control and military-industrial specialists headed by Alexei Arbatov, Director of the Moscow-based Center for Arms Control and Strategic Stability--were selected because of their diversity and knowledge of the subject matter. Funds for this project were provided by the W. Alton Jones Foundation, which hopes that this analysis of Russian views will measurably assist decision makers, the media, and the American public in evaluating the future of ballistic missile defenses. The Henry L. Stimson Center administered this grant and produced this report.

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While the help of these individuals and institutions is greatly appreciated, their assistance should not necessarily be construed as an endorsement of the views expressed in this book - especially one such as this which includes many different assessment of a complex subject.

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Foreword

After almost a decade of a very tough stance on the issues of anti-ballistic missile (ABM) defenses, Moscow's position started to soften. This became apparent in President Mikhail Gorbachev's response to US initiatives on nuclear reductions in October 1991. For the first time since 1983 the USSR agreed to discuss the prospects of mutual development of a nonnuclear defense against ballistic missiles. The president of the Russian federation, Boris Yeltsin, moved still further along this path and at the beginning of 1992 proposed in the United Nations to create a joint ABM system in space "for the defense of mankind against nuclear missiles."

Taking into account the importance of the issue, on which the future of the strategic balance and arms control depends, it is not surprising that the above changes have provoked great confusion and intensive debates in Russia, the US, and other countries. It is far from clear how serious the new Moscow position is, what the reasons and motives behind this sharp turn are, what the driving forces behind it are, how the US will react, and how it will affect the strategic relationship of the states involved, including the arms control dialogue.

This paper does not aspire to answer all these questions with any degree of finality or comprehensiveness. Instead, it contains only an analytical review of the arguments and probable motives of various groups and institutions in Russia that impact policy-making in the arms control field. That is why individual essays contradict each other on a number of important assumptions and proposals.

These inconsistencies were deliberatley preserved in the final text, to represent as fully as possible the original views of various groups and institutions involved. Actually, it is supposed to be a unique feature of this report, that a number of formally super-secret Russian defense organizations have for the first time come into the open with their peculiar strategic philosophies. They are now available to the interested Western audience in an uncensured form, not diluted by traditional political or propagandistic considerations.

On this basis, forecasts are provided on Moscow's reaction to some possible Washington decisions on the deployment of an ABM system and compliance with the ABM Treaty. This will determine the future evolution of strategic programs and negotiations and will affect the general political environment and international security.

Swings of Soviet and US Strategic Defense Policies, in Retrospect

A fairly powerful community in the Soviet/Russian political, military, and academic elite has traditionally advocated adherence to the Anti-Ballistic Missile (ABM) Treaty as the guarantor of strategic stability, non-deployment of arms in space, and further reductions in strategic offensive forces (SOF). This stance was formulated in the beginning of the 1970s after the first profound change in Moscow's attitudes toward the issue. Initially, since the beginning of the 1960s, it was the USSR that insisted on its right not only to carry out research but also to deploy ABM systems unilaterally. General M. Talensky, the well-known Soviet military expert of that time, wrote: "The introduction of an effective anti-missile system makes it possible to render one's defense mainly dependent on one's own capabilities and not only on mutual deterrence."[1]

It took the US side considerable effort to convince Moscow in the course of diplomatic dialogue of the need to take into account the organic interaction of strategic offensive and defensive weapons. A. Fisher, the US representative to the "Committee of 18," emphasized that "anti-ballistic missile systems are no longer purely defensive systems: they are becoming part of the equilibrium on which, at the present time, stability and peace depend."[2] Then-US Secretary of Defense Robert McNamara, in his famous speech in San Francisco in September 1967, noted that if one of the sides—in particular, the US—decided to deploy an ABM system, the other side would respond with a buildup of its offensive forces and that "the sequence of action and reaction will generate a pointless and dangerous spiral in the arms race."[3]

At that time the Soviet leadership sincerely believed, as was manifested by the statement of Prime Minister A. Kosygin in 1967, that anti-missile defense was "in no way the cause of the arms race, but a factor preventing the annihilation of the people, and was far less costly than offensive weapons."[4] It took several years to persuade the Soviet leadership and military command that ABM systems would be detrimental to strategic stability and arms limitation agreements. Clearly the most persuasive argument was Richard Nixon's decision to start the deployment of the "Safeguard" anti-missile defense system, a step that threatened to lower the destructive power of the newly acquired Soviet missile forces, which for the first time in history quantitatively equaled those of the United States. The US ABM system would have created a new area of US strategic preponderance, given its technical advantages over the comparatively primitive, and extremely limited, one-area ABM system around Moscow, deployed in the second half of the 1960s.

It is usually assumed that at the beginning of the 1970s the USSR and the US reached a common understanding of the essence of the interrelationship between limitations on ABM systems and the reduction of SOF. This was laid down in the preamble to the 1972 ABM Treaty, which states: "Effective measures to limit anti-missile defense systems would represent a significant factor in restraining the race in strategic offensive weapons." Nevertheless,

contrary to the predominant opinion, the two sides remained far apart on this key issue.

The United States proceeded from the philosophy of strategic stability, formulated in the 1960s by American scholars and defense officials, in particular, Secretary of Defense McNamara. It postulated that the security of both sides depended on their mutual second-strike assured destruction capabilities. Putting this capability of the opponent under doubt by each side would endanger each side's own security, since it would provoke the other power to preempt in a crisis out of uncertainty in its forces' capability to survive and retaliate in a second strike. Hence any program and system that threatened the retaliatory capability of the opponent should be considered destabilizing, raising the probability of nuclear war and stimulating the arms race. From this point of view there was no principal difference between offensive and defensive weapon systems if they undermined the second-strike capability of the other party and in this way degraded strategic stability.

This theory, officially adopted by the US in the 1967-83 period, was in no way the only determinant of US strategic programs and negotiating tactics at the practical level. Still, it provided the administration, Congress, the academic community, and the press with a commonly shared reference system for designing, debating, and justifying strategic policy.

Nothing of the kind existed in the Soviet Union until at least the end of the 1980s. From the whole US doctrine of strategic stability Moscow adopted only one element: that deployment of the large-scale ABM systems would stimulate an offense-defense arms race, which would increase political tensions and thus aggravate the danger of war. The quintessence of the Soviet approach was reflected in the statement by one of the authors of the treaty, ambassador Victor Karpov, as late as 1987: "The main importance of the ABM Treaty lies in the fact that its conclusion halted the expanding cycle of competition between the strategic offensive weapons and defensive systems of the USA and the USSR."[5]

Not only was this statement factually wrong (the missiles of both sides that were equipped with multiple independently targeted reentry vehicles (MIRVs) continued to be deployed on a large scale), but it testified to the peculiarity of Soviet understanding of the ABM Treaty's role in the dynamics of strategic stability. This peculiarity predetermined numerous misunderstandings between the two sides after 1972.

It showed immediately when on 29 September 1972, during the process of the treaty's ratification, Soviet Minister of Defense, Marshal A. Grechko stated at the meeting of the Presidium of the Supreme Soviet: "The treaty does not place any limitations on carrying out research and experiments directed at solving the problem of defending the country against nuclear missile strikes."[6] This position was quite consistent with the Soviet position during negotiations on the ABM Treaty in objecting to a ban or limit on possible future ABM systems based on other physical principles (nevertheless some limitations of that kind were eventually included in Agreed Statement "D").

The Soviet position later interpreted this stance as referring only to research and development (R&D) not prohibited by Article V of the

treaty—that is the development of new exotic fixed ground-based ABM systems and components. From the angle of strategic stability, however, there was no difference whatsoever, whether the ABM system was to be fixed or mobile, ground- or space-based, traditional or exotic. The main criterion was instead whether it would undermine the retaliatory assured destructive capability of the other side or protect such a capability of its owner by way of covering strategic forces from a counterforce preemption by the other party. This model of logic never really penetrated the outlook of the Soviet political leadership, higher echelons of the defense establishment, or public opinion at large. It was adopted in the beginning of the 1970s only in the narrow circle of the liberal academic arms control community, by a few Foreign Ministry officials, and much later, by the end of 1980s, among small groups in the centers for strategic studies of the armed services and defense industries.

This explains the continuation after 1972 of substantial Soviet R&D and experimental efforts in the areas of directed-energy anti-missile technologies, space weapons systems, maintenance and upgrading of the Moscow ABM complex, costly expansion and modernization of territorial strategic air defense forces and systems, and development of anti-tactical ABM systems with enhanced capabilities. The most obvious revelation of this one-dimensional view of strategic stability and the role of defenses was the inconsistent and internally contradictory official positions on the Strategic Defense Initiative (SDI), ABM Treaty interpretations, and defense and space talks in the second half of the 1980s to early 1990s.

The development of the US-Soviet arms race, spurred on by the military confrontation and geopolitical rivalry of the cold war era, as well as a number of internal political factors, brought about a radical turn in the US policy on strategic defenses in 1983. From the tough opposition to ABM systems and persistent pressure on Moscow to comply with the American view of stability, Washington, under the enthusiastic leadership of President Ronald Reagan, changed course toward the goal of acquiring a "defensive shield" against the Soviet missiles, to make nuclear weapons "impotent and obsolete."

The plan to introduce a large-scale anti-missile system emphasizing exotic sensors and weapons in space (a plan boosted by the "astrodome" speech of President Reagan on 23 March 1983) was at once perceived in the USSR as a clear threat and an attempt to obtain strategic superiority in the capability to deliver the first disarming strike.

The stance of alarm adopted by Moscow was only partly explained by concern about strategic stability, at least only partly according to the traditional American understanding of the term. It is interesting to note that while Soviet arms control intellectuals emphasized the threat of the ABM system's undermining Soviet retaliatory capabilities, political and military leaders in Moscow, and consequently their representatives at the negotiations, pointed accusingly at the potential SDI system's direct offensive capabilities against targets on earth and in space, and at the dangers of unraveling the ABM Treaty.

In the latter case US officials were charged with "violating the objective offense-defense interrelationship," although even that formulation revealed the deficiencies of the official Soviet position. To anybody who would take the labor of thinking through the problem logically, it should be

clear that if the interrelationship is objective, it cannot be violated by a wish of any side. Instead of violating it, the US defense initiative might, to the contrary, trigger the mechanism of this relationship—that is, provoke a counteractive upgrading of offensive forces of the opponent. What might be violated is the "subjective" arms control interrelationship between the limitations on defensive systems and reductions and limitations on offensive forces of both sides, which was allegedly based on the "objective" interaction of defensive-offensive arms development and deployments.

Some of the contributors of this paper tried to correct this senseless position formula while being at the Geneva nuclear and space talks (NST), and they met with a complete lack of interest on the part of governmental representatives. No doubt, there existed in Moscow habitual political allegiance to the ABM Treaty as a symbol of the superpowers' mutual strategic respect and accommodation, but the three main reasons for the Soviet alarm were of a different nature.

First was the almost total lack of grasp among Moscow's highest political and defense elite of the dynamics of strategic balance, mutual deterrence, and the premises of stability, as well as the properties of outer space environment and physics of the directed-energy systems. That was not very different from the outlook of the US leadership, but all the other parameters of the policy-making environment were quite dissimilar. Having only a very general perception that security required "military-strategic parity," which in its turn required approximately the same and equal forces as those of the United States, Leonid Brezhnev's gerontocracy was deeply concerned by the inability of the Soviet military-industrial complex to counter the US SDI program with anything comparable. (By the mid-1980s the Soviet military-industrial complex had already exhausted the country's economy by the three-decade-long marathon race in offensive nuclear weapons and conventional forces buildup.)

Political and military leaders could never understand the arguments of a small group of experts (in particular, E. Velikhov, R. Sagdeev, A. Kokoshin, A. Vasilyev, A. Arbatov, S. Rodionov, O. Prilutzky, M. Gerasev and S. Oznobischev) that a multilayered anti-missile system would at best have only limited effectiveness and at the same time might be dangerous and destabilizing. Still less comprehensible to them was the idea that the negative effect would follow not only if defense was introduced unilaterally by the US, but also and even to a greater degree if both sides deployed large-scale ABM systems.

The second driving momentum was the deliberate inflation of the SDI threat by the Soviet space and missile organizations of the armed forces and research-production associations (*nauchno-proizvodstvennye ob' edineniya*) and their lobby in the Central Committee of the Communist Party of the Soviet Union (CPSU) and in the Council of Ministers. Their goal apparently was to scare the political leadership into allocating still larger appropriations for defensive programs and offensive missile and space systems modernization.

Finally, there was the desire of the defense-industrial community to utilize the SDI threat campaign to create the deadlock at the Strategic Arms Reduction Talks (START) and the intermediate-range nuclear forces (INF) talks.

There was substantial concern in those circles that the elderly political leaders might make large concessions under the pressure of the militant Reagan administration.

All the above points may explain why Moscow's positions during the 1980s, with few exceptions, looked as though they were deliberately designed to undercut influential opposition to SDI in the US Congress and academic community. The Reagan administration and the SDI Organization were erroneous in portraying members of this opposition as promoters of Moscow's interests. In fact, this pro-Soviet role was inadvertently fulfilled by the US partisans of SDI, who played directly into the hands of the Soviet policy as long as it was formatted predominantly by the defense establishment and imposed on ignorant and ill political leaders.

According to available information, in 1983-84 the decision was taken at a sequence of Politburo and Defense Council sessions to start programs designed to counteract various SDI projects. The main emphasis in these "asymmetrical response" programs was put on upgrading the offensive missiles' penetration capabilities and on a number of new anti-satellite (ASAT) projects in addition to one missile-based system, deployed in the Tyuratam (Kazakhstan) space and missile testing range since the end of the 1960s. Also, research, engineering, and construction work was expanded on laser and particle-beam weapons in accordance with the above decision. It was only due to great efforts of preeminent physicists like R. Sagdeev and E. Velikhov, that those programs were contained within bounds of the ABM Treaty. The Soviet side claimed that it was engaged only in "fundamental research and scientific development," but the real scale of the effort was comparable to the SDI program in resources wasted, if not in the technical results achieved. This was later confirmed by Gorbachev in an interview, in which he stated that the Soviet Union was engaged in "fundamental research in those fields also, which in America are covered by the SDI program. But we shall not build an SDI, or deploy one. We call on America to do the same."[7]

From the time of the signing of the ABM Treaty in 1972 till October 1985, there were no fundamental disagreements between the sides on the interpretation of the limitations laid down in the treaty. As work on the SDI projects developed, the US administration began to move away from the traditional interpretation of the treaty (which it called "narrow") and to advocate a so called "broad interpretation." The issue of the legitimacy of testing space-based components in space became the principal divide between these two interpretations (that is, the interpretations of article V, II, and Agreed Statement "D").

In 1985-91 repeated efforts by the Pentagon to push through a broad interpretation were frustrated by opposition in the US Congress. As was demonstrated by Senator Sam Nunn's report and numerous statements of the former participants of the ABM Treaty talks and ratification, since 1972 the US government had proceeded from the assumption that the development and testing of ABM components based on "other physical principles" could only be carried out on fixed ground-based types.[8]

The discussions on strategic defense and space issues within the framework of the US-Soviet NST negotiations in 1985-91 serve as a classic

example of fruitless arms control negotiations. The two sides did not even begin to find common ground for compromise, and the discussions deteriorated into an endless repetition of diametrically opposite positions. The US goal apparently has been to use the negotiations to mollify the opposition to SDI in Congress by creating the impression of a business-type dialogue with the Soviets on the revision of the ABM Treaty and "joint transition to the defense-dominated strategic relationship." The tactic was designed as a cover for implementation of SDI projects of research, development, engineering, and full-scale testing of space-based ABM components. That ploy was only partially successful, since Congress prohibited tests violating the "narrow" interpretation of the treaty. On the other hand, a number of experiments conducted in 1988-91 were within the "gray area" of the treaty limits, owing to the lack of precise and legally agreed upon interpretations of certain crucial terms, in particular: ABM "component," "development," testing of "space-based component," and "capabilities to counter strategic ballistic missiles."

In retrospect it is possible to speculate that in view of the substantial support for the ABM Treaty within the US and the opposition to SDI expansion beyond the treaty limits, coupled with the budget deficit problem, the destabilizing effects of SDI could have been greatly alleviated and the program itself restricted to more or less pre-1983 scale -- provided Soviet policy had been intellectually sound, open-minded and innovative. Unfortunately, it was none of these.

During all the years of NST negotiations, the Soviet side has been unable to explain its position on crucial aspects—in particular, on what was permitted or prohibited under the terms of the treaty, what was the threshold of legitimate research activities, or what were the technical characteristics of physically new systems and components permitted for development, tests and deployment. The parameters of prohibited R&D proposed by the USSR were a cause of considerable concern to independent Soviet and US experts, since those were even more vague and open to dual interpretations than the original terms of the treaty.

The main reason was that the Soviet side in reality was interested not in ensuring strategic stability (the essence of which was not understood or accepted in official Moscow) but rather in hampering as much as possible the US SDI program per se. At the same time, Soviet directives at NST were designed to meticulously avoid limiting in the slightest way its own anti-missile, space, and directed-energy systems and projects, pushed forward by the powerful defense-industrial and armed services organizations. Moscow's tacit violations of and encroachments on the ABM Treaty (for example, the notorious Krasnoyarsk radar) deprived it of the strongest leverage in dealing with US transgressions and undercut the treaty partisans inside the US.

Empty slogans with a strong propagandistic flavor (such as "prevention of arms race in space" or "banning space-strike arms") substituted for technically sound and strategically consistent negotiating positions, designed to impartially restrict systems and programs of any side when threatening strategic stability and limitations of the ABM Treaty. All attempts of the few above-mentioned experts, who understood the issues of

technical and strategic nature involved and who were free of the vested interests, to introduce substance and impartiality into Soviet positions either in Moscow or in Geneva were effectively subverted by the representatives of the defense-industrial establishment, sometimes with personal career damage incurred by the former.

Thus it is not surprising that defense and space talks turned out to be a futile, self-serving exercise. If they had any effect at all, that was to help the advance of US and Soviet defense-space programs and to weaken the limitations of the ABM Treaty. In addition, this "dialogue of the deaf" tangibly slowed down the talks on strategic offensive systems, which were linked to defense and space negotiations. Many suggestions, including those of some of the authors of this paper, to go further in reductions and limitations of ballistic missiles (in particular, of heavy-type intercontinental ballistic missiles [ICBMs]) were rejected out of hand with the reference to the pending deployment of the US ABM system and the need to preserve fast "break-out potential" and penetration upgrading capabilities on the Soviet side.

With profound changes in the US-Soviet and international relations, and a new economic and political climate inside the US, the SDI program was significantly revised. In his State of the Union message of 29 January 1991, President George Bush declared reorientation of the SDI program toward an anti-missile system for "global protection against limited strikes" (GPALS). Instead of an ABM against massive Soviet missile attack, the new version of a two-layered ground-space system would be designed to intercept single or limited launches of accidental nature or by third parties (such as Iraq, Iran, or Libya).

The new US position met with a cool reception at the Geneva negotiations. The Russian side continued to declare that it would assess any concept in the field of ABM defense from the point of view of strategic stability and the prevention of an arms race in space.

Moscow's representatives stressed that any changes in the existing ABM regime may only be considered in light of the development of qualitatively new allied relations between the United States and Russia. Also it was stated that both sides should undertake an analysis of the real threats (including the proliferation of missile technology in the Third World, or the danger of unauthorized missile launches) and reach an agreement on the key aspects of the interrelationship between strategic offensive and defensive weapons. Moscow emphasized as well that Gorbachev's statement on the readiness to discuss the US proposal on non-nuclear ABM systems did not mean agreement with this proposal.

The US suggested that negotiations should be started in Geneva on "a new ABM regime," allowing the sides to deploy anti-missile systems that would exceed the limits laid down in the ABM Treaty, though on a limited scale. The US promised (evidently to meet Soviet concern) to continue observing the treaty for a certain period and to reach agreement with the Soviet side on a number of quantitative limits on deployment of a GPALS system.

Still, Moscow insisted that any large-scale ABM system could be quickly transformed into a territorial system covering the whole country (and

space components-expanded to thick global coverage) and thus upset the strategic balance. "These considerations," pointed out General F. Ladygin, head of the department of the General Staff, "have not become obsolete in contemporary conditions, when relations of cooperation and partnership are being formed between the states. They will not lose their validity in the future, either." The GPALS system will have—in the words of the general—"all the key elements for mastering the concept of a dense anti-missile defense of the territory of the country and forms the necessary foundation for a rapid expansion of the system at a later stage up to the dimensions of an ABM system against a massive nuclear strike."[9]

The failed coup of August 1991 in Moscow triggered gigantic changes in what has been called the Soviet Union for the last seven decades and in its relations with the rest of the world, in particular, with its superpower "mortal rival"—the United States. Compared with the collapse of the Communist party, the disintegration of the Soviet Union and the emergence of a new Russian state—with its program of economic and political reforms, modification of Moscow's stance on the defense and space issue—might look like an event of secondary importance. Nevertheless, when analyzed within the unique setting of strategic, economic, and political realities, this issue may acquire much greater significance in the long run.

Anti-Missile Protection and Russian Politics

After the disintegration of the USSR, within the context of reorganization of governmental and political structures in Russia, debates on ABM systems received a new impulse. In January 1992 President Yeltsin in his first presentation in the United Nations (UN) Security Council put forward a new initiative: "To deploy and operate jointly a global system of protection of the world community, based on revised American SDI and advanced technologies developed by the Russian military-industrial complex." At the same time, he reinstated the Russian stance in support of the ABM Treaty.[10]

To most experts in Russia and abroad, this proposition came as a complete surprise and so far remains largely unexplained. The more Moscow's officials tried to clarify what the president had in mind — the more confusion was created.

Russian Foreign Minister A. Kozirev, in his statement at the UN Conference on Disarmament on 12 February 1992, emphasized Yeltsin's commitment to preserve the ABM Treaty and reiterated the traditional position against deployment of weapons in outer space. According to Kozirev, the president proposed a joint research program as a substitute for SDI, to prevent the "brain drain" from the nuclear-space industrial complex and to create a global defense system for the protection of mankind against (missile) actions by terrorists or irresponsible political leaders.[11] Commenting on the president's proposal, Marshal E. Shaposhnikov spoke about "a system based on space-based elements, developed by the Americans, and ground-based ABM elements, developed in Russia." Academic E. Velikhov, however, referred only to "an early warning system" as a joint US-Russian venture and not to an ABM system with interceptors and battle-management complex; nor did he mention the joint deployment of ABM components in outer space.

In an official clarification, given shortly after President Yeltsin's press conference, it was also stressed that what had been proposed was to turn the SDI program into a joint, global system of control over the nuclear threat. The function of the proposed system would, therefore, be quite limited and not include intercepting ballistic missiles or their warheads. Allegedly it would be restricted to joint tracking and warning of a missile launch, and nothing more.[12]

These obvious contradictions and confusing "clarifications" are indicating that Yeltsin's initiative had not been preceded by any comprehensive study in the bureaucracy or academic community. Most probably it originated in a narrow group around the Russian president and had an impromptu character, motivated by political rather than strategic considerations. It was also a vivid example of a disarray in the Russian policy-making mechanism during the ongoing transitional period.

So far, Russia and the US have agreed to cooperate in setting up a joint early warning system of ballistic missile launches. Secretary of State James Baker stated in the course of his visit to Moscow early in 1992 that the US was ready to exchange with Russia "technologies in the field of a global defense against limited nuclear strikes." However, Washington has not supplied further details of the scope of such an exchange. It is known that until

now Washington has only been prepared to exchange information on a limited and voluntary basis.

The US authorities have repeatedly stated that in parallel to developing an improved early warning system, they intend to build ground- and space-based ABM weapon systems to intercept missile strikes, including those originating from the territory of the former USSR. In this respect it has not been clarified, either on the US or on the Russian side, in which form, under what conditions, and how the US will provide the Commonwealth Unified Military Command or the Russian Ministry of Defense access to advanced GPALS technologies. Besides, the experience of cooperation between United States and its North Atlantic Treaty Organization (NATO) allies within the framework of the SDI program in the 1980s demonstrated great reluctance on the part of the US to share its advanced technologies with its closest traditional allies.

It should be stressed that in Russia and other Commonwealth states the ongoing debates on global defense against limited strikes predominantly have a very general political rather than strategic or technical nature. No clear distinction is made between ground-based and space-based elements of ABM systems or between SDI and the employment of space for monitoring and communication purposes—and even less, among various interpretations of the ABM Treaty. In their overwhelming majority both the politicians and the military experts do not frame their arguments in any concrete strategic or legal terms, nor do they possess the necessary professional vocabulary or technical knowledge that are the stock-in-trade of American political scientists and officials. Several dozen Russian civilian and military professionals, who have been dealing with the issue for the last two and a half decades and can explain with precision what they have in mind, are a minority in the chorus of newcomers to the club of strategic discussions.

Still, the general trend is clear. Numerous statements by senior officials, military commanders, R&D managers, and independent experts—as contradictory and imprecise as they may be—show the growing support in some influential Russian circles for the idea of deploying (including jointly with the US) a large-scale anti-missile system.[13] Basically there are three principle groups with their specific interests pushing in this direction.

First, there is a powerful lobby in the military-industrial complex with vested interests in development, testing, and deployment of new generation anti-missile defenses, space weapon systems (including directed-energy types), more sophisticated sensors, and command-control satellites. These are huge construction bureaus and production facilities headed by well-known scientists and managers, such as Yu. Semyonov, B. Bunkin, A. Savin, and G. Yefremov. They have not, up to now, succeeded in bringing their projects to the stage of industrial production, because of opposition on the part of officials, military, and scientists who are skeptical about the prospects of space defense and who are in favor of observing the ABM Treaty. The space corporations have been badly damaged by the cuts of military expenditures. And they were largely unsuccessful in the area of conversion because of the highly specific and sophisticated profile of their programs and their traditional neglect of the importance and opportunities of civilian markets.

The heads of these defense and space corporations recently began to search actively for contacts in the West (for instance, under the disguise of conversion) after it became obvious that drastic reductions of allocations on defense research and construction programs were not a temporary misfortune or a whim of political leaders. They insisted on inserting in the text of the Russian initiative in New York the proposal "to build a joint global defense system of the world community."[14] Representatives of these circles, being quite competent in technical fields but very naive in politics and strategy, hoped to turn the negotiations on defense and space (the course of which they had previously and effectively obstructed) into virtually a "fair" of military hardware and weapons. They understood that in the new economic and political situation the old "American threat" thesis would not fly, and they easily changed the justifications of their requirements.

By the end of 1991, they had already begun to promote persistently the idea of building a joint defense system with the West. They argued that the participation of Russia in such a program would constitute a form of "commercial conversion" of the military-industrial complex and enable it to get huge foreign credits and contracts for the state without painful restructuring of their research and production pipe-lines. In a sense this pattern is similar to many other defense-industrial policies, in particular, those advocating expansion of arms exports and transfer of nuclear technologies and materials to foreign countries.

The above-mentioned defense-space leaders represent a large, secluded community of physicists, engineers, managers, and highly skilled labor with their corporate mentality and vested interests. According to one of the contributors of this paper, representing this social strata, in the defense-space technical circles of the Russian military-industrial complex it is generally accepted that the development and deployment of a strategic ABM system (SDI-type) is one of the legitimate channels of a natural and logical competition of defense against offensive nuclear weapons (Whenever a new weapon was invented, technical means were developed to counter it.)

Participation in the building of a national strategic ABM system (or one in parallel with the US) is perceived as an important and absorbing task that, apart from satisfying professional scientific interests, will bring considerable social advantages.

The political aspects of SDI have virtually not been discussed among leading scientists and experts belonging to the Russian military-industrial complex, especially since the disintegration of the Soviet Union. Serious researchers of the complex have not been politically minded (although a minimum of camouflage was always required in the USSR in order to survive and for promotion). According to the same author, they did not participate in the elaboration of Soviet disarmament proposals, a field that was reserved for a small, elite group of professionals among well-known officials, scientists, and virtually unknown military experts.

The result was that nearly all agreements on arms reduction and limitation were looked upon by the scientific community of the complex as purely political agreements that, moreover, were scientifically ill-founded. On the other hand, because of the uncertainty surrounding their personal fate,

owing to the great changes that have taken place in the country and the world, the scientists of the Russian defense-space complex would strongly welcome an agreement on the deployment of an ABM system exceeding the limitations of the treaty. This would provide them with continued employment in their specialty.

The second group consists of many new officials in the Russian government, politicians in Parliament and some military advisers close to the Russian leadership (K. Kobetz, presidential adviser for defense; V. Samoilov, head of the department for military reforms of the Russian State Committee for Defense; and V. Shlykov, deputy chairman of the same committee; and V. Vladimirov, "minister of defense" in the shadow cabinet of the radical fraction of the Russian parliament).

None of these people have ever professionally dealt with the issues of nuclear weapons, anti-missile systems, the ABM Treaty, or strategic stability. They are quite uninformed about international relations, American politics, and strategic doctrines. Nevertheless, at present they have the political initiative, close contact with Yeltsin, and freedom of the legacy of the old establishment. It is on them that the Russian negotiating policy will largely depend, including talks on the ABM systems and treaty.

Their three principal premises are as follows. First, most of what was supported or rejected by the previous Soviet leadership was wrong and has to be reversed. Second, economic relations with the West are the only thing that matters, and political-military issues must be adopted accordingly. Third, the views of the Bush administration are the views of all of the United States and all of the West. Thus the new state of relations with the US should evolve into an alliance (for instance, Russia's joining NATO), including joint ABM defense against the Third World, which will bind Russia and the US politically and bring great financial and technological benefits to Moscow. Some of them (for example, V. Kozin of the Foreign Ministry) uphold the American idea of raising the limits on anti-missile interceptors and relaxing the ban on space weapons included in the treaty.[15]

Finally, the third group is composed of a number of scholars, politicians, and journalists who for various reasons support the official US position. Some of them are the "old guard" political scientists, such as E. Trofimenko, who have the impression that "a Soviet SDI, like the American could protect the USSR against terrorist attacks." Others, not burdened by confusing dilemmas of strategic theory, go even further. Academician N. Moisseyev supports something akin to an SDI and advocates creation of a multinational space-based security system, under the aegis of the UN.[16]

A number of experts from the recently created centers for strategic studies (for instance, Russian Institute on National Security and Strategic Studies) support strategic defenses and propose to discard the ABM Treaty. Interestingly enough, in the 1980s some of them were promoting the thesis of "the acute threat and ample feasibility" of a leak-proof US SDI-type system. With the change of times and politics they now go as far as to declare that it would be preferable for Russia (instead of building a costly global defense system) to join the existing US SDI program and rely on US protection against terrorist attacks.[17] They now speak in favor of Russia's joining NATO, and of

creating a united front against the Muslim world. Apparently, one of their motives is to acquire popularity in the West and to contrast themselves against the established academic arms control community.

Nevertheless, the majority of the academic community of the former Soviet Union is opposed to the deployment of large-scale ground- and space-based ABM system. It tells a lot that those are the same people who were arguing against the SDI scare campaign in the USSR in the 1980s, who were opposing excessive Soviet offensive and defensive forces and programs, and who were usually advocating larger concessions at the arms control negotiations. Their credentials as proponents of better relations with the West are beyond doubt. They are quite knowledgeable in the ways that US policy-making operates and that international politics work. And they are now against both the US suggestion to cooperate in deployment of a global defense system against limited strikes and the Yeltsin proposal for building a joint global defense system of the world community.

An overwhelming majority of the representatives of this group believe that the United States is unlikely to share with the Russians its advanced space technologies, developed within the framework of SDI. Parallel deployment of anti-missile systems would create additional complications for the US-Russian strategic relationship and arms reduction efforts. As one of their leaders, Georgy Arbatov, pointed out, "Hopes about the joint development of a space shield are vain."[18]

They argue that the threats of ballistic missile proliferation are inflated and that the large-scale ABM system will not be able to cope with the source of the problem: nuclear proliferation, for which ballistic missiles are only one and the least handy of the various available delivery vehicles. As their argument goes, there are other political and military ways of dealing with the problem directly and much more efficiently. Another point of those forerunners of Mikhail Gorbachev's new political thinking is that neither economically nor politically is a large-scale and costly ABM system affordable at the time of the present unprecedented economic crisis in Russia.

These people have allies in some of the radical military mavericks. The implementation of the proposal to build a joint ABM system would, according to V. Lopatin, the deputy-chairman of the State Committee on Defense, "give rise to a new spiral in the arms race," which would bring no advantage to Russia, with its declared policy of demilitarization, but only to the military-industrial complex, "which we have inherited from the past and which combines the interests of industrial and army generals."[19]

In this respect one cannot help but notice the obvious contradictions in the official argumentation in favor of a "global defense system of the world community." On the one hand, as Boris Yeltsin noted, the former Soviet Union "developed a project, similar to the SDI, on paper only." On the other hand, the president expressed his confidence that the development of a global, space-based defense system would not affect the Russian budget negatively.[20]

However strange the ongoing realignment of alliances in Russia may seem, the above group of the veterans of the arms control community is supported (even if with different motives) by those social circles that in the

1970-8Os were usually at odds with and often overtly hostile to the liberal academics.

First, there are representatives of the older diplomatic establishment, who were involved in arms control policy-making and committed to the opposition to SDI and the support of the ABM Treaty. They were frequently criticized by the academics for the inflexibility and shallowness of their negotiating strategy, and they counterattacked, jealously guarding their monopoly on practical arms control. For instance, V. Karpov now goes as far as to advance the proposal (formerly made by Alexei Arbatov) to do away with the Moscow-site ABM system. In the end of the 1980s it was the major obstacle to improving the Soviet posture at defense and space talks. This is the so-called "zero option" for strategic ABM systems — the elimination of 100 anti-missiles and their launchers of the Salosh-Gazel system in Russia and the complete dismantling of the ABM system at the Grand Forks site in the United States.

Another broad echelon of opposition is composed of the institutions of the armed services (first of all, Strategic Rocket Forces — RVSN) and their think tanks: the head institute of RVSN and the Center for Operational and Strategic Studies of the General Staff. Also in this coalition are the departments of the General Staff and Ministry of Defense, traditionally responsible for supervision of arms control. Finally, this position is backed by R&D and industrial corporations linked to strategic offensive forces and programs. (The most outspoken representatives of those institutions are V. Lobov, F. Ladygin, A. Politzin, V. Byelous, V. Dvorkin, V. Surikov and others)

With all the changes in the country and in US-Russian relations in recent years, those groups do not see any alternative to preservation of mutual deterrence and strategic parity, albeit at much lower levels of forces. They are suspicious of new initiatives of the Russian leadership, perceiving them to be strategically and technically unsubstantiated. The START-I Treaty in and of itself is considered to be the major concession to the US, presenting substantial economic, technical, and strategic problems for Russia. Still worse in their opinion are the follow-on initiatives on further reductions to the level of 5,000, then from 2,500 to 2,000 warheads within the same timeframe, on "non-targeting" of missiles (much ridiculed by military and civilian experts alike), and on top of all, on a joint ABM system "for the protection of mankind."

This is quite different from the views of liberal academics and politicians, who consider START-I insufficiently radical for the new political environment. Traditionally, there was open hostility between these two parts of the opposition to ABM. Likewise, at present the military establishment is against joint transition to defense because it would completely frustrate their ways of dealing with security in the age of nuclear deterrence. They are suspicious of real US intentions and conservatively exaggerate US capabilities. Their fear is that as a result of new Russian initiatives, the country will be left with the worse of two evils: with the offensive forces of greatly degraded retaliatory potential and with illusive "cooperation" no way capable of providing Russia with an ABM comparable to the US one (not only for

economic and technical reasons but because of the quite different strategic threat emanating from the United States and third and fourth nuclear states).

This group perceives the danger of scarce resources being diverted into futile areas of defense and space technical adventures, depriving them of even the minimal allocations to support a retaliatory strategic posture and to subsidize their research-production complex and think tanks. (Out of eleven major strategic offensive modernization programs of the late 1980s, only one has survived: the road-mobile single-warhead ICBM, the rest having been stopped in mid-deployment or canceled altogether.)

It is necessary to emphasize that a majority of those experts are at present in favor of reasonably deeper arms reductions after START-I. But they are concerned by the possible combined effect of economic crisis and political illusions of US-Russian "strategic cooperation" on minimally achievable defense sufficiency.

It may be safely assumed that in the foreseeable future the traditional interpretation of stability and the strategic balance will prevail. The prospects of deployment of space-based ABM interceptors causes particular concern among Russian strategists. The use of space-based elements in the GPALS system, in violation of one of the main limitations of the ABM Treaty, in the view of Lieutenant General F. Ladygin, would mean the beginning of the deployment of weapons in space. "This introduction, even on a bilateral basis, would constitute an additional factor in destabilizing strategic stability, all the more so as it may create the temptation to deliver a preemptive strike against the space-based elements of the ABM system of the other side."[21]

It is true that these arguments reflect the stereotypes of the old thinking. This does not take away the fact, however, that the deployment of space weapon systems might bring unpredictable consequences for strategic stability. Whatever the merits of their reasoning, the healthy conservatism characteristic of the military in general, and of the Russian military in particular, is a restraining force on plans to deploy a global ABM system.

On the other hand, it would be wrong to assume that the idea of joint space defense is doomed. It looks extremely attractive and straightforward on the basis of simple common sense, in contrast with professional strategic-technical analysis. The pressure of vested interests and political illusions may not be predominant on a nationwide scale, but it may be quite strong within the transitional and rather chaotic policy-making strata of the Russian leadership. One possible reflection of this pressure may be the contradictory statements on the issue by the well-known scientist and public figure, academician E. Velikhov--one of the most influential SDI opponents in the 1980s.

Besides clear-cut partisans and opponents of defense, there are other positions. These are more a reservation on the part of the latter, rather than an autonomous point of view. It acknowledges that the emergence of new ballistic nuclear threats might justify some expansion of anti-missile defenses. In that case the question could be raised about amending the ABM Treaty without changing its most important restrictions. Another option is the improvement of defense systems against tactical ballistic missiles: anti-tactical ballistic missile defense (ATBM). This may constitute the area of US-Russian

cooperation now, after the two parties took commitments to eliminate all land-based tactical ballistic missiles.

A possible solution is therefore seen in the complete renouncement of a space ABM system and the retention of mobile theater ABM systems to protect the overseas armed forces of the US and its allies, as well as certain peripheral southern areas of Russia. If needed, in future additional ground-based ABM sites may be deployed.

It is interesting to note that this position of the ABM opponents is shared by powerful institutions affiliated with anti-missile and air-defense systems development within the domain of one of the largest armed services: the Air Defense of the Country (PVO Strany). These groups have adopted the theory of strategic stability and are conscious of the potential negative effects and enormous costs of large-scale ABM systems with space echelons, which might consume limited resources for less exotic, but more practical, systems to handle real contingencies. Many of the SDI-GPALS opponents from the liberal academic-political community agree with those options as possible optimal solutions of the defense issue.[22]

The above options are not an intermediary or a compromise position between the partisans and opponents of defenses, but are clearly within the realm of the views of the latter for a number of reasons.

- These options are compatible with the traditional theory of strategic stability with greater reliance on cooperation through arms control.
- They recognize the contradiction between expansion of defenses and further deep reductions of the levels of mutual offensive capabilities.
- They exclude any space weapons deployments as ABM components, in contrast with possible new space sensors.
- They accept possible partial modifications of the ABM Treaty in the future but are compatible with its fundamental logic and conducive to its preservation, in contrast with "mutual transition to defense dominance."
- They are based on the assumption that nuclear-missile proliferation primarily requires other than GPALS-type solutions and cooperative policies.
- They postulate that a mutual or parallel defense buildup would greatly complicate, rather than improve, Russian-American political and arms control rapprochement.
- They perceive the GPALS option not as a forerunner of the future strategic rearrangement, but rather as an SDI variant in search of a mission, motivated by vested interests and internal political considerations.

Since the views of the defense proponents are not elaborated in a strategic and technical sense, it is impossible to present any detailed account of them, besides the above general account and tentative assessment of their driving motives. On the other hand, an alternative point of view is elaborated in great detail. The next three chapters reveal the reasoning of the major opposition groups: the Russian arms control academic community, strategic

offensive forces think tanks, and air defense institutions (which were also responsible for ABM systems).

Limited Anti-Missile Systems and International Security

The new version of the anti-missile system, called GPALS (global protection against limited strikes), advanced by the US Department of Defense in the aftermath of the Persian Gulf war, envisages defense only against accidental or unauthorized missile launches and third countries' terrorist missile attacks.

The new plan envisions deployment of about 1,000 space-based kinetic, direct-impact infrared homing interceptors of the "Brilliant Pebbles" type, supported by 700-1,000 high-altitude, ground-based missile-interceptors with nonnuclear warheads. The former are to receive tracking information from the future "Brilliant Eyes" electronic-optical satellites, while the latter are to be guided by ground-based radars and homing systems.

In addition, a third layer is to be composed of a theater anti-missile system as a follow-on to the Patriot system that was used in the Gulf war to intercept Iraqi Scud missiles. The new US ATBM has to be transportable to any place in the world to defend US troops and allies. The whole R&D, procurement, and deployment program might take ten to fifteen years and cost around $50 on top of the $20 already spent on SDI.

New justifications for the system are internal instabilities in the former Soviet Union and proliferation of ballistic missiles in the Third World.

The probability of an unauthorized launch should not be ruled out. The question is whether an ABM system is capable of rectifying the situation. Extending a "thin" defense over the entire territory would require a major revision of the ABM Treaty. Such a revision would involve serious political and legal problems. Owing to differences in technical characteristics and standards, it would be extremely difficult to balance the ABM systems to ensure equal capabilities on both sides, especially since nonnuclear defense would make differences in technologies a much more tangible factor for strategic balance.

For instance, the location of anti-missile bases with respect to ICBM, bomber, and SSBN bases as well as the location of administrative and industrial centers necessarily will be quite different. The thicker the ABM, the more important these differences would be.

Space-based ABM interceptors would avoid many of those asymmetries. If technically feasible, a Brilliant Pebbles-type system would be able to intercept any ballistic missile above some altitude, regardless of launch or target location. However, it would create other, no smaller problems between the US and Russia, caused by technical differences between the two states, variations in suitable orbits, breakout threats of space-based interceptors, and vulnerabilities of their sensors and communication links.

Yet another problem would be the number of permitted ground-based ABM sites for the thin protection of the territory against limited strikes. First, it would largely depend on the range of interceptors. Obviously, the side with shorter antimissile range would claim a larger number of permitted ABM sites.

Second, the number of sites sufficient for the United States territory coverage would not suffice for protection of Russian territory, which extends many thousands of kilometers to the East beyond the Urals. A larger number

of sites for Russia would create concerns in the US and contradict the sacred H. Jackson 1972 amendment. An equal number would provide much denser coverage for the US, giving it potentially something more than just protection from a single or limited strike.

On top of that, asymmetries in defense requirements would be caused by the different warning time available to each side — Russia's being much shorter, given the proximity of potential African or Asian launch areas.

The United States might want to emphasize space-based elements of the ABM system, suitable for its own geostrategic situation and for protection of its allies. Russia, for geostrategic and technical reasons, may prefer land-based options.

While GPALS envisions exclusively nonnuclear interception, there is no serious strategic or technical reason for Russia not to opt for nuclear ground-based anti-missiles. On the contrary, it would have many advantages for more effective defense, if Moscow goes along with the US transition to defense policy (see chapter 5). But in that case, what would be the reaction of Western Europe, China, and Japan to a deployment of thousands of nuclear-tipped ballistic missiles across Russian territory with the range of many hundreds of kilometers?

Will they and the US be satisfied with Moscow's guarantees that anti-missiles will not be used for offensive purposes, and are such guarantees feasible? How will this affect the INF Treaty of 1987 and the recent commitments to eliminate nuclear surface-to-surface and surface-to-air tactical missiles? Even if agreement is reached that ABM will be nonnuclear, what are the prospects for reliable verification of these systems, which by definition are to be on high-alert status?

The US space-based interceptors would inherently possess anti-satellite capability. To balance that capability, the other power might decide to deploy its own ASAT system, either land- or space-based or both. Americans would not need operational deployment of transportable anti-tactical ballistic missile defenses on their territory in view of the absence of any threat within range. The other side would certainly choose to permanently deploy ATBM systems with combat-ready forces to face threats from southern azimuths. Such an advanced ATBM system would constitute a non-dedicated terminal defense layer partially effective against slower reentering Submarine-launched ballistic missile (SLBM) warheads. In and of itself this may be not of great strategic importance, but in combination with other defensive deployments it would create additional problems.

The US can discount the possibility of an air-delivered nuclear or chemical terrorist strike. In Russia, the threat of a Third World attack would be elevated to the highest defense priority. ABM and ATBM expansion would be senseless for Russia without further improvements in air defenses. Because of technical reasons, it would be extremely hard to limit air defense improvements for such threats without affecting the US-Russian strategic nuclear balance. Numerous other complications are in store if the ABM problem is reopened. In reality, economic crisis and nationalities problems might make deployment of additional ABM sites and installations too expensive and divisive for the Soviet Union to contemplate.

Indeed, US interest in defense against accidental launch is largely motivated by the possibility of a breakup or loss of control over the former Soviet nuclear arsenal. The ABM system, however, hardly provides a solution. At present, given the technical properties of command-control systems, ICBMs and SLBMs are least susceptible to unauthorized launch, even in the unlikely event of capture by the armed forces of Ukraine, Belarus, or Kazakhstan.

START Treaty implementation and follow-on deep SOF reductions will take care of the problem through the elimination of 334 ICBMs and 63 heavy bombers presently deployed outside Russia--concurrently with deep reductions of SOF in Russia and the United States. The last is crucial, for the other three republics will not accept a treaty designed to deprive them of missiles, located on their territories and in some cases produced in their plants and procured by their money as part of the former USSR single budget.

Russian ABM expansion on its territory would lead other republics to perceive this as a Russian strategy to preserve its nuclear monopoly and strategic dominance. They have already shown negative reaction to Moscow's unilateralism on anti-missile protection and offensive forces reductions in Yeltsin's UN declaration.[23] In case of an actual decision on ABM, they would reject elimination of ICBMs on their territories and might try to gain control over them, with ensuing consequences for global proliferation. A Russian ABM program would certainly deal the final blow to the CIS and exacerbate the dangers that GPALS is supposed to counter.

A joint Commonwealth ABM system is unimaginable with the present state of economic, political, and military relations among republics. Burden-sharing issues would prove unresolvable, and even the potential opponent, general architecture of the system, and deployment sites would be hard to agree on. And if a joint program nevertheless is started, possible disintegration of the CIS in several years would make splitting joint ABM such an explosive issue that the present quarrel around the Black Sea Fleet would seem a trifle by comparison. In anticipation of this eventuality no republic will agree to start a joint program in the first place.

From the US angle, the time required for GPALS development and deployment would be much longer than the period of instability in the former USSR (at least that related to ICBM contradictions). That will be sorted out in one way or the other in the next several years. Depending on the resolution of the current crisis, a US GPALS program designed against unauthorized launch, caused by calamities in the former USSR, will be either insufficient or unnecessary.

The "normal" theoretical probability of unauthorized or accidental launches inherent in the existing vast strategic arsenals may be effectively diminished by other means, including agreements between nuclear powers. The talks have to ensure reductions in counterforce strategic weapons and greater invulnerability of the remaining forces, as well as their warning and command and communications systems. These goals may be attained also by dispersing the remaining forces to highly survivable launch sites and platforms. Measures of that kind would reduce (and in principle even eliminate) the dependence of the two powers on the launch-on-warning principles, which in a crisis situation might greatly increase the probability of an unauthorized missile launch. ABM

deployments may thwart these agreements either directly or indirectly — through conflicts within the CIS.

Also of great importance are further developments in strategic confidence-building measures (such as notifications of missile launches, higher than normal deployment of strategic and attack submarines, and the takeoff of bombers) and the modernization of direct communication lines and centers for diminishing nuclear threat.

Some other methods are quite promising: the deployment of redundant, joint early warning systems, the exchange of technologies and the common development of preventive and blocking control devices, and mutual, verifiable installation of self-destruct mechanisms on missiles. These measures would provide much better insurance against an unauthorized launch than would the deployment of an ABM system of a GPALS type. The same should in principle apply to the three other nuclear powers.

The probability of terrorist nuclear missile strikes entails quite different ways and means of dealing with it. Clearly, the ongoing transfer of ballistic missiles and ballistic missile technologies to Third World countries opens the possibility of unstable, adventurous, and fanatical regimes or terrorist groups threatening the civilized world after getting access to nuclear (or chemical or biological) munitions and mating them with ballistic missiles. Within the framework of the limited systems that are at present permitted under the treaty, it is practically impossible to defend either of the two superpowers from a terrorist strike. Even with the Russian capital and central region protected against such a strike, and with the US having the right to defend Washington, other big administrative and industrial centers of the great powers, to say nothing of their allies, are potential "hostages" to threatened ballistic missile strikes by terrorist groups or regimes.

The moral aspect of such selective protection gives rise to great doubts. The extension of at least a "thin" defense to the entire territory would require revision of the ABM Treaty. Just as ABM systems designed against accidental launches, would involve serious political and legal costs, so would these measures.

Even with a disputable assumption that "thin" ground-based ABM systems may not destabilize US-Russian strategic stability and arms dialogue, their effects upon the other nuclear powers would be very great. The United Kingdom, France, and China most probably would perceive development of these systems by the larger nuclear powers as detrimental to their security for at least two reasons. First, new defensive capabilities would detract from the modest deterrent potentials of the smaller countries. Second, for political, geostrategic, and technical reasons, "thin" ABM systems would never give them comparable protection.

These states will not agree to give up their nuclear deterrent capabilities, which they acquired for security and status through great economic sacrifice. The expansion of the primary nuclear powers' ABM systems will only spur other states to build up and improve their nuclear potentials and to unite their efforts. That would make their participation in nuclear arms control much less promising.

This reaction is apparent even with respect to the limited ABM systems that are now permitted by the treaty for protection only of the capital or one area of ICBM deployment. There is no information about the operations planning and the principles of the targeting of China's nuclear forces. However, reliable sources show that present British and French modernization programs and buildup of strategic arms have in large measure been stimulated, or at any rate justified, by the need to overcome the existing ABM system around Moscow, and in the longer run, by the desire to counter possible larger-scale ABM deployments.

Further expansion and modernization of the French and British nuclear deterrent forces and possible closer cooperation between the two countries would raise the issue of German participation in European deterrent potential or, even worse, of the creation of Germany's own nuclear forces. This problem would be extremely divisive and politically and strategically costly for Western Europe, NATO, European politics, and US-Russian relations.

China's relations with the primary nuclear powers are different from those of NATO states, and its reaction to ABM deployments would be still more negative, although hardly predictable. For instance, as a response to ground-space ABM systems, China could opt for larger ICBM and SLBM forces and a hair-trigger launch system, nuclear ground- or space-based (space-mine type) anti-satellite systems, long-range sea- , air- or, land-based cruise missiles and so on.

Beijing's position on the issue of ballistic missile proliferation and nuclear-chemical transfers in the Third World might become much less cooperative: since ABM systems would be perceived as a threat to China, it would be interested in creating as many potential defense penetrators as possible.

Chinese buildup and transfer policies cannot but affect other states' attitudes toward nuclear-chemical-ballistic proliferation. In a new, multipolar world, the reaction of Japan, both Koreas, Taiwan, India, Pakistan, Iran, Iraq, Libya, and other countries will most probably be very detrimental for nonproliferation. To say the least, it would seriously aggravate existing threats.

Reaction of the Third World regimes to ABM deployments against them would go along the paradigm of self-fulfilling prophesy. It would inevitably be seen as a major step toward the superpowers' condominium, and a sign of greater willingness to use force either jointly or unilaterally. Parallel or joint ABM efforts might bring about results opposite the declared goals. These would be: expanded efforts in missile development; cooperation, transfers, and trade in missile technology; and further nuclear and chemical proliferation.

It should be borne in mind that even if effective GPALS-type systems are deployed, adventurous regimes and terrorists will have many other ways of delivering nuclear munitions should they acquire and decide to use them. Incidentally, long-range ballistic missiles are the most complicated and expensive delivery vehicles, and so the least suitable for use by underdeveloped states or terrorists. Organizing the production of even one such vehicle requires the establishment of whole branches of machine-building and of chemical and electronics industries, the construction of launch sites, the training of service personnel and so on.

This activity would be detected in good time, and the missiles and infrastructure connected with them would be observable and extremely vulnerable even to the conventional weapons of major powers. If a nuclear weapon gets into the hands of terrorists or adventurous regimes, it would be much safer and technically easier for them to use other types of delivery vehicles: combat or civilian airplanes, cargo ships or boats with the explosive device delivered in port, submarines with torpedoes, and so on. Maybe a long-range ballistic missile looks more attractive to some proliferators from an operational point of view or for symbolic reasons. The paradox, however, is that a GPALS program, if technically successful, would give them at least ten years' advance notice to concentrate on other types of delivery vehicles for their weapons.

In this field, as in many other, areas ABM defense in all probability would not solve problems but rather create additional difficulties. It is a great illusion that a neat technical device like ABM may thwart the momentum of nationalism potentially coupled with nuclear proliferation. Instead, the great powers should rely on a more sophisticated mixture of their potential of devastating nuclear retaliation; conventional preemption; and coordination of their actions in political and economic areas, in regional security arrangements, and, in armed forces application for preventing the proliferation of weapons of mass destruction and missile technologies.

At the same time, based on the experience of the Gulf war, a theater ATBM system might be expedient for the US and Russia for possible future Third World contingencies. It will not upset the military balance, since both states are withdrawing tactical missiles from areas, where they have been within range of their targets and deployed against each other's forces. According to the recent commitments, these missiles will be soon eliminated altogether. Besides, for Russia, an ATBM system would serve as a prudent precaution to cover the southern regions of its territory from possible threat of nuclear missile proliferation. Also this might serve as the first field and test of post-cold war military-technical cooperation between the US and Russia, not threatening to third states.

If this decision is accepted, it would be necessary to make sure that ATBM systems development, testing, and deployment do not undermine the ABM Treaty, especially Article V, which prohibits giving missiles, launchers, or radars, other than those of permitted ABM systems, capabilities to counter strategic missiles, and prohibits testing them in an ABM mode.

Additional protocols of common understanding would be necessary. For instance, it would be worthwhile to define "testing in an ABM mode" (to supplement the Protocol of 1978) as testing against real targets with reentry speed in excess of 4 km/sec or intercepts at altitudes higher than 40 km. (The actual reentry speed of ICBM warheads above this altitude is 5 to 7.2 km/sec., and effective interception has to take place above 50 km to provide terminal defense for non-hardened area targets.) Other agreements may deal with permitted acceleration of antimissiles; the potential of their radars: quantities and permitted deployment areas: and liberalization of limitations on space sensors, which can greatly enhance effectiveness of early warning, target acquisition, and tracking.

In summary, the end of the cold war, if it is real, provides for much more promising areas of great power joint actions to deal with the problem, than for parallel or joint ABM deployments. If, on the other hand, the coming of a new era is not real enough to make nonproliferation policies work, strategic defense systems would make things still worse.

Strategic Offensive Forces and Ballistic Missile Defense

The radical changes that are occurring in the world and in the former Soviet Union have already produced considerable revision of all spheres of interstate relations. This includes arms control negotiations and treaties implementation.

In the sphere of strategic offensive forces (SOF) the main tenets that guided the development and reduction of the nuclear superpowers' weapon systems — in particular, the maintenance of nuclear equivalence or parity at all stages — are being reevaluated, as is the acceptable scale of mutual or unilateral SOF reductions. In a number of cases specialists are unfortunately compelled to explore these problems after the political decisions or initiatives have already been taken, and the pace and scale of these political steps are not always easy to predict.

On top of that, stormy events on the territory of the former Soviet Union — including the economic crisis (which limits not only the development but also the capabilities of elimination of strategic arms), social instability, and conflicts among CIS states — make it extremely difficult to conceive of the possibility of elaborating a scientifically based system of SOF limitation and reduction. Traditional views are apparently obsolete and hard to implement under new conditions, while sufficiently defined new criteria are not yet available. Nevertheless, to abstain from the development of consistent criteria for the structure of further deep SOF reductions would constitute an intellectual capitulation at an extremely inopportune moment.

The factors and conditions defining the directions of the arms control process clearly have a long-term nature. The situation on the CIS territory may serve as an additional test for the disarmament process and regime, worked out for more stable conditions. Therefore, the challenge lies in creating a new, long-term concept of national security in relation to the development and reduction of strategic nuclear weapons.

The end of the accustomed military and political confrontation between the nuclear superpowers makes it possible to assess the requirements for nuclear weapons not so much from the point of view of nuclear deterrence (for which a devastating retaliatory capability was required at all cost and with the maximum margin of assurance), but having in mind the lowest achievable levels of the balance of deterrent capabilities. Such a balance should stand in the way of an emergence of a global nuclear monopoly, since such a monopoly is capable of breaking up even partners and allies in the absence of greater common threat.

Another important factor is the natural discrepancy between the processes of weapon systems development and degradation as this affects strategic balance, on the one hand, and the evolution of political relations, on the other hand. The introduction of major strategic weapons — from their inception to the fulfillment of their deployment — requires fifteen to twenty years, as the experience of nuclear states demonstrates. A long time is also required for the elimination of those weapons in a way that minimizes its costs

and negative impact on the environment. In contrast with this, the path from confrontation to partnership is significantly shorter. And history shows that the way back may be even shorter.

Therefore, the concept of national security in the sphere of SOF has to be oriented toward a long historical period, toward a comprehensive balance sheet of the long-term interests and capabilities of states.

One of the generalized criteria-based approaches, widely used in the former USSR in the last couple of years to analyze different options in the sphere of SOF, is that of evaluations on the basis of the concept of strategic stability, which is itself a long-term indicator. Some specialists, both in the United States and in Russia, define strategic nuclear stability as a situation in which neither side has an incentive to use nuclear weapons at any time, including during crises or conflicts. Stability is said to be strengthened when both sides' forces are capable of surviving a first strike, and when no first strike can significantly alter the existing relative balance of forces.

These views have only one shortcoming: they are so general that they are useless in trying to formalize the criterion of strategic stability and to apply it in a qualitative analysis.

From that point of view, the following definition may be more promising: strategic stability is a solid military-strategic equilibrium or strategic nuclear parity, which can be maintained for a long period of time, irrespective of the impact of destabilizing factors. These factors include: scientific-technological breakthroughs that may sharply increase striking and reconnaissance capabilities, large-scale ABM deployment, vulnerability of strategic nuclear forces to conventional weapons, the emergence of new coalitions of states, and so on. Defining military-strategic equilibrium as a rough parity between both sides' potentials in similar types of combat actions (such as preemptive counterforce strike, counterforce-countervalue attack, countervalue retaliation and so on) makes it possible to evaluate the impact of different levels of SOF reductions, as well as that of a whole range of stabilizing and destabilizing factors on that equilibrium by using models of operations by strategic nuclear forces.[24]

An analysis of the impact of different levels of SOF reductions by both sides indicates that should arsenals decrease to about 1,000 warheads each, counterforce and deterrent potentials equal out, provided that steps are taken to ensure survivability. The reduction process helps strengthen strategic nuclear parity. Nevertheless, this does not imply the strategic stability of such an equilibrium when certain destabilizing factors are operative.

The analysis used a model of operations of strategic offensive and defensive forces that takes into account operational space- and ground-based support systems, combat command and control systems, radio-electronic counter measures, location of launchers, and so on. A potential US ABM deployment to counter limited strikes at the current level of SOF would increase the present gap between the deterrent capabilities of the two sides by 1.3 times. Under reductions down to 5,000-6000 warheads, the present gap increases by 2.4 times. At levels of 3,000 warheads on both sides and some expansion of GPALS (up to a scale of previous first-phase deployment), the CIS strategic nuclear forces might lose their deterrent capability althogether.

Therefore, a limited ABM system combined with deep SOF reductions may become an extremely powerful destabilizing factor. Even if a ground-space ABM system is deployed only for defense against unauthorized launches, this would require deployment of the system's entire support infrastructure (ground and space-based warning components and systems of detection, tracking, and selection of targets). This would requires a considerable amount of time and resources. Its further expansion would not represent any comparable problems. This threat would have a powerful-destabilizing influence and oblige the other side to take advance precautions.

If wartime losses of SOF launchers and warheads to conventional strike systems represent 20-30 percent at the current level of strategic arms, they would significantly affect the correlation of deterrent capabilities. If SOF are reduced to 5,000-6000 warheads and if military capabilities of conventional precision-guided munitions delivered by aircraft and cruise missiles are maintained at current levels, then losses would increase to 35-40 percent. Under reductions down to 3,000 warheads, the losses may represent up to 50 percent of SOF. In this case the gap between the deterrent capabilities of the two sides would increase twofold. It is obvious that because of the CIS geostrategic location, the threat of SOF losses by conventional means applies almost only to its strategic nuclear forces.

This destabilizing factor can be mitigated in two ways: (l) by guaranteeing the reliable defense of SOF bases from high-precision conventional weapons, for which excessive appropriations are required, or (2) by agreeing upon a concurrent reduction of conventional arms. Thus the processes of nuclear and conventional arms control and reductions should be coupled.

The nuclear forces of third countries are gradually expanded. The modernization plans of French and British nuclear forces envision an increase up to 1,200 warheads on SLBMs and ICBMs by the year 2000. Because of the increase in warhead accuracy and yield, the counterforce potential of those forces will grow by a factor of 10, and the effectiveness of destroying soft targets by a factor of 3.

The integration of the nuclear forces of these two countries with those of the US affects the balance of strategic potentials even at current SOF levels. In that case a CIS and US SOF reduction down to 3,000 warheads would increase the gap between the deterrent capabilities of the CIS and NATO by a factor of 1.4-1.5, which might considerably disrupt the existing strategic equilibrium. The inclusion of the SOF of third nuclear countries is one of the preconditions for maintaining strategic stability on lower-level forces.

There is no necessity to analyze the combined effect of these and other destabilizing factors on strategic stability to underline the expediency of a more thoughtful approach toward the choice of disarmament programs that would not disrupt strategic stability. These inferences are correct in the analysis not only of equal lower levels but also of both sides' future SOF force structures. As an example, it may be revealing to examine the most recent US proposals for the SOF force structure under conditions of a reduction down to 4,700 (3,600) warheads by actual loading (3600 by START counting rules).

According to these proposals, 64 percent of US strategic nuclear warheads will be deployed on SLBMs (2,300), 22 percent on airborne platforms (1,900) and 14 percent on ICBMs (500). A conspicuous feature of the US arms control and reduction posture is the steady increase of the relative weight of the United States' main SOF component, sea-based missiles, in the residual force structure. US SLBM warheads would grow from 43 percent in the current configuration, to 58 percent under the START Treaty, and to 64 percent within follow-on deep reductions.

A similar configuration is also proposed by the US government for the CIS strategic nuclear forces, which would fully correspond with the proposal to eliminate all MIRVed ICBMs of both sides. However, in that case the relative weight of land-based missiles, which are the main component of CIS strategic nuclear forces, would continuously decrease from 65% currently, to 53% under START and to 14% under deeper reductions.

The analysis of the shifts in military capabilities of both sides' forces under these circumstances indicates that the counterforce potential of the US strategic nuclear forces (assuming the production stop of W-88 warheads for Trident-2 D-5 SLBMs) would ultimately decrease by a factor of 2, while that of the CIS by a factor of 6. The residual deterrent countervalue potential of US forces would represent 65% of the initial one, that of the CIS forces 50%, but in absolute numbers it would be 6 times smaller than that of US forces.

Were the structure of the CIS strategic nuclear forces to remain similar to the current one (that is, about 50% of warheads on ICBMs), then the counterforce potentials of both sides would be roughly equal, and the deterrent potentials would continue to even out as a result of follow-on reductions after START. In that case strategic stability would increase.

It may be useful to comment on the widely held view that MIRVed ICBMs are destabilizing. The calculated probability of the destruction of a super-hardened silo by one warhead of a MIRVed 55-24 ICBM is 0.66 and by one warhead of the heavy 55-18 ICBM 0.85. That of one Trident-2 SLBM warhead is 0.86. Therefore, the more destabilizing nature of MIRVed ICBMs as opposed to SLBMs is greatly exaggerated. Furthermore, the silo-based ICBMs' capability to quickly leave their silos and escape destruction makes a disarming first strike quite a dubious operation, and that can be viewed as a stabilizing factor.[25]

The aforementioned conditions and considerations represent elements of a conceptual foundation of SOF reduction and limitation that is conducive to increasing strategic stability while minimizing expenses for development, maintenance, and elimination of SOF. Under present political and economic conditions, the cost factor, unlike the case in the past, is much more important and for the short term even predominant.

The implementation of this concept should be started with the START arms reductions after the treaty's ratification. A certain amount of time is required for the practical validation and elaboration of procedures of elimination, conversion, and verification, after which the rates of disarmament might be accelerated.

More radical changes in SOF force structures, which evolved during three decades, may be achieved less painfully after the completion of the

START reductions under much more radical cuts. But even an SOF level of 4,700 (3600) warheads can hardly be seen as corresponding to these objectives. Elimination of all MIRVed ICBMs could be implemented with reductions down to 2,000-2,500 warheads by both sides, provided that the above-mentioned destabilizing factors are taken care of.

The above considerations on future levels and structures of US and Russian SOF, anti-ballistic missile systems, the role of the third nuclear powers, conventional counterforce capabilities, and nuclear ballistic proliferation are all tightly intertwined in a strategically more interdependent world. A stable system of bilateral US-Soviet strategic relations, which has been established in the past, is unfortunately delicate and may easily be upset as a result of ill-advised actions, even if these at first sight serve the maintenance of strategic stability.

Among the reasons why the balance of forces in strategic weapons may be upset, the first priority should be given to strategic anti-missile defense systems, mentioned above. The original concept of a multilayered ABM system with space-based elements for the purpose of intercepting the counterforce strike or the retaliatory strike of surviving forces turned out to be unsound. A revised SDI version, GPALS concept, designed against a smaller number of missiles and warheads to be intercepted, appears politically very attractive. But even this system might be quite destabilizing.

In Washington-Moscow strategic relations, systems of the GPALS type represent a barrier, which can be quite easily penetrated by the surviving forces in retaliatory strikes. From this point of view, the system does not upset strategic stability. What is more, at first sight, it even strengthens it, because this barrier will be difficult for missiles, seized and launched by terrorists or underdeveloped countries, to pass by.

In a wider context, however, the GPALS system, because of its configuration and capabilities, without creating a threat to the deterrent potential of Russia and the United States, does represent such a threat to other states. It is obvious that the three other legitimate nuclear states would insist on retaining their national deterrent forces as long as the two superpowers have theirs. Moreover, till the US and CIS or Russia retain manifold superiority, the other three would hardly agree to limit or reduce their potentials in any tangible way. Russian ABM deployment would stimulate the United Kingdom and France (and US and Russian deployment) and China to expand their forces further and to be even more suspicious toward proposals to join arms control negotiations. And this in its turn would pose an obstacle to follow-on SOF reductions after START.

Finally, the GPALS-type system may represent a serious threat to either of the superpowers if the other unilaterally starts to build one. The space-based tier of the system, with little effort and in a short time, may be transformed into an interception system against a retaliatory strike. So the other side can only rectify the situation by building, in good time, a more resistant type of missile (for instance, short boost-phase-type) or increasing its offensive forces levels.

That is why the system cannot serve as a means of strengthening strategic stability. It cannot act as an insurance against unstable regimes or

terrorists either. The point is that GPALS systems are designed only to intercept a limited class of nuclear delivery vehicles (ICBMs and SLBMs). It is unlikely that in the foreseeable future Third World countries will be able to acquire nuclear weapons with delivery vehicles of this strategic class, since their development has, inevitably, to pass through the tactical nuclear weapon phase.

To deal with this, regional stability should be emphasized and an effective international legal mechanism elaborated for preventing the proliferation of nuclear weapons and the technology to build delivery systems. The measures taken in respect to Iraq's nuclear facilities should serve as a useful precedent and paradigm.

In order to support anti-proliferation policy by military power, the US, Russia, and other civilized states will need improved power-projection capabilities, including long-range precision-guided conventional strike systems and anti-tactical ABM systems for theater application. Since these systems may affect the US-Russian strategic balance at reduced SOF levels, both sides will have to negotiate qualitative, quantitative, and deployment limitations on these weapons to facilitate follow-on to START agreements.

Strategic Defense Options for Russia

While strategic offensive nuclear weapons remain a reality, the need and role of strategic defense systems will also remain a real issue, which, indeed, will become more acute. The trends in development of ABM systems should be studied within the framework of the overall strategic offensive forces and strategic defensive forces balance, in which ABM systems are among several major components of strategic environment.

The unique type of strategic balance that emerged in the 1960s to 80s between the two superpowers, the USSR and the United States, was characterized, in spite of the enormous accumulation of nuclear potentials, by a relatively high degree of strategic stability. It rested on the certainty of mutual destruction—whatever the way in which a nuclear war could have been unleashed. By the end of the 1980s some new trends began to appear that upset the existing strategic balance.

The role of ABM systems in the maintenance of strategic stability is ambiguous. It depends on a great number of factors and—in the first place, on the targeting, the potential threats, and the correlation between the technological levels of the ABM and SOF systems of the sides, as well as on the principles of anti-missile systems deployment, their potentials, and their armaments.

Accusations that ABM systems would stimulate the arms race, thwart improvement in international relations, and might create an incentive to the side with superior ABM capabilities to deliver a first strike have become traditional. A retrospective look proves that these accusations are not always well-founded.

The 1972 ABM Treaty assessed ABM systems as constituting "a substantial factor in restraining the nuclear arms race" and "creating favorable conditions for ongoing negotiations on the reduction of strategic weapons." The history of the unprecedented nuclear arms race that followed the signing of the treaty (a threefold to fourfold increase in the number of nuclear warheads through development of MIRV systems, their perfection, and so on) requires no commentary.

On the other hand, in the first half of the 1980s, negotiations on serious nuclear weapons reductions were initiated at the same time that the two sides intensified their efforts in the area of strategic defense systems. The strategic defense initiative program, started by the United States, in spite of outward political opposition, in reality was paralleled by the Soviet side by way of expanding research and engineering programs in the ABM field (although not on the same scale as SDI). At the same time the USSR for the first time agreed to talk in good faith about deep cuts in SOF. Practical history shows, therefore, that the interaction, or "objective interrelationship," between the buildup and negotiated reduction of SOF and ABM weapons is indeed an ambiguous one.

Another accusation leveled at ABM systems--that they increase the temptation to deliver a first strike--is even more difficult to substantiate. There are only two recorded episodes when the possibility of launching strategic forces was contemplated or signaled to the other side: during the Cuban

missile crisis in 1962 and the Yom Kippur War in 1973. In both cases no large-scale ABM systems existed, and events in no way were affected by considerations of an offense-defense strategic balance.

In general, the history of the ABM systems is marked by a number of contradictions and paradoxes. For the first time in the history of the development of weaponry, a defense system, which in principle is always a response to the development of offensive weapons, is seen as a threat and an incentive to offensive action. ABM systems limitations and prohibitions in effect have hindered development of ABM technologies. As for other consequences of the 1972 Treaty, they may only be a matter of various and sometimes quite opposite speculations.

All the issues of anti-missile systems should be addressed without ideological or political stereotypes. There is nothing inherently vicious in ABM systems as compared with ballistic missiles. It is worthwhile to assess the development of defensive weapons rather in terms of their expediency and cost-effectiveness. On both counts ABM systems are vulnerable.

What renders questions of strategic defense nontraditional, is, in the first place, the fact that ABM systems lack a traditional opponent, inasmuch as SOF are not looked upon as weapons to be used in combat to achieve victory but as a means of inciting unacceptable retaliation and thus providing deterrence as a substitute for functional defense. Hence the nontraditional task of ABM systems--to help maintain the necessary potential of the deterrent forces.

The major "fault" of ABM systems is primarily confined to the fact that their target is a warhead carrying nuclear munitions with a yield of hundreds of kilotons or even several megatons. The possibility that at least a single nuclear warhead may get through to the target that is being protected makes even a fairly effective defense system (80% to 90%) quite futile. That is why the requirements that ABM systems must live up to are unprecedented in order to guarantee survival of the target.

Yet another paradox connected with ABM systems at present is the insistence on the advantage of a nonnuclear defense over a nuclear one. These are, after all, not weapons of mass destruction, but weapons designed to destroy complicated technical devices under extremely difficult conditions and mostly above one's own territory. The possibility of using one or another destructive mechanism should not be determined by political tastes but rather by considerations of the nature of the protected facilities and the local operational environment. Questions of the missions of ABM systems, the nature of the threat facing them, and their armament are inseparable.

It is interesting once again to address the role of strategic ABM systems in three interrelated, logical planes.

- ABM systems and stability.
- ABM systems and their effectiveness.
- ABM systems and the reduction of nuclear weapons.

Clearly an analysis of such a complicated problem has to be based on a number of general assumptions. Those are also briefly listed below.

Strategic Environment and Threat Assessment

The use of force to resolve conflicts of interest in the world and the crisis situations among and inside states remain the basic properties of international political reality. The end of the East-West geopolitical and ideological confrontation does not mean that we now live in a world without contradictions and conflicts.

In the world of today the centers of power, the interests of states, and the relations among them are changing, as are the principles on which world stability is maintained. In consequence, the concepts of forces and weapons development, deployment, and employment are also changing.

The operational-strategic essence of the military doctrines of states and the nature of strategic relations among them is, at any given time, determined not so much by their political declarations as by their actual military-economic potentials, the structures of their armed forces, and their combat capabilities.

Russia (as the core of the former USSR) and the United States coexisted until recently within the framework of the concept of "mutual assured destruction" (or bilateral nuclear deterrence). At present, the absurdity of this concept is becoming more and more evident. On the other hand, transition to the concept of "mutual assured survival" is only possible if the nuclear arsenals are radically reduced. The expected implementation of the 1991 START Treaty is only a first and quite modest step toward this goal, and the new proposals of the two sides on further deep cuts down to 2,000-4,700 nuclear warheads, if implemented, would still leave us far above the finite nuclear capabilities.

Hence the concept of "mutual assured survival" cannot be implemented in the foreseeable future and, in addition, is fraught with internal contradictions. And that is why it cannot serve as a basis for forecasting or planning the development of strategic forces. For this reason we have remained for the purpose of the present analysis within the framework of "mutual assured destruction."

The long-term advanced development of strategic offensive weapons is directed toward achieving greater accuracy and reduced energy release of nuclear munitions, right up to the use of nonnuclear warheads on the missiles. This tendency toward the use of highly accurate, guided conventional weapons for various purposes does not represent simply a return to the pre-nuclear age. Because of their qualitative advantages, a whole range of conventional weapon systems are in their destructive effect in no way inferior to nuclear weapons and will be capable of substituting for them in the growing range of combat missions. Still, nuclear arms will be retained in their function as instruments of nuclear deterrence.

Strategic defensive weapons (ABM systems) are weapons designed to destroy complex technical systems and are not weapons of mass destruction. However, for the purpose of negotiations on the limitation of ABM systems, their functional role is not sufficient. Reliable and verifiable technical guarantees are needed to exclude the possibility of defensive weapons being used for offensive purposes.

The potential opponent is (at the level of models, in the sense of basic data) always specific. It is impossible to establish requirements or develop components of defensive systems without specifying the technical shape of the opposing force. Up to the present time in the USSR the ballistic missiles of the United States and their warheads and penetration aids have been regarded as the opposing force. It goes without saying that the same has been true in the US with regard to the Soviet missiles. And so determining the shape of new potential threats in the context of the future military-political situation is a task of the highest priority.

By analyzing the threats and the possibilities of countering them, it is possible, at least at a qualitative level, to determine the need for ABM systems and their architecture and tasks or the availability of other (possibly simpler and less costly) measures to cope with these threats.

At the present time, only the United States, Russia, the United Kingdom, France, and China are fully capable of delivering a massive nuclear strike (consisting of hundreds and thousands of warheads). This is now generally accepted as equal to total and full-scale nuclear war, with all the consequences this carries with it.

As a result of considerable improvement in the relations between the West and the East and the intention on the part of Russia and the United States to strengthen their cooperation and continue on their course of deep nuclear arms reductions, there are at present no imaginable scenarios for deliberately unleashing a nuclear war. Apart from this, it is generally recognized that a massive nuclear strike is unacceptable even to an attacker in view of the truly catastrophic ecological consequences it would bring about. There are, therefore, no grounds in the foreseeable future for assuming the possibility of such a strike when elaborating a concept for the strategic defense of the territory of either country. It has, in addition, been demonstrated by numerous studies in the US and in the USSR that it is impossible to create efficient and cost-effective ABM and air-defense systems against a massive nuclear strike.

At the same time, it is necessary to consider the question of an ABM system as a guarantee for the survival of an essential minimum of ground-based ICBMs, which constitute the core of the deterrent forces of the former USSR and of Russia from now on. The importance of such a role for an ABM system may substantially grow during the transition period from a bipolar to a multipolar nuclear setting in the world, as well as in the course of radical reductions in strategic nuclear forces and changes in their structure.

A deliberate, limited nuclear missile strike is a strike by one or several ballistic missiles against one target or a group of targets on the territory of the other country. The following variants of a planned limited strike are possible:

- A strike by a state possessing well-developed nuclear forces and considerable offensive power;
- A strike from an unidentified submarine (an authorized provocative strike); and
- A strike from the territory of a state possessing weak strategic offensive power.

A strike by one of the states possessing a developed strategic force is, in our view, practically excluded, though, in theory, such a strike could be of a dual nature. First, there could be a "decapitating" strike against supreme command centers or a strike as a demonstration of strength. Such strikes, however, would not prevent massive retaliation and are therefore quite pointless and politically improbable. Second, after an effective counterforce preemption, there is a possibility of a weakened retaliatory strike on the administrative, urban, and industrial centers of the other country. The absence of motives on the part of the major powers for delivering a first strike makes that scenario highly unlikely, as in the first case.

Both kinds of the above-mentioned limited strikes by major powers (with the exception of "decapitation" attack) are not easily predictable as to their targets. Defense against them requires creation of a nationwide (territorial) defense system. It is clear that such a minimal risk does not justify the high costs involved in the deployment of a large-scale system of that type.

A strike from an unidentified submarine is theoretically possible. The identification of the source of aggression (the state in question) would be extremely difficult and would require time. Bearing in mind the uncertainty about potential targets of such an attack, defense against this threat would require a territorial ABM system (ground-based or air-based, in conjunction with a layer in space). The number of states possessing SLBMs is limited, however. It would therefore be more appropriate to counter such a threat by stringent limitations on further proliferation of missile-carrying submarines and submarine missile technology. Another option (useful also in deterrence of that act) would be to reach an agreement among the states with such systems about obligatory, immediate surfacing of all submarines on patrol and inspection of all SLBM tubes in case of such an anonymous underwater launch.

A strike from the territory of a state possessing a weak nuclear potential is theoretically more plausible. It is possible that in such countries unstable governments may come to power that could risk the use of nuclear weapons for provocative or retaliatory purposes. The strike could be directed either against large industrial and administrative centers or at supreme command centers. Countries of that type are even more likely to possess aviation and intermediate- and shorter-range missiles equipped with conventional, nuclear, or chemical munitions.

In this case, the issue will be that of protecting a relatively small part of the national territory against a limited missile or air strike. For that contingency, development and deployment within the nearest future of a mobile point-defense ABM system on the basis of the most advanced technology of ground-based anti-ballistic missile/air defense (ABM/AD) systems would be a sound precaution. These systems should be capable of protecting important individual installations — and in the first place, those representing danger to the environment — to perform the functions of preventing damage. It is encouraging in this connection that the technology of modern point-defense ABM/AD systems for the protection against single or limited missile and air attacks is far superior to the offensive weapons technology of potential Third World nuclear powers.

In the future such systems could be used against nonnuclear missiles should they present a threat of instability in the great powers' strategic relationships. An accidental launch of a ballistic missile represents a separate subject. In assessing this danger it is necessary to differentiate between two possibilities: the launch of a missile from the territory of a state with a low level of missile technology and that from the launcher of a major power with mature missile technology. In both cases the launch may be the result of a technical fault, an accident, or an unauthorized action.

Knowledge of nuclear and missile technology is spreading slowly but persistently to many parts of the world. According to various assessments, 4 of the 16 Third World countries engaged in the development of missiles with a range of more than 1,000 km already possess a nuclear weapon or are close to acquiring one. In the near future this figure may grow to 8 and include such countries as Syria, Libya, Brazil, South Africa, and Argentina. The number of states possessing the knowledge of missile technology will grow to 22, and the range of the missiles will increase to up to 5,000 km.

If the assumption is that in each of the 22 countries the probability of an unauthorized launch is as high as in Russia and the United States, then the spread of missile technology from a small group of five countries (the United States, Russia, Great Britain, France, and China) to a group of 27 will increase the probability fourfold. In reality this probability will be much greater: developing countries have neither the experience of missile construction or their operational deployment nor a sufficiently reliable command-control infrastructure or test ranges.

An appropriate analogy here would be the Chernobyl catastrophe. An accident in an atomic power station is, in theory, always possible, although the probability of this at any one power station was evaluated as virtually zero. Gradually, as the number of power stations grew, so did the probability of an accident, until it actually happened.

In spite of a substantial probability of an accidental launch, complete uncertainty about the direction of the missile flight makes a ground-based ABM system ineffective against such a threat. In principle, it is possible to deal with this threat by way of a nationwide ABM system with ground and space tiers. A more cost-effective protection against accidental launches, in our view, would be the transfer of advanced technology of command and control protection against unauthorized launches to new states possessing nuclear missiles. The implementation of these devices should be subject to strict international control.[26]

States with highly developed missile technology are also confronted with the problem of an unauthorized launch of an ICBM or SLBM.

In practice the launching of any missile from a launcher can only be effected after a whole sequence of orders. The execution of these orders is reported through the combat management system to the higher command center. In case the final launch act is taken without a prior higher command center's authorization, the order to cancel launch is automatically produced. An unauthorized launch can be canceled by any operator, from the lowest to the highest echelons of the combat management chain. This makes an

unauthorized launch practically impossible; although a probability in theory, it is not independent of the principles of command echelons or organization.

It is clear that an ABM system is useless against such a threat and that, instead, measures are needed to tighten the reliability of the procedures and devices of prevention
of unauthorized launch of ballistic missiles (negative control). The same considerations apply to variants of emergencies, such as seizure of missiles by terrorists and so on. Analysis of the potential threats and possible measures to counter them has shown that it makes sense to build two types of ABM systems, each with a different function:

- A point-defense ABM system to protect ICBM launchers, in order to act together with the SOF as a nuclear deterrent at future, deeply reduced levels of strategic balance; and
- A point-defense system to cover the most important installations, especially those representing a danger to the environment, against limited strikes delivered by states with newly acquired nuclear weapons.

Both systems should be built on the site-defense principle with the use of mobile equipment and on the basis of advanced ABM/AD technology and should possess the capability of destroying missiles with different types of warheads.

Deployment of an ABM system that is meant to cover the whole territory of a country and that is equipped with ground- and space-based components makes little sense as a protection against accidental launches. There are more cost-effective and less controversial ways to achieve this goal, which will not create as many complications. A space-based ABM system as part of a global strategic defense system would require further analysis.

ABM Systems and Nuclear/Nonnuclear Alternatives

A great deal of attention is being devoted at the present time to the dilemma of nuclear versus nonnuclear ABM systems. Unfortunately, the question is looked at from an ethical and political angle rather than from a military-technical one. In our opinion, such a dilemma does not really exist. If the technical know-how is available to build a nonnuclear defense system capable of accomplishing its rationally formulated combat missions at the required level of capability, such systems should be built.

The common preference for a nonnuclear ABM system is often supported by arguments about the negative factors inherent in nuclear armaments. These are the horrific consequences of a nuclear explosion, the organizational and technical complications of obtaining sanction for their operational employment, and the problems inherent in their secure maintenance. The main arguments against a nuclear defense, together with our comments, are set out in the following section. An analysis of these arguments shows that they are debatable, to say the least.

The choice of armaments for an ABM system should be based on the trade-off between the assigned combat tasks and the degree of preventable and collateral damage. The key problem remains the requirement to destroy the warhead and preserve the safety of the protected area. The ABM technology available at present and the assigned interception target (highly hardened warheads with nuclear explosive devices) argue for nuclear munitions, which in the future can be perfected by greatly reducing their yield and improving their safety.

At the same time, the practical use of such munitions in ABM systems (as well as nonnuclear impact warheads) is linked to the development of a new generation of highly accurate missile interceptors equipped with optical-electronic and radar homing devices. The maximum goal of a modern, highly accurate weapon is to score a direct hit on the warhead. Unfortunately, even this is not enough to assure destruction, since it all depends on the condition of the arming device of the warhead: armed (an active warhead) or unarmed (a passive warhead) and the altitude at which the hit is scored. A passive warhead will be destroyed on impact, whereas an active (primed) one may explode, even if it is not deliberately fixed before launch for impact explosion.

The destruction of a warhead at high altitudes (more than 100 km) would have virtually no consequences on earth. The destruction of a warhead at medium and low altitudes would lead to radioactive contamination of the protected territory and even direct radiation/heat/blast damage. Partial destruction of a passive warhead does not exclude a nuclear explosion or an explosion of the conventional trigger-charge on impact with the earth, resulting in radioactive contamination of the protected territory (Paolmares effect).

Nuclear munitions on interceptors provide a guarantee that active warheads are annihilated with no possibility that their explosive charge explodes at the moment of interception. This also assures the destruction of warheads with any type of weapons—conventional, nuclear, or chemical. In addition, nuclear munitions possess, in comparison with fragmentation munitions, an infinitely higher concentration of released energy (at equal throwweight), which affects the size and other characteristics of interceptors.

The main difficulty is to provide for the safety of nuclear munitions in case of accidents, a difficulty that, in principle, can be solved by a complex of technical and organizational measures.

Ground-based ABM Systems

Practically all experts in the military-strategic field recognize that one of the most important factors in providing stability is lowering the vulnerability of strategic forces by a series of measures directed at their active and passive protection.

This raises the issue of development and deployment of a defense system for ICBM deployment areas and the main strategic command centers. Such a system should guarantee the survival of the necessary number of missiles (sufficient for infliction of a desired level of damage on the attacker) and also of command centers during the time needed to assess the attack and

issue a sanction for a retaliation. The functions of such an ABM system would be conducive to maintaining strategic stability and in view of its limited deployment and function (point-defense), in no way would undermined the retaliatory capability of the other side and stimulate the arms race.

The problem in this case is to decide whether this is the most efficient and cost-effective way of assuring the survival of missiles and command centers, as compared with other methods to achieve this goal. The above system would be effective on the following premises:

- That the strategic concept of the two sides is exclusively "retaliatory countervalue assured destruction";
- That the operational plans are based on a second-strike principle while launch on warning is excluded;
- That there are significant counterforce capabilities (bipolar or multipolar), both in quantity and quality, that create a threat of a disarming strike;
- That there is no assured possibility of delivering the required retaliatory strike by other means (SLBMs, strategic aviation, operational-tactical missiles, and so on); and
- That the ABM system is more cost-effective, as compared with passive methods of protecting missiles and command centers or as compared with their mobile deployment (that is, airborne command posts).

At the present time, while military doctrines and counterforce capabilities would supply an argument in favor of an ABM system, the last two points counterbalance them and make it highly doubtful that such a system would be advisable. Besides, the only opponent with capabilities relevant to arguments in favor of ABM is the United States. There are no reasons whatsoever, either at the present or in the foreseeable future, why the United States might deliver a disarming strike. This makes such a system mainly directed against the US extremely dubious.

This applies even more to a defense system for ICBM deployment areas against possible limited strikes by future nuclear states. Even radical reductions in strategic nuclear weapons of Russia and the US will not remove at least a minimum deterrent potential. Moreover, the weapons of third countries are hardly likely to be able to perform counterforce functions.

It is possible, however, in view of the existing trends on the part of the US and Russia to reduce their strategic forces, that the nuclear forces of France, the United Kingdom, and China could begin to play a greater role, at a certain stage. A multilateral equilibrium may eventually be established at a level of about 500-1,000 warheads for each of the five powers.

The considerable counterforce potential of tactical conventional weapons with enhanced destructive power and advanced guidance and command-control-reconnaissance systems should also be taken into account. They may in time significantly increase the vulnerability of the strategic deterrent forces and their command and early warning infrastructure.

In these circumstances an ABM system for ICBM deployment areas might be justified and make sense. The exact shape of such a system and the

quantity of interceptors to be deployed will, to a large degree, depend on the desired level of unacceptable damage and the threat assessment in a multilateral nuclear/strategic conventional balance environment. The question of whether it is advisable to build a defense system for ICBM deployment areas and command centers would be decides differently by each state on the basis of its specific geostrategic situation, strategic forces characteristics, the nature of relevant nuclear/conventional contingencies, and ABM deployment capability.

An ABM system for a large administrative-industrial center or an installation that represents a danger to the environment creates much higher requirements. In particular these are:

- Providing for a high certainty of destruction of the missile warheads that excludes all negative side effects during the process and after interception;
- Shielding the population and industrial installations of the protected center from the effects of an interceptor warhead's nuclear explosion; and
- Providing for the guaranteed safety of ABM nuclear munitions in all normal and emergency situations.

Solutions to all three problems exist, as noted in the following section. It is technically possible to render the defense system for administrative-industrial centers or any other important installation against a limited strike highly effective.

Systems that protect one or several installations against a limited strike cannot act as a stimulant to the arms race. Besides, such systems would raise the threshold of a retaliatory nuclear strike[27] and increase the time available to take decisions at the highest level (if the protected center is the capital of a country). All these capabilities are supposed to contribute to strategic stability.[28]

Defense of all major administrative-industrial centers can only be achieved by building an ABM system for the whole country. This would constitute too heavy an economic burden and would not be commensurate with the threat to which Russia and the US are exposed. At the same time, it is necessary to develop the technology of ground-based point-defense ABM systems in order to provide for the possibility of deploying, in the future, defense systems for individual installations or limited areas against possible nuclear states.

Space-based Anti-missile Tier

If the US begins to build unilaterally a space-based ABM tier capable of intercepting a limited nuclear missile strike, the strategic balance, based on the principles of nuclear deterrence, would be deeply upset. Even if limited by agreement or unilateral commitments, such a system would inherently possess a great breakout potential and collateral anti-satellite capability.

If Russia in this case simply recognized US superiority and did not take any countermeasures in order to reestablish its deterrent potential, in the

long run it would lose its national sovereignty, strategic independence, and industrial potential capable of building strategic defensive and offensive systems. Any US commitment to defend Russia would not improve the situation, since that commitment at any moment might be revoked and thus used as political leverage to resolve any possible contradiction. The dependent state of mind this creates, moreover, would not be conducive to the development of economy, scientific advance, or political democracy in such a big country with hard historical experience as Russia.

It is clear that such a passive response would be unacceptable to Russia. What seems more realistic is that Russia would not resign itself to the military superiority of the United States but would try to enhance its strategic breakout potential by adopting asymmetrical measures to counter the space-based tier of the US ABM system. This could lead, however, to a new spiral in the arms race.

In addition, Russia might reappraise its position on radical reductions in strategic nuclear weapons, which would create new tensions in its relations with Ukraine and other republics and encourage nuclear proliferation in the CIS and in the world at large.

Moreover, in the cases of unilateral US deployment of a space-based ABM tier and abrogation of the ABM Treaty, Russia very likely would be forced to adopt other asymmetric measures in order to safeguard stability. One of the options is development and deployment of a new generation ASAT system designed to penetrate the space-based ABM tier. In this case an ASAT system on the basis of silo-based or mobile solid-fueled ICBMs would act as a stabilizing factor.

Depending on the nature of future relations with the US and other developed countries, Russia may be compelled to build an ASAT system. It is, therefore, necessary to develop the required technology, although at the present stage, it is sufficient to restrict this work to scientific research and experimental construction projects.

The US proposal to mutually withdraw from the ABM Treaty and begin to build a space-based ABM would make little sense for Russia, both from a military and a political point of view, not to mention cost-effectiveness considerations. It is clear that the magnitude of the threat is not commensurate with the cost, and the nature of nuclear contingencies faced by Russia might require ground-based defenses instead of a space ABM system.

As for a joint US-Russian space-based tier of an ABM system, Washington would have to explain to its present allies what strategic goals would be assigned to such a system. If it is aimed against terrorist acts, then why not build it together with all the other democratic states?

A coalition of states could build a collective defense system, provided the following conditions were fulfilled:

- First there should be a number of powers, equal in their military potentials, which are interested in building such a system. If this is not the case, a country unwilling to join the system will feel exposed to a threat and will, naturally, take countermeasures.

- Second, all the participants of the system should have a clearly defined defensive military concept and not regard any other member of the coalition as a potential enemy. Otherwise, the system could, at any moment, be rendered ineffective.
- Third, there should be complete openness between the participants respecting control over the strategic offensive component, not only through intelligence gathering, which does not provide full and reliable information, but through an intrusive control system (special sensors, "black boxes" near silo launchers, a so-called "zero" early warning tier, monitoring of submarines in their bases and on patrol, and so on).
- Fourth, the level of offensive forces of each of the powers and their correlation with defense should be such that not one of the participants could, in a relatively short time, change this correlation to the advantage of its offensive forces.

If these logical conditions are met and such a coalition with a stable balance of strategic forces comes into being, Russia would have no choice but to take part in the building of a strategic ABM system. The space-based component should be controlled by an international body of the joint allied headquarters type.

The ground-based component of the system, complementing the joint strategic component, should be subordinate only to the leadership of the state on the territory of which it is located. Russia and the United States would have to review the ABM Treaty and conclude a multilateral treaty with all the members of the coalition — a single treaty on strategic offensive and defensive forces, which would regulate both the quantitative and tactical-technical characteristics of the weapon systems.

As a distant prospect, this variant is worthy of further consideration, though it would initially contain an obvious contradiction: instead of supporting stability, creation of a global ABM system could provoke a confrontation between the coalition of states participating in the ABM system, on the one hand, and the states directly or indirectly earmarked as sources of a potential threat, on the other. That is why the possibility of building such an ABM system will require careful study.

Our conclusion, therefore, is that there are no good reasons, in the foreseeable future, why Russia should withdraw from those articles of the ABM Treaty that prohibit the deployment of space-based interceptors.

Conclusion

A strategic ABM system is, at present, looked upon as a weapon system directed against strategic ballistic missiles with nuclear warheads. The attitude toward a strategic ABM system as the basis of the "assured survival" concept and as a defense against any type of ballistic missile (with either nuclear or nonnuclear warheads) has not yet fully taken shape. So far there exists no single, agreed opinion in Russian military circles on the problems connected with a strategic ABM system.

The predominant view, characteristic of the cold war period, is that any strategic anti-missile defense would be a destabilizing factor. The arguments are well known: strategic defense is not effective, the costs are not justified, it would provide an additional stimulant to the arms race, and it would create the temptation to deliver a first strike.

There exists, however, another point of view: during the transition from a bipolar nuclear to a multipolar balance, and while the Russian and U.S. governments adhere to policies of cooperation and a radical reduction of nuclear weapons, a strategic defense may play a stabilizing role.

The questions are: On what scale will it be deployed? What functions will be assigned to it? And what will be its architecture?

The decisive factors, when assessing the desirability of this or that variant of ABM system, should be its expediency and cost-effectiveness. The degree of risk and the nature of the potential threats should be compared with the possibility of dealing effectively with them by adopting various countermeasures, including the deployment of ABM system.

With this in mind, it would make no sense to build an area nationwide ABM system with large-scale deployment of ground-based components or both ground- and space-based elements. Such a system would not be an optimal way to deal with limited or unauthorized missile strikes delivered by the existing nuclear powers.

In order to maintain strategic stability in the changing situation, the need may arise, in the future, to build ABM systems of two types:

- A point-defense system of ICBM operational bases, which guarantees the survival of the necessary minimum deterrent potential; and
- A point-defense system for the protection of individual civilian installations and certain areas against limited strikes by new nuclear states.

Both types of systems can be built as mobile, low-altitude complexes on the basis of universal ABM/AD complexes, utilizing the key elements produced by the United States' and Russia's own new ABM/AD technologies (for instance, the United States' improved Patriot or new generation THAAD systems, and a follow-on to the Russian C-300 system, also known in the West as SAM-10).

Prospects of Anti-Missile Programs and Agreements

When making forecasts on future developments in US and Russian ABM programs and negotiations, it is necessary to differentiate between short-term (1-2 years) and mid-term (until the year 2000) time frames.

The general guidelines of Moscow's policy for the short-term period apparently are as follows.

Compared with the past, there is a better attitude toward cooperation with the US on defense and space issues. It is motivated mainly by general political and economic considerations (and first of all, expectations of large contracts and transfer of technology). Without exception, all attempts by ABM expansion proponents to justify this policy on strategic and technical grounds up to today have been completely futile and highly risky from a professional point of view.

New Russian authorities at the same time declare their fidelity toward the ABM Treaty as the only legally binding and long-term strategic arms control agreement between the two states, which has strong support in the US and in Russia. Until high levels of strategic nuclear balance stay as a sobering reminder of the peculiarity of US-Russian bilateral relations, the ABM Treaty will be valued as a barrier across unfavorable and extremely costly avenues of military-technological development.

The economic, political, and administrative turmoil in the former Soviet Union is certainly not conducive to abrogation of that treaty—at least not without really big economic, political, and strategic incentives. Several other factors are also acting in favor of delaying serious revision of posture on the ABM Treaty and postponing business-like talks with Americans on defense and space subjects.

- Delay in START ratification and implementation, the dubious roles of Ukraine and the other two republics in this process, and the confusing interaction of START and new proposals on arms reductions;
- Controversies around other CIS republics' participation in strategic programs, control over allegedly CIS nuclear forces, and direct representation at the follow-on negotiations with the US on offensive and defensive strategic arms;
- Uncertainty about the prospects of defense reforms and in relations between Russian Ministry of Defense and CIS Command and Strategic Deterrence Forces, and infighting on reallocation of resources among armed services and between support and procurement portions of funding;
- The absence of progress on or any plan for conversion of defense industries and R&D centers and vague understanding of the prospects for and methods of Western investment and participation in Russian conversion or new kinds of weapons development and production.

The will of some Russian defense-industrial and political groups to get rid of the ABM Treaty limitations and proceed with expansion of defense and space systems is mitigated by the opposition of other military and political coalitions and the effects of budget crunch and CIS conflicts.

After Yeltsin's controversial UN declaration, Moscow would hardly take the initiative of negotiating the issues with Washington until the above problems are somehow sorted out. It will be up to the other side to bring the matter to the forefront of the bilateral agenda. If this is done, the longer-term trends will come into play and define Russian policy and the future of US-Russian strategic relations.

At the formal negotiations or regular summits the Russian government is quite likely to show greater flexibility than its predecessor in viewing US GPALS experiments against the background of the letter and spirit of the ABM Treaty. Moscow may want to conduct some tests of its own at the "gray zone" of its limitations, under the pressure of space corporations, which are willing to demonstrate their achievements in this area.

Moscow would be willing to negotiate in good faith some issues of compliance or partial review of the treaty. But any US decision to withdraw unilaterally and proceed with deployment would be perceived as evidence of a great setback in US-Russian relations. In view of the tremendous importance of this subject in domestic economic and political reforms and controversies, at worst it might trigger a general nationalist and authoritarian shift in Russian politics.

Proponents of going along with the US government's ABM line, acting on political and economic considerations, would be taken aback because a US unilateral decision would mean a failure of their hopes. Opponents of ABM expansion in the liberal arms control community would be undercut in their desire to achieve radical reductions of offensive forces, coupled to stringent defense limitations. They would feel betrayed in their desire to make a historic transition from cosmetic arms control to real joint management of strategic stability.

Partisans of the nuclear buildup and revival of Russian imperial status, hostile to cooperation with the West, would certainly feel vindicated and push for offensive-defensive space countermeasures across the board, with obvious repercussions for conversion, economic reforms, and political democratization. Incidentally, it would not be at all surprising in this eventuality to find among the latter some present advocates of defense space cooperation with the US, who have acquired good experience in quick adaptation to changing political winds.

If, as it is to be hoped, the US refrains from such actions, negotiations on defense and space problems would have to concentrate on three major sets of issues, which are coupled to three principal options of Russian posture and variants of solution to the whole matter. They are: space sensors, expanded ground-based ABM systems, and space-based interceptors.

Space Sensors

The ban on development, testing, and deployment of space-based sensors as ABM components or adjuncts capable of substituting or supplementing ABM radars (Article V, page 1, and Agreed Statement "D") has always been a mute question of treaty compliance. The growing number of command, control, communications, and intelligence (C^3I) satellites, including optical and radio early warning, detection, tracking, and reconnaissance types; the absence of any definitions of prohibited and permitted parameters; and the virtual impossibility of verification in the absence of a fully cooperative regime all make imposing compliance neither feasible nor sufficiently desirable.

Yeltsin's UN proposal, as officially clarified later, emphasized improvements and joint programs in space warning and monitoring capabilities, and the US response was immediately possible. Hence, these systems would certainly proliferate and improve until the year 2000 and beyond, even regardless of the destiny of other ABM components. Neither side is likely to raise this issue with regard to treaty compliance.

The only problem that may occur is the possibility to differentiate between space sensors and space interceptors, if the latter continue to be banned. It may be solved by a new protocol, defining the meaning of the terms "space-based," "interceptor missile," and "ABM launcher" as applied to a "Brilliant Pebbles" type of system or possible directed-energy devices. Additionally, a protocol might be needed to ban these interceptors against real targets in space along the lines of the US Congress's resolution on F-15/ASAT/Altaire tests in 1985.

If the US position stays uncompromising on this subject, mutual agreement to permit ABM sensors in space will remain tacit by way of not raising that issue in the treaty compliance context. On the other hand, it might be formalized as a part of a package deal on ground-based ABM systems.

Ground-based ABM Expansion

The Agreement to permit expansion of ground-based ABM interceptors and radars together with overt deployment of space-based sensors, while reinstating prohibition on space-based interceptors (and ASAT systems) with the necessary definitions and verification provisions, is obvious as the principal option of "historic compromises" between Moscow and Washington. To make it more acceptable to the US, it need not be of indefinite duration, but may fix a deal for five to ten years, until the strategic and technical situation is more clear (including the trends in offensive reductions and nuclear missile proliferation).

There may be two variants of this deal: a narrow and a broad one. The narrow would consist of basically preserving the treaty intact (with the exception of space sensors) and concluding a protocol on permitted parameters of anti-tactical ABM systems. This point apparently is the minimum common denominator of positions of the vast majority of partisans and opponents of the ABM Treaty both in Russia and the US. This system is now an integral part of

the GPALS program. It is pushed forward in universal ABM/AD mode by Russian air defense R&D centers and industries (see chapter 5).

It would provide the US with the direct response to the only unquestionable contingency in sight: future Persian Gulf scenarios. If ATBM parameters are delineated liberally (see chapter 3), it would also create substantial collateral capability for point-defense of high-value facilities (command centers, ICBM silos and mobile launchers, nuclear power stations, chemical plants, oil refineries, and so on) against limited strategic missile strikes. ATBM systems may be available for the United States' allies and would not destabilize the strategic nuclear balance either on bilateral or pentagonal planes. Thus it would not hinder offensive strategic arms reductions and would even facilitate them by increasing survivability of ICBMs and command-control infrastructure against nuclear or conventional counterforce strikes (see chapter 4).

Finally, ATBM systems would not be too expensive and divisive in funding allocation among armed services, and the programs can keep afloat some Russian R&D and industrial sections. They might also serve as a noncontroversial test ground for post-cold war US-Russian defense cooperation. If this cooperation is successful, many fears and biases against its expansion into other areas would be removed. If not--many illusions for joint programs on the strategic level could be dropped in favor of traditional negotiated reductions and limitations.

However attractive, the narrow option may seem too restrictive for US defense proponents. ATBM would not be effective for the thin protection of the territory against unauthorized or provocative long-range missile strikes. The broad option might look like a better choice to defense supporters and like a fallback position for the advocates of the ABM Treaty.

It may consist of increasing the number of legitimate ABM deployment areas (thus reversing the 1974 Protocol) together with permitting space sensors but prohibiting space-based interceptors. That was the option advanced in different forms by senators Sam Nunn, William Cohen, and others in the US Congress in 1990-1991 as a compromise within the United States and between the US and the USSR.

Although much less controversial than deployment of GPALS with space interceptors, this option might be quite hard to negotiate. The reasons will be abundant: asymmetric geostrategic requirements of the two sides, nuclear/nonnuclear issues of interceptor arming, third nuclear states reaction, cost and interaction with strategic offensive arms reductions, INF Treaty and tactical nuclear withdrawals, CIS contradictions, and so on (see chapter 3).

It is not without reason to go as far as to speculate that if the issue of the basic parameters of the treaty is reopened and some influential Russian ABM-related institutions enter the game, the two sides might swap positions for the fourth time. Then it may be Moscow that insists on maximum relaxation of quantitative (Paragraph III) and qualitative limitations of the treaty. The latter may refer to the ban on mobile land-based components (Paragraph V, page 1), multiple and rapid-reload launchers (Paragraph V, page 2), and ABM-capable components of the systems, which are not strategic ABM systems (Article VI, page a). Even if for economic reasons Russia is not capable of

immediate deployments on a massive scale, it would like to lay the foundation for such a program later and might make a lot of decisions on resource allocation and program management, which politically would be hard to reverse later.

The US may consider such a broad option excessive, providing unilateral advantages to the other side and hardly verifiable, although these arguments would not be persuasive in view of the preceding US advocacy of "joint transition to a defense-dominated strategic relationship." Depending on the degree of domestic support for GPALS, Washington's reaction may be either to return to the narrow option or to insist on permission to test and deploy space-based ABM interceptors.

Space-based Interceptors

Owing to the nature of space-based systems, their quantitative or qualitative limitation is hardly possible, breakout possibilities would be high, and verification provisions virtually infeasible. Deployment of space-based interceptors (with inherent ASAT capability) would make limitations on land-based ABM sites and components quite meaningless too. This route would mean the de facto discarding of the ABM Treaty and the removal of all tangible limitations on defense and space weapon systems.

In that case two scenarios are possible. One--a complete breakdown of negotiations, owing to the inability of the sides to bring to a common denominator vastly asymmetric geostrategic postures, threat perceptions, technological capabilities, and program priorities (for instance space- vs. land-based emphasis, nuclear vs. nonnuclear options, ICBM use as ASAT booster, and so on). What would follow is a new round of the arms race in strategic offensive, defensive, and space systems and counter-systems, all with detrimental effects for national economies and international security.

Another scenario is more optimistic, although less feasible. It would entail great efforts by both sides, out of political and economic considerations, to contain the action-reactionary dynamics by agreements on reduction and limitations of strategic offensive missiles and dedicated space- and ground-based ASAT weapons.[29] For strategic and technical reasons, mutual limitations on multilayered ABM systems would be extremely hard to achieve and verify. Hence, the only way to avoid serious disruption of the US-Russian strategic relationship would be for the United States to agree to full transparency, exchange of technologies, and US-funded, large-scale joint systems development. Otherwise, the official justifications of the ABM system as not designed against Russia, but only against accidental or provocative strikes, will not be bought in Moscow.

The effect of these developments on conversion in Russia deserves specific observations. Clearly, the broad land-based option — and even more, ground and space ABM buildup — would remove incentives and possibilities for genuine conversion in those particular defense R&D and production sectors. Since the Russian acceptance of the idea of joint transition to defense dominance is heavily predicated on the expansion of US economic and high-

technology assistance (which is actually the main argument of Russian partisans of this concept), some additional problems are certain to occur.

First, it would be much harder for the US to demand nonuse of general credits and economic assistance for military purposes, since ABM expansion would entail larger defense expenditures in those areas. Second, it would also be virtually impossible for the US to ensure that funds and technologies for defense and space programs are not channeled into offensive areas of military systems development, including those for defense penetration. Third, joint ABM programs, if undertaken within the framework of the CIS, would make the whole enterprise economically and operationally a hostage to Russia's relations with Ukraine and other republics. Fourth, the present fears of nuclear "braindrain" from the CIS are unlikely to be alleviated by the ABM program. Rather, they would be supplemented by concerns about leaks of ABM secrets, knowledge, and technologies to potential Third World nuclear missile proliferators.

Besides, joint multilayer ABM development would create other problems and controversies in strategic and political relations for the two powers and with US allies and the rest of the world. On the other hand, US reluctance to have a genuine joint enterprise would lead to worse consequences for US-Russian relations, and for economic and political reforms in the former Soviet Union — with the ensuing dangers and instabilities.

Notes

1. *Mezhdunarodnaya Zhizn,* 1964, no. 10, 33.

2. Ibid., 31.

3. A. Chayes, and Y. Wiesner, *ABM: An Evaluation of the Decision to Deploy an Anti-ballistic Missile System* (N.Y.: Harper and Row, 1969), 239-40.

4. *Izvestia,* 2 November 1967.

5. V. Karpov "A Difficult Anniversary (The ABM Treaty 15 Years Later)," *Pravda,* 26 May 1987.

6. *Moskovskiye Novosti,* no. 17, 26 April 1987.

7. Interview of M. S. Gorbachev on the American N.B.C. Television Program, *Pravda,* 2 December 1987.

8. Senator S. Nunn's report, *Interpretation of the ABM Treaty* (ff-13)-3-1987 (Washington, D.C.: GPO, 1987).

9.F. Ladygin. *Krasnaya Zvezda,* November 20 1991.

10. *Izvestia,* 1 February 1992. Russian Foreign Minister A. V. Kozirev.

11. Statement at the United Nations Conference on Disarmament, Geneva, Switzerland, 12 February 1992, 8.

12. *Nezavisimaya Gazeta,* 2 May 1992.

13. Army-General K. Kobetz advocated in a number of interviews the idea of building an ABM system with space-based elements. (See, for instance, *Krasnaya Zvezda* 18 October 1991 and *Nezavisimaya Gazeta* 30 October 1991). Similar views were expressed by a Russian military delegation, during a visit to the United States in October 1991, as well as by V. Shlykov, deputy chairman of the Russian State Committee for Defense. (See: *Independent,* 15 October 1991 and *Nezavisimaya Gazeta* 26 October 1991.)

14.V. Moscvin. "VPK Got Under Somebody's Umbrella," *Novoye Vryemia,* No. 15, 1992, pp 34-35.

15. V. J. Kozin (Russian Foreign Ministry), *Nezavisimaya Gazeta,* 28 February 1992.

16. *Sovershenno Sekretno,* no. 11, 1991. *Za Rubezhom,* no. 34, 1991.

17. A. Saveliev, "About SDI," *Nezavisimaya Gazeta,* 18 February, 1992 and 24 March 1992.

18. G. Arbatov, *Izvestia,* February 8, 1992.

19. *Izvestia,* 13 November 1992.

20. Boris Yeltsin's press conference in New York, *Rossiiskaya Gazeta,* 3 February 1992.

21. *Krasnaya Zvezda,* 20 **[month?]**, 1991.

22. A. Arbatov, "Joint SDI," Nezavisimaya Gazeta, March 4, 1992.

23. President L. Kravchuk's interview, *Izvestia*, 2 February, 1992.

24. This view reflects the philosophy of the high command of the Strategic Rocket Forces and their operational analysis centers. It is not shared by most of the other authors who are more in agreement with the definition of stability as a balance under which it is not possible to significantly change the ratio of capabilities in one's own favor by first strike or to deprive the other side of adequate retaliatory potential.

25. The above calculations of counterforce capabilities and the argument that launch-on-warning of ICBMs is a stabilizing quality belongs to RVSN and is not shared by other authors of the paper, civilian and military alike.

26. This is a proposal not shared by other authors, outside of this particular R&D center. An alternative opinion is that transfer of that technology may encourage ballistic-nuclear proliferation and thus would collide with the united nonproliferation policy of major powers. Instead, the same above-mentioned systems of enhanced capability anti-tactical ABM/AD should deal with this threat. In the future, several additional sites of an extended-range land-based defense system may be deployed.

27. That means removing the need to retaliate immediately even to a single missile or a few missiles and instead dealing with them by means of interception until the first warhead gets through.

28. Other authors disagree with the wisdom of maintaining an ABM system for one urban-industrial center or specific installation (such as an atomic power station). An attacker would always be able to target other, unprotected areas, thus circumventing the effect of ABM protection. Defense of the capital city to protect decision-making authorities has better alternatives: hardening and mobility of command centers and, if necessary, protecting them with a point-defense ABM system. Besides, selecting a city for protection involves divisive moral and political dilemmas. All the reasoning against nationwide defenses against limited strikes is even more applicable against one ground-based ABM site for city protection.

29. It has to be admitted that this scenario is logically contradictory. If both sides have sufficient political will and strategic wisdom to achieve agreements on offense limitations without tangible limits on defenses, then they should be capable of reaching (with relatively smaller efforts) a compromise on the above-mentioned land-based option, which can satisfy the presently stated goals of ABM expansion. Still, in politics pure, logical extrapolations often fail, which suggests at least a hypothetical possibility of an optimistic scenario.