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RUSSIA AND THE DILEMMAS OF NUCLEAR DISARMAMENT

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RUSSIA AND THE DILEMMAS OF NUCLEAR DISARMAMENT

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The book is intended for specialists in international relations and security and the public in general.

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PREFACE

This book outlines the main results of the joint project implemented by IMEMO RAN and the Nuclear Threat Initiative (NTI) in 2010-2011. Its principal objective was to provide expert analysis of opportunities for transition to deep nuclear disarmament and the major obstacles to that.

In Russia and the US, as well as in other P-5 states a belief has been widely spread that only nuclear weapons continue to reliably guarantee national security. Unfortunately, this viewpoint is also shared by the so-called new nuclear-weapon states, i.e. countries that have acquired nuclear weapons in different ways in the recent ten years, and the nations that are only striving for it.

Meanwhile, several important considerations make the universal character of these conventional truths seem quite doubtful. Now that the Cold War is over, with the current globalization and increasing global interdependency (to which the current economy crisis has been yet another illustration), nuclear deterrence seems to prevent the threats of the past, the 20th century threats. That is to say, it prevents deliberate nuclear or massive conventional attacks of major powers or their alliances against each other. This threat is now extremely low in its probability and significance.

At the same time, nuclear deterrence does not address the real threats of modern times, such as international terrorism, proliferation of weapons of mass destruction (WMD) and their delivery systems, ethnic and religious conflicts, to say nothing of the issues related to climate, environment, illegal migration, epidemics, trans-border crime, etc.

As to the dependence of Russia's security on nuclear weapons, this concept also seems to be rather superficial in practice. It should be remembered that by the time the Warsaw Treaty Organization and the Soviet Union collapsed, Moscow had 5 to 7 times more nuclear weapons than today's Russia. One has to have no faith at all in the Russian people to regard nuclear weapons (most of which are a Soviet legacy) as the sole attribute of Russia as a great power. This would imply an assumption that Russia is non-competitive either in terms of economy, research and development innovations, or in terms of improving the citizens' well-being and political life, as well as in terms of advanced general-purpose forces and conventional arms.

In the changing politico-military environment, the perception of strategic stability has significantly expanded as compared to the Cold War era in view of new threats and destabilizing factors. The essence of today's and future strategic stability requires major adjustment. The contributors to the project have developed and discussed in this book a whole set of pertinent suggestions.

The signing of a new START Treaty has become an important milestone on the way towards further arms reductions and limitations. This is obviously an important event both in terms of unprecedentedly low levels set forth for the strategic weapons of the parties and in terms of the two powers' resuming the legal cooperation in this area that was suspended for more than a decade.

The recent history vividly demonstrates that the processes related to negotiations and agreements on nuclear disarmament between Russia and the US should be continuous and consistent. Deadlocks and standstills in the negotiations inevitably lead to the loss of mutual understanding and confidence between the great powers and breed mutual military suspicions. In addition, they jeopardize strategic stability and undermine cooperation aimed at addressing new security threats of the 21st century.

Further nuclear disarmament efforts cannot continue to be bilateral. Third nuclear powers – France, the UK and China – are also to be involved in the process in one form or another.

Equally important is the fact that no other means than negotiations on nuclear disarmament will enable Russia to address such related politico-military issues as stopping NATO's eastward expansion on the terms acceptable for Russia and its neighbors on the post-Soviet space, managing the problems of the strategic missile defense and conventional precision weapon systems, preventing space arms race, etc.

In addition to new factors that have been discussed in detail in the course of the project, the strategic stability depends greatly on military doctrines. It is commonly known that military doctrines, including nuclear postures, have both internal and external dimensions. Externally, they send a warning to potential adversaries as to what actions by the latter may cause a state to resort to force, including the use of nuclear weapons.

Internally, the doctrine aims to show the citizens that the state provides for their security against external enemies and is not squandering away the huge sums allocated to defense. Finally, the doctrines to a certain extent set targets for the armed forces and defense industries as regards the probability and the nature of potential wars, the aims and objectives of the armed forces' involvement in such wars, as well as combat training and weapon acquisition programs.

Military doctrines continue to have considerable influence on politico-military relations of states, international security and the prospects of arms reductions and limitations. The key issue of nuclear doctrine is under what circumstances the state will use nuclear weapons.

These official positions, exactly owing to their immense political charge, are of great importance. They reflect the state's perception of the role nuclear weapons play in ensuring nation's security and defense capacity, as well as in pursuing international policy. The doctrines have some effect on the desire of non-nuclear-weapon states to acquire or to forego nuclear weapons. Nuclear doctrines are indirectly linked to the prospects of nuclear disarmament and advancing towards a world without nuclear weapons. Finally, the doctrines affect the nuclear weapons non-proliferation regime.

Obviously, a consistent and effective arms reduction and limitation process and transition to deeper nuclear arms reductions will be impossible unless nu-

clear-weapon states make considerable adjustments to their military doctrines and renounce the first use of nuclear weapons.

The heated discussions of the missile defense in Europe in the recent few months and the fact that this issue has turned into a central one in the relations between Russia and the US/NATO, demonstrates the role of missile defense in nuclear disarmament and non-proliferation. Developing and expanding BMD on a unilateral basis or only within the framework of the existing alliances, is most likely to hinder further nuclear disarmament and disrupt the cooperation of the great powers on the non-proliferation with all the consequences that come with it, including the extension of the nuclear club and the possibility of terrorists' gaining access to nuclear weapons.

Developing BMD systems on the basis of NATO/US-Russia cooperation might, on the contrary, practically contribute to further reduction and non-proliferation of nuclear weapons. Yet, just to say that the great powers should cooperate on BMD would be far from sufficient. Indeed, despite the fact that in the 1990s and in the current decade the United States and Russia have made quite a number of unilateral proposals and even had a series of joint computer-assisted exercises and signed several joint documents, things have not got off the ground, but rather have come to a deadlock.

Possible development of a joint missile defense would entail major challenges for both the participants in the process and other countries that are wittingly or unwittingly involved in the relations of security and stability in the nuclear sphere. Without at least basic answers to these questions, one may hardly count in earnest on the US-Russia cooperation, even if they call for such cooperation for another hundred times.

No clear answer has been given to the question of how will the development of conventionally armed high-precision ballistic and cruise missiles by the US and NATO affect the outlook for the next stage of strategic offensive arms reduction and cooperation on BMD. There is yet another question: what impact may the development of space arms have on strategic offensive arms reduction and the development of a joint BMD? Could any agreements and rules of conduct in outer space be elaborated and adopted in the near future? Finally, what impact the development of strategic offensive arms, BMD, high-precision conventional weapons and space weapons systems may have in terms of nuclear weapons and missile technology proliferation on the global scale?

Untangling a most complicated knot of the said issues and processes or even outlining basic principles and paths towards solutions is one of the major objectives of the military and political expert community in Russia and the West at the current stage. The contributors to the project have made some pertinent 'prescriptions' of practical importance.

The situation on the European continent is a pivotal component of ensuring international security. Here, Russia-NATO relations will have an enormous role to play in the context of further steps towards nuclear disarmament. Today this refers primarily to the mentioned plans to deploy the US/NATO missile defense in Europe.

In addition, a point will be raised concerning non-strategic nuclear weapons that are also mostly located in Europe. In its turn, this issue is connected with conventional armed forces and arms limitation on the continent related to the

Treaty on Conventional Armed Forces in Europe (CFE Treaty), which is currently “frozen”. Finally, all these scenarios may not be examined outside the general context of pan-European security with its current gaps and future prospects, including pertinent Russia’s proposals.

Having analyzed the above issues the contributors of the project conclude that an evident link can be traced between the arms limitations and reductions, on the one hand, and the non-proliferation, on the other hand, although many experts in Russia and abroad deny this. In the recent ten years, a stalemate in disarmament, primarily nuclear one, has disrupted all attempts to strengthen the NPT and nuclear non-proliferation regimes. There are enough reasons to believe that if the next stage of proliferation gains momentum, it would not merely bring about an increase of the threat of use of nuclear weapons, but, as a result of synergy of many risks, will render the use of nuclear weapons by either states or extremists virtually inevitable in the foreseeable future.

A world free from nuclear weapons and consequently from the vicissitudes of nuclear deterrence is at best a matter of quite a distant future. Yet to alleviate the dangers of nuclear world today - the efforts aimed at arms limitation and nuclear non-proliferation must be enhanced and move consistently forward, despite all the ups and downs in the relations between Russia and the West. This book presents some insights, proposals for action and possible practical problem solutions that are mutually acceptable (according to the authors and editors) and which are designed to help to fulfill this ambitious task.

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INTRODUCTION

The tightly scheduled step-by-step plan of transition to the world free from nuclear weapons proposed by Mikhail Gorbachev in the mid 1990s failed and had no chances to succeed, as it was far ahead of its time. After that the proposals were virtually forgotten for over twenty years that were full of complicated and often dangerous turns in the international affairs.

The revival of the idea of nuclear disarmament was triggered by the well-known article co-authored by the four prominent US statesmen.[1] In Russia this idea was supported in an article by four renowned public figures — Evgeny Primakov, Igor Ivanov, Evgeny Velikhov and Mikhail Moiseev. They made a key point that "the world without nuclear weapons is not our existing world minus nuclear weapons... Therefore, nuclear disarmament, which shall remain a strategic goal, necessitates a thorough overhaul of the entire international system".[2]

It is essential that the Presidents of the US and Russia reached an agreement on this point. In their joint statement at the London Summit of April 1, 2009, Dmitry Medvedev and Barack Obama declared that the two countries were committed "to achieving a nuclear free world".[3]

The contributors to the joint IMEMO RAN-NTI project believe that as a first step towards this end the parties should reduce their reliance on nuclear deterrence for ensuring security. Despite the fact that the Cold War, and, consequently, nuclear standoff, ended more than two decades ago, nuclear deterrence has been engrained in the national security documents of the nuclear-weapon states and their military and political alliances, determining the strength and composition of their deployed nuclear forces and defining their arms programs.

It is however evident that nuclear deterrence has become increasingly anachronistic as new emerging common threats and challenges require cooperation between the great powers to ensure international security.

Nuclear deterrence and the inherent threat of a nuclear war it embodies may be fully eliminated through nuclear disarmament. This is however a distant goal, and the human race will have to live in a world with nuclear weapons for many decades on. Meanwhile, in the near future, an entire set of measures may be out-

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[1] See: Shultz G.P., Perry W.J., Kissinger H.A., Nunn S. A World Free of Nuclear Weapons // The Wall Street Journal. January 4. 2007.

[2] Примаков Е.М., Иванов И.С., Велихов Е.П., Моисеев М.А. От ядерного сдерживания к общей безопасности // Известия. 15 октября 2010 г.

Primakov E., Ivanov I., Velikhov E., Moiseev M. From Nuclear Deterrence to Universal Security // Izvestia. October 15, 2010. (http://www.izvestia.ru/news/367072).

[3] Joint Statement by President Dmitriy Medvedev of the Russian Federation and President Barack Obama of the United States of America. London, April 1, 2009.

(http://www.whitehouse.gov/the_press_office/Joint-Statement-by-President-Dmitriy-Medvedev-of-the-Russian-Federation-and-President-Barack-Obama-of-the-United-States-of-America).

lined and action taken to reduce the reliance on nuclear deterrence, achieve its transformation and bring down the likelihood of a nuclear war to the absolute minimum.

This book outlining the major results of the project "Russia and Deep Nuclear Disarmament" offers a wide set of pertinent measures. The participants in the project implemented in 2010-2011 provided an in-depth analysis of the issues of strategic stability, modern nuclear doctrines, the links between nuclear disarmament and non-proliferation, non-nuclear factors of nuclear disarmament and NATO-Russia relations. On all the issues under consideration they have made conclusions of practical importance that should contribute to further progress of arms reduction and limitation, strengthening nuclear non-proliferation regime and international security.

Many of the issues discussed in detail in the course of this project, had been mostly overlooked by the majority of Russian and Western experts.

The contributors to the project are far from expecting the future of the arms control and progress towards a world free of nuclear weapons to be effortless and trouble-free. More than once they have revisited the pertinent issues in their works and discussions. They have even made an attempt to look at ways of ensuring peace and stability with minimum nuclear arsenals and in a world free of nuclear weapons, which also makes part of this book.

Despite all the difficulties, the work of the recent four decades aimed at reducing and limiting arms and the revival of commitment to a nuclear-weapon-free and stable world give hope of a better future. This hope has never left the contributors to the project and has helped them in their analytical work and in formulating proposals for both foreseeable future and the longer term.

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PART I
STRATEGIC STABILITY AFTER THE COLD WAR

I.1. STRATEGIC STABILITY IN THE COLD WAR ERA

The first mutually accepted general definition of strategic stability appeared in the Joint Soviet-US Statement of June 1990, years after the two countries started to use this term, each in their own sense.[4] The new term came to actually replace the noncommittal principle of 'equality and equal security'.

According to the Joint Statement of 1990, strategic stability was understood as such balance of strategic forces of the USSR and the US (or such state of the two powers' strategic relations) where there were no incentives for a first strike.

It was declared that the future agreements should ensure strategic stability through stabilizing reductions of strategic offensive arms and by maintaining the adequate strategic offensive and defensive weapons ratio. The principles of stabilizing reductions included reducing the concentration of warheads on strategic delivery vehicles and giving preference to survivable weapon systems.

While the declared intention was to eliminate incentives for first strike, it was essential to define what strategic objectives a state could follow in delivering a first strike. In theory, there may be different objectives for a first strike, including display of determination, tipping the nuclear balance of power in one's favor, disorganizing the operation of conventional armed forces, destroying the potential of separate industries or at large.

Instead, it was mutually accepted that a possible objective of a first strike may be to prevent or significantly downgrade the adversary's retaliatory strike. In other words, it was accepted that the operation plan for a first (counterforce) strike might have the goal of maximum destruction of the other side's strategic forces, including its control and communication systems.

These very general principles meant a significant step forward towards mutual understanding by the two countries of the essence of their strategic relations. However that alone was not enough to implement the provisions which had to be formalized and presented as a set of reasonable and illustrative numerical ratios.

To the solution of these tasks there is devoted a big number of research works with rather substantial bibliography, which has been prepared by both Soviet (Russian) and US experts. These specialists, to present strategic stability – or, more precisely, its level – as a set of absolute numbers and coefficients, used special physical models and algorithms. Computer programs based on the said models and algorithms simulate various options of hypothetical nuclear exchanges.

Such strategic stability models can hardly be viewed as a universal tool that can answer the question of what the countries need to do in terms of military capability development and arms control for mutual security interests to be ob-

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[4] See: Сергеев И. Без первого удара // Российская газета. 13 ноября 2001.
(Sergeev I. Dropping a First Strike Strategy // Rossiiskaya Gazeta. November 13, 2001).

served as much as practicable. There are too many factors that gravely affect such processes, and these factors cannot be embraced by formulae.

However, these models were used to develop case scenarios for future strategic offensive arms limitation and reduction by the USSR and the United States, and to assess the stability level in the 1960s through to the 1980s. It is on record that in the latter half of the 1960s there was an increase in stability due to the balanced quantities of the sides' relative strengths, their enhanced survivability, improved systems of warning, control and communication. Stability reached its peak in the early 1970s, coinciding with the signing of the first treaties on the limitation of strategic defensive and offensive arms. However, as the US and subsequently the USSR started to deploy strategic ballistic missiles with multiple independently targetable reentry vehicles (MIRV), the level of stability sagged.

Most of the Soviet (Russian) experts shared the definitions of strategic stability in the broad and in the narrow senses of the term.

In the broad sense, strategic stability was viewed as such cumulative political, economic, military and other measures implemented by the states (coalitions) that renders military aggression impossible for any of the sides.

In the narrow sense, strategic stability was understood as a state of strategic forces and military relations between the states that was characterized by roughly equal military potentials and where neither of the sides attempted to shift the military balance to achieve sustained superiority over the other side.

The US experts identified two concepts within strategic stability − crisis stability and arms race stability. The former implied that the situation could be regarded as stable, if even in a crisis neither of the sides had serious opportunities and incentives for a first nuclear strike. In terms of the other concept, stability was defined depending on whether there were any incentives to build–up the country's own strategic potential.

According to the prevailing theory, the mechanism of crisis stability was as follows. If the counterforce potential of the opposing sides' strategic forces is sufficiently high (i.e. if they are capable of destroying hard fixed and mobile targets with warheads of sufficient yield and high precision), with both sides vulnerable to the adversary's counterforce strike and – what is more – attractive in terms of delivering a first strike (that is to say, when the potential adversary may use a comparatively small part of its weapons to destroy the opposing party's large portion of offensive weapons), the strategic crisis stability was regarded as impaired.

Indeed, in a serious crisis each of the sides would have a powerful incentive for a first strike facing the choice of whether to destroy the adversary's offensive weapons and gain a serious advantage or to lose its own vulnerable strategic weapons.

The situation may also be unstable when only one of the sides has vulnerable assets. Even if this side can not count on seriously degrading the adversary's forces by a first strike, it would still face the choice of either using or losing its arms. Being aware of this fact, the opposing party in its turn may have an incentive for a preemptive counterforce strike to prevent such an "attack out of desperation", while the former side would know that in view of the abovementioned considerations its adversary has an incentive for a preemptive strike, and so on indefinitely. From a crisis to war, from a conventional conflict to a nuclear one,

from a limited conflict to a global one – these scenarios would then become more probable, at least inasmuch as it depended on the military balance.

To avoid such a situation, the sides have to monitor each other's activity in deploying new weapons to be able to take countermeasures preventing the opponent from gaining military advantage and impairing the crisis stability. In this case, the arms race stability is impaired and the sides proceed on a new cycle of military and technical competition.

It should not be overlooked that strategic offensive arms are only a part of weapons available to nuclear states, though a significant part. Other forces affect strategic stability as far as strategic offensive arms are meeting the strategic objectives of the armed forces locally or on the global scale. The assessment should include conventional weapons inasmuch as strategic offensive arms depend on conventional weapons or as the state intends to use such means to destroy the adversary's strategic offensive arms.

According to one of the constructive definitions of strategic stability (in terms of strategic arms) that allows to analyze it as a complex system, strategic stability is the robustness of strategic nuclear parity persisting over a long period of time despite the influence of destabilizing factors.

Strategic nuclear equilibrium, in its turn, is achieved through rough equality of nuclear arms of the parties in terms of a set of quantitative (the number of launchers and delivery vehicles, total number of warheads, etc.) and qualitative (operational capabilities in various types of strikes) indicators, which means rough parity of counterforce capabilities, launch-under-attack capabilities and deterrence capabilities.

Usually, counterforce capability is measured in the number of strategic offensive arms that can be destroyed, including hardened point facilities such as silo launchers and command centers, as well as mobile launchers the destruction of which depends on intelligence capabilities, flexibility of combat control and retargeting. This does not preclude simultaneous destruction of other infrastructure facilities and administrative and industry centers. Yet, the key objective is to destroy the adversary's offensive forces.

The launch-under-attack capability depends on the ability to launch one's own forces before the actual attack by the adversary's warheads. It depends on the effectiveness of warning systems, speed of communication and decision-making and on technical combat readiness of the weapons. The launch-under-attack capability is measured in the number of warheads launched on warning as well as their operational capabilities in terms of destroying different types of facilities.

Assured deterrence potential also known as retaliatory strike effectiveness is defined as the number of surviving strategic offensive weapons and their operational capabilities including the agility of the combat command systems.

Each of the components plays a separate role in deterrence against aggression:

- counterforce capability of one of the sides stimulates increased survivability of strategic offensive arms of the other side; however it should not be excessive if the sides seek stability;
- ability to launch a sufficient number of one's own weapons before destruction is an effective deterrent as it renders pointless a counterforce strike;
- retaliatory posture is the "last ditch" deterrent against aggression and is viewed as the key deterrent.

Basically, the balance in terms of all the three components of nuclear parity, if maintained for a prolonged period of time in the presence of potential destabilizing factors ensures the preservation of lasting strategic stability.

Such balance is not only essential as an effective security guarantee. It is equally important for a lasting deterrence against a backslide to confrontation and arms race.

Thus, strategic stability includes two components. The first component is capability for nuclear deterrence against a global war through maintaining the ability to inflict unacceptable damage on the aggressor by retaliation. The second component is availability of strategic nuclear forces as well as plans and capabilities for their development that vividly convey the futility of any attempts to gain one-sided advantage, that is to say, the futility of an arms race.

This can be achieved if there is a rough nuclear parity of the opponents in terms of numerical strength of their forces and their operational capabilities, as well as the availability of research and production capacity ensuring an adequate response to potential challenges by strategic offensive weapons.

The threat of inflicting unacceptable damage to the adversary by destroying its cities and industry that form the backbone of its military and economic potential was for a long time regarded as a deterrence criterion.

However, the ambiguity of the term 'unacceptable damage' is the major drawback of this approach. The scope of unacceptable damage depends on historical, social, psychological and other factors that may vary depending on the state. The commonly used criteria offered by Andrei Sakharov and Robert McNamara (400-500 megaton class warheads) and by European analysts (who believed that several warheads were sufficient to ensure deterrence) were only theoretical, while extensive research in this field was far from successful.

Practice has shown that any discussion on establishing an agreed scope of unacceptable damage is futile on the practical level. Therefore, it was more appropriate to use rough parity of a retaliatory strike capability as a deterrence criterion.

This perception of strategic stability took shape in the United States and subsequently in the USSR by the end of the 1980s. It was to one extent or another incorporated into the START I Treaty followed by the START II Treaty and the Framework Agreement on START III Treaty.

I.2. FACTORS AFFECTING STRATEGIC STABILITY

From the Cold War on, strategic stability has been affected by a set of political, operational-strategic, military economic and military technical factors.

In terms of persisting Russia and US mutual nuclear deterrence, the following major factors can be regarded as affecting strategic stability:

- survival capacity of strategic offensive arms;
- anti-ballistic missile systems (ABM systems);
- nuclear weapons of third countries;
- tactical nuclear arms;
- conventional precision guided weapons;
- space weapons;
- anti-submarine warfare (ASW).

Survivability of strategic offensive arms. As noted above, strategic stability primarily depends on the characteristics of the nuclear triad structure and the parameters of arms in these structures.

In the case of the USSR, up to the mid-1980s the nuclear parity to the United States was secured by fixed missile systems with MIRV (multiple independently targetable reentry vehicles). These missile systems ensured a sufficiently high retaliatory strike capability, due to their engineering robustness. At the same time, the US viewed them as destabilizing considering their high counterforce capability and low survivability. High concentration of reentry vehicles on these intercontinental ballistic missiles (ICBMs) made it possible to destroy up to 10 warheads with one or two warheads. The fear of losing these missiles could push the opponent towards a launch-under attack strike or even a preemptive strike and therefore drastically destabilizes the situation.

Fixed-based ICBMs with single reentry vehicles were perceived as a much less destabilizing weapon. Indeed, this vulnerable weapon may be used in a launch-under-attack strike, but has relatively little value for the attacking party pursuing a disarming strike.

Mobile ICBMs and ballistic missile submarines were traditionally regarded as stabilizing weapons. They were supposed to be the key contributors to retaliatory strike capability, i. e. to nuclear deterrence capability, and to a certain point they played a rather modest role in terms of a disarming strike.

It should be noted that before START I Treaty was signed, the US viewed the difficulty of controlling mobile ICBMs as a negative quality offering opportunities to secretly build missiles, deploy launchers in rock caves, etc. That is why additional counting rules, inspections and notifications were introduced with respect to mobile ICBMs.

As for nuclear-powered ballistic missile submarines (SSBNs), it should be noted that since mid-1980s the Trident II SLBM with its heavy W-88 warheads became a major threat to Soviet/Russian fixed and mobile ICBMs, and hence were a considerable destabilizing factor. The destabilizing effect prevailed until the United States decided to deploy no more than 400 W-88 warheads. In the course of further deep reductions of Russia's silo-based and mobile ICBMs the destabilizing effect of the Trident II system is likely to increase again.

Now and again experts disagree about the destabilizing role of ballistic missile submarines and heavy bombers located in a limited number of bases in time of peace, the matter of concern being their high concentration of warheads and attractiveness as a target for a disarming strike. However, during a threat period – since realistic conflict scenarios suggest that prior to a military operation there should be a threat period – the SSBNs move to the patrolling area and the heavy bombers are redeployed to a large number of dispersal airfields, and hence this destabilizing factor may be considered a minor one.

Missile defense systems. Such systems may undermine strategic stability if they protect the country's territory from a massive nuclear attack by intercepting a major part of the attacking missiles and warheads. A missile defense system protecting only the bases of ICBMs, SSBNs, strategic air force and top combat command centers contributes to strategic stability. This was the rationale behind the ABM Treaty of 1972 and its Protocol of 1974 signed by the USSR and the United States.

Since that time, the technological advances of missile defense information systems and interceptors significantly increased their capabilities. For instance, two GBI strategic missiles deployment areas in Alaska and California in fact protect the entire territory of the United States from single missile launches, which makes it a territorial missile defense system. So far, its negative impact on strategic stability has only been speculative, since 30 GBI interceptors do not affect Russia's nuclear deterrence capability. The same is true of a third missile defense area that was supposed to be build in Poland and the Czech Republic according to the plans of the previous US Administration.

However, such decisions were politically destabilizing for they ran counter to the US-Russian agreements on strategic partnership and joint development of missile defenses and created significant long-term uncertainty for Russia.

A missile defense system may become truly destabilizing if there is a major extension of land, sea, air and space echelons of interception of missiles and warheads at every phase of their trajectories. (The impact of BMD defense on Russia's deterrence capability will be analyzed below).

Nuclear weapons of the third states. The nuclear weapons of UK and France in the period of Cold in the USSR, the same as now in Russia, are regarded as a possible supplement, in first turn, of the US counterforce strategic offensive weapons in the joint planning of a disarming strike against Russia's (USSR) nuclear triad. Estimated threat of joint nuclear attack by the NATO countries may increase in the context of deep strategic offensive arms reductions by the US and Russia. In addition, while containing their composition of weapons, the UK and France do not adjust the development of their own nuclear forces to the process of the current US-Russian negotiations on disarmament.

According to Russia's perception, the priority target in case of a disarming nuclear strike by these states may be the dispersal areas of mobile ICBMs, SSBN bases and strategic air bases. However, despite the fact that the UK and French nuclear forces were invariably perceived as a destabilizing factor for nuclear parity, they were of minor importance in terms of the Soviet and Russian development programs of nuclear deterrence forces and had no effect on the treaties on

strategic offensive arms reduction and intermediate- and shorter-range missiles elimination.[5]

In the 1990s, the UK and France took unilateral voluntary steps on the reduction of their nuclear arsenals. All of these steps applied to non-strategic arms, namely UK's air and depth bombs and France's land based medium-range and tactical ballistic missiles. As a result, the UK has four strategic submarines armed with Trident II missiles purchased from the US.[6] According to the British Government, the number of warheads carried by these submarines has been reduced to 160 which is 4 times less than the payload capacity. In addition to its four submarines, France has retained a small air component. The country remains the only nuclear power that has nuclear capable aircraft on its Charles De Gaulle aircraft carrier.

Thus, after the end of the Cold War, the European nuclear powers almost fully renounced the elements of their nuclear capabilities that could potentially be used in a European armed conflict. This made it even less possible that they would strengthen the US nuclear capability in case of such a conflict.

In the UK there has been extensive debate over the possibility of limiting the future strategic submarine fleet to three submarines. As to France, it will find it hard to avoid commitment to additional unilateral steps in nuclear disarmament when there is a new surge of nuclear arsenals reduction. In this context, the country's abandoning its air component would seem a logical step towards enhancing stability.

Unlike France and the United Kingdom, China has not been known to take unilateral steps on nuclear disarmament. However, after the Cold War its nuclear modernization has been about quality and did not involve significant build-up. At the same time, considering its increasing economic power and military budget, as well as its military technical achievements, China is capable of expanding its arsenal with hundreds of warheads as soon as the next decade, provided there is a relevant policy decision.

During the Cold War era, tactical nuclear weapons (TNW) were regarded by the USSR as complementary to the US strategic offensive weapons deployed at forward bases in Europe and Asia, on ships and submarines of the United States Navy. At the same time, in view of the fact that the TNW mostly appeared in conventional war escalation scenarios, the USSR and the US could never come to terms about its role in strategic stability. The USSR claimed it to be a destabilizing means of a first nuclear strike by the US, whereas the NATO regarded it as a counterbalance to the military dominance of the USSR and the Warsaw Pact Organization in general-purpose forces.

After the end of the Cold War, the break-up of the Warsaw Treaty Organization and disbanding of the Soviet Union, when a prolonged crisis of economy and military reform drastically weakened the Russian general-purpose forces, the tables were turned. It was now Russia's turn to regard TNW as a stabilizing component of military balance in the theatre of operations setting off the growing

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[5] The sole serious exception was the efforts by the USSR to take into account the nuclear capabilities UK and France to secure an advantage for the USSR in the number of SSBNs in the SALT I Treaty.

[6] The warheads of these missiles are British-produced; they do not have the counterforce capability similar to that of W-88 of Trident II missiles in the inventory of the US Navy.

dominance of NATO's general-purpose forces in the context of its eastward extension. In the meantime, as part of paralleled unilateral initiatives, the United States and the USSR/Russia significantly (more than by the order of magnitude) reduced their respective TNW. Recently, unlike in the Cold War period, the US and their allies have been increasingly persistent in bringing up the issue of TNW containment and elimination.

Conventional long-range precision guided weapons. This type of weapons appeared late in the 1970s in the form of sea-launched cruise missiles (SLCMs) to deliver strikes at coastal targets from the US ships and submarines. However, during the Cold War the USSR did not perceive these weapons as a separate threat. They were an issue for the parties during the negotiations on START Treaties solely due to the fact that it is impossible for the national technical means of verification (NTMs) to separate nuclear and conventional SLCMs.

Since late in the 1990s, massive deployment of high precision weapons by the United States and their effective use in local wars of 1999, 2001 and 2003 has been viewed by experts as a strong destabilizing factor. In experts' opinion, these weapons may potentially have counterforce capability comparable in terms of effectiveness to a disarming nuclear strike. The updated Military Doctrine of the Russian Federation of 2010 declares the threat of a high precision weapons attack a priority, alongside with ensuring air defense of the key assets and facilities of the Russian Federation and preparedness to counter an air-space attacks.[7]

Indeed, the capabilities of precision guided weapons and their range are subject to continuous upgrade, and so are the means of air and space intelligence, navigation and targeting. This is evidenced by the two Gulf wars and wars in Yugoslavia and Afghanistan over the last 20 years. However, to estimate the role of high precision weapons as a destabilizing factor in the US-Russian nuclear balance, their potential capabilities should be balanced against the real military scenarios.

Firstly, large-scale conventional warfare requires rather extensive preparations, including massive force projections, aircraft and ship redeployment. It is likely to take several months (judging from the experience of much smaller-scale operations than preparing for a hypothetical war against Russia) which makes it absolutely impossible to conceal. In this case the Russian Armed Forces, including the nuclear triad, would be made fully operational with maximum dispersion and camouflage. Therefore, the high precision weapons will only be capable of destroying only part of stationary targets such as silo launchers and command centers that have to be protected against air strikes by territory and local air defenses. The major part of the mobile ICBMs, with their self-propelled launching vehicles well-concealed from optical and radar surveillance and patrolling a huge area, as well as the nuclear-powered ballistic missile submarines in sea and ocean patrol areas, will retain substantial nuclear retaliatory capability after a disarming strike by conventional or nuclear weapons.

Secondly, it is impossible to simultaneously destroy even the detected fixed targets by sea- and air-launched high precision weapons: planning such a strike would be exceptionally difficult due to evident reasons related to the size of Russia's territory and expected launch locations of precision guided weapons. That is

[7] See: Military Doctrine of the Russian Federation. February 5, 2010. (Available in Russian at http://news.kremlin.ru/ref_notes/461).

to say, a disarming strike at Russia's nuclear forces using conventional high precision weapons implies a relatively long military operation during which the US and NATO conventional forces, despite their preponderance, will inevitably meet strong counteraction. It should also be realized that in such a war the strikes would be inflicted not only on Russia's nuclear forces, but also on the whole range of military and industry facilities of the warring parties.

Lastly, as far as is known, both the USSR and Russia have always analysed all possible conventional military operations scenarios, defining acceptable damage level beyond which it a nuclear response was considered necessary. Basically, such provisions were outlined in Russia's military doctrines of 2000 and 2010.

This provides a good reason to conclude that planning such military operations against Russia by the US and NATO is devoid of sense from the military perspective, let alone in political and economic terms. Therefore, as regards the official members of the nuclear club, scenarios of large-scale disarming strikes involving conventional high precision weapons may be analysed mostly as an academic study.

Space arms. This type of weapon is represented by combat systems deployed in space, on land, on air and on sea to destroy targets in space or from space. During the Cold War such weapons were deployed in the USSR and the US on a limited scale (anti-satellite weapons) and their role in strategic balance was very insignificant.

In the future, space weapons under certain circumstances may be extensively used as anti-satellite systems of different basing models and orbital missile defense systems. In this case space weapons may not only be a destabilizing force in the nuclear balance equation, in addition they may significantly affect vertical arms race and horizontal proliferation.

In the near-term prospect, the US has maximum capabilities for the deployment of space weapons. Once this decision is made, Russia's key opportunity to counter the overwhelming US military superiority in space may be by enhancing nuclear weapons capability (in addition to the development of anti-satellite systems). If the US respond with increasing their strategic offensive arms and missile defense potential, it will inevitably lead to the disruption of the arms race stability or even of the crisis stability.

Anti-submarine warfare. Since the Cold war era, ASW has been regarded by the USSR and Russia as a destabilizing factor. As soon as the first SSBNs appeared, both the US and Russia started to modernize weapons to counter them, as well as of weapons ensuring combat robustness of for SSBNs at sea. In 1970s the US developed a highly effective global Sound Surveillance System (SOSUS) for hydro-acoustic detection of submarines. Its arrays were deployed along the US West and East Coast, on anti-submarine barriers North Cape – Bear Island, Greenland – Iceland – the Faeroe Islands – the UK, as well as in the Pacific Ocean.

In addition, the US systematically deployed their attack SSNs in the near shore areas of the USSR. The point was that the Soviet/Russian submarines were nosier than those of the United States.

In late 1970s-early 1980s the USSR Navy expanded its inventory with 667B, 667BD, 667BDR (Delta I, II, III) missile submarines, and later the 941 Typhoon and 667BDRM (Delta IV) submarines with intercontinental missiles. The Soviet SSBNs no longer had to penetrate the anti-submarine barriers to enter

the combat patrol areas. The main means of US antisubmarine warfare was now covert tracking of the Soviet SSBNs in the near shore areas. To counter the US antisubmarine defense was the responsibility of the Soviet Naval forces, including surface and sub-surface vessels, anti-submarine aircraft and the sonar underwater monitoring.

Meanwhile, the results of early 1990s combat simulations performed by the Western experts showed that in the initial period of a war 30 to 40 per cent of Russia's strategic submarines may be destroyed in the course of anti-submarine operations.

Therefore, Russia still considers ASW a major destabilizing factor for the strategic balance. Later on the US cancelled the SEAWOLF – a program of building an advanced class attack nuclear submarine to replace the Los Angeles submarines that were used for covert monitoring of SSBNs of the USSR. However, it should be noted that up to now the US has not agreed to narrow the scope and the areas of its anti-submarine activity.

Hence, during the Cold War and in the first years after its end, the following factors were held as critical for the level of strategic stability (in order of their priority):

- survival capacity of strategic offensive arms and their ability to inflict unacceptable damage by a retaliatory strike under all conditions after the outbreak of the war;
- the counterforce capability of strategic offensive arms as an opposite to the survivability of strategic offensive arms of the other side;
- limitations on missile defense systems of territories and effectiveness of the sides' means to penetrate them as part of an assured retaliatory strike capability;
- rough parity of the sides in terms of quantity of warheads and strategic delivery vehicles.

The following three criteria appeared mostly in USSR's approaches, though they were not recognized by the United States and therefore were not included in the provisions of the START Treaties:

- the role of third countries and their contribution to strategic stability;
- the influence of the US general-purpose forces and forward-based dual-use capabilities as delivery vehicles of tactical nuclear weapons;
- NATO's anti-submarine defense in the Atlantic and the US-Japan ASW in the Pacific Ocean.

I.3. DESTABILIZING FACTORS IN THE NEW ENVIRONMENT

As mentioned above, at the end of last and at the beginning of the new century, the perception of strategic stability has significantly expanded to include new threats and destabilizing factors. In a way, such an extension robs the concept of its clear and precise content and complicates the alignment of its perception by various states. At the same time, it would be incorrect and unrealistic to preserve the old perception of strategic stability relating to the Cold War era, as well as the principles of mutual nuclear deterrence that are intrinsically linked to strategic stability.

In the past, the perception prevailed that nuclear deterrence was, rephrasing the famous observation by Winston Churchill, the worst means of preventing a new war except for all those others that have been tried. Today, the contradictory character of this assertion is becoming so evident that it demands serious revision of the role of nuclear deterrence in ensuring the security of the world powers and the international community at large.

Such a change of perception can be explained by a number of reasons. To begin with, nuclear deterrence does not address the actual threats and challenges that emerged after the Cold War. Deterrence remains effective against the least probable and most fantastical threats, including nuclear or large-scale conventional weapons attack by great powers and their alliances at each other. Meanwhile, nuclear deterrence is absolutely ineffective against the new real security threats, such as nuclear weapons proliferation, international terrorism, ethnic and religious conflicts and their consequences, drug-trafficking, cross-border crime, illegal migration, etc.

Secondly, the persisting principles of nuclear deterrence, primarily of mutual nuclear deterrence between Russia and the US, largely limit the two powers' abilities for a deeper cooperation in order to jointly respond to new threats and challenges. First of all it manifests itself in the serious antagonism over the plans of the deployment of missile defense by the United States, NATO and Japan to ensure protection against missiles of rogue states. These plans are viewed by Russia (and the People's Republic of China) as a threat to their nuclear deterrence potential. A vivid example of this gap between mutual deterrence and cooperation imperative is the problems related to the implementation of mutual Russian and US commitments on establishing a Joint Data Exchange Center (JDEC) to monitor missile launches, as well as, on jointly developing the Russia-NATO theatre missile defense (TMD) systems and a global Russia-US missile defense.

Although nuclear stand-off has receded to the background of the current politics, it discourages cooperation of intelligence communities and military forces in anti-terrorist special operations such as missions under Proliferation Security Initiative (PSI) and in Operation Active Endeavour (OAE).

Thirdly, while maintaining nuclear deterrence, nuclear states waste significant material, intellectual and technology resources that could be used more efficiently for the cooperation in ensuring global and regional security.

Lastly, the global proliferation of nuclear weapons and their delivery vehicles does not automatically result in establishing nuclear deterrence at the regional level. It is absolutely fair to say that the previous decades' mechanism of maintaining strategic stability in the context of mutual nuclear deterrence, including systems to prevent unauthorized use of nuclear weapons, is mostly not available at the regional level in the relations between new nuclear nations.

Stability will be eventually disrupted by further nuclear weapons proliferation and by international terrorism inevitably gaining access to such weapons. As the result, all the existing nuclear deterrence mechanisms as means of ensuring national and international security will collapse.

Thus, maintaining the system of nuclear deterrence is indefinitely as a keystone of security (which developed significant stabilizing components during the years of global confrontation and which – for want of anything better – might have prevented a third world war), in view of the new threats and processes, will inevitably lead to the erosion of strategic stability. In addition, it will increase the possibility of nuclear warfare or terrorist use of nuclear weapons which will have catastrophic consequences for the modern civilization.

I.4. RUSSIA'S PERCEPTIONS OF THE UNITED STATES MILITARY POLICY

While the new philosophy of revising the role of nuclear deterrence in ensuring strategic stability set forth above is not universally accepted across the USA, in Russia it is still supported only by a select minority of experts, politicians, military and civilian officials, the press and public opinion. In these circles the vast majority considers the reliance on nuclear deterrence as a main pillar of national security, and this attitude is probably stronger than in the worst years of the Cold War era. It is peculiar that in addition to nationalists, communists and conservatives, this attitude is shared by a good many representatives of the liberal – including pro-Western – circles.

This mainly reflects the disappointment of the Russian society in results of the country's post-Soviet development and the experience of relations with the US and their allies over the last 20 years. The major condemned factors include:

- arbitrary use of force disregarding the international law by the US and NATO in Yugoslavia in 1999 and in Iraq in 2003;
- NATO expansion – in defiance of all Russia's objections – to Central and Eastern European countries liberated by the Gorbachev administration and Yeltsin's democratic Russia from communist oppression and military occupation;
- degradation of the system of agreements and negotiations on disarmament (ABM Treaty, START I and START II, agreements on theatre missile defense (TMD) of 1997, Comprehensive Nuclear Test-Ban Treaty (CTBT), Fissile Material Cut-Off Treaty (FMCT), etc.) during the years of Republican Administration, as well as the persistent policy of denouncing disarmament as a security-building means;
- lack of distinct and reasonable alternatives to mutual nuclear deterrence as the basis of strategic relations between the nuclear powers that are not allies;
- increased focus of doctrines on nuclear deterrence (including preemptive and preventive use of nuclear weapons) during the years of Republican Administration in parallel to the officially pronounced objective to secure US dominance in terms of advanced weapons, including missile defense, high precision weapons and space weapon systems;
- open and even defiant disregard by the United States of Russia's concerns over regional and global security;
- the perception of continuous weakening of Russia's positions in its military and political relations with other powers and their allies on the global and regional scale;
- degradation of Russia's general-purpose forces, an increased gap in advanced military and dual-use technology, defense industry crisis and the lasting stagnation of the Russian military reform.

Though the latter two factors are, no doubt, Russia's own fault, it is felt all the more acutely in the context of the abovementioned aspects of the US and NATO policies.

The change of the Administration following Barack Obama's triumph in the presidential elections of 2008 was probably a key turning point in the US history. However, for the Russian political circles and general public it did not come as a significant change factor on its own terms, that will relieve the long-felt disap-

pointment, mistrust and hostility towards the United States, negotiations and agreements with Washington.

Addresses and declarations by the US government officials are not enough to change this perception. Only a persistent policy of agreements between the United States and Russia, the development of the two countries' practical cooperation in the field of security, removing Russia's concerns by tangible measures may gradually restore confidence and hope for a lasting partnership between the two nations.

Compared to the Cold War era, the prevailing perception of strategic stability in Russia has undergone certain changes. To a certain extent, these changes may be the subject for alignment with the United States. They are as follows.

1. The new ruling circles are increasingly aware of the political role of Russia's nuclear capability in view of its decline as the second superpower in almost all other spheres. Meanwhile, the rational considerations of maintaining strategic stability has given way to weapons' political effects and PR.

2. Surprisingly, at the same time much less importance is attached to rough parity between Russia and the US in terms of quantitative characteristics of strategic offensive arms, judging by the negative attitude to START I Treaty and the assessment of the new treaty in certain circles.

3. The sufficiency criteria of retaliatory strike capability have been significantly lowered. However, they are no longer associated with the destruction of just one or several cities of the hypothetical adversary.

4. Despite the fact that the Cold War is over, the probability of a military conflict between Russia and the United States and their allies has not yet been removed from the agenda (due to competition for the supremacy in the post-Soviet space, struggle for energy resources and control over strategic communications, etc.), though this probability is seen unlikely.

5. Clear attempts have been made to model the US doctrinal provisions (first strike, selective, preemptive, demonstration, preventive strikes, etc.).

6. Area missile defense is no longer regarded as purely destabilizing, as was the case in the 1970s-1980s. Russia may accept the TMD and global missile defense deployment by the United States and their allies as long as this step has been agreed with it, all the more so if such step is based on cooperation of the major powers.

7. Less attention is given to the role of third nuclear powers' capabilities. However, attention will increasingly focus on this aspect of nuclear balance in the course of strategic offensive arms reduction.

8. A stronger focus is the development of long-range high precision weapons as a new destabilizing factor of greater importance than missile defense, TNW and the US upload hedge in strategic offensive weapons.

9. Negotiations and agreements on disarmament have turned into universal trading chips in the country's political in-fighting (criticism of START I and the following Treaty) and foreign policy gestures (suspending the Treaty on Conventional Armed Forces in Europe (CFE), declarations on a possible withdrawal from the INF Treaty.

It is evident that with such a prevailing approach may be more difficult for both sides to agree on a number of issues related to deep nuclear disarmament than in the Soviet era.

I.5. CHINA AND STABILITY

Today, China is the only one of the five great powers permanent members of the UN Security Council and nuclear-weapon states recognized by the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), that provides no official factual information on its nuclear forces, programs of their development and nuclear weapons stockpiles.

Nuclear transparency and official position of China. To be objective, one should note that today Russia and the US release official data on the number and specifications only of those nuclear weapons to which START treaties (or previously INF Treaty) apply. Unlike them, China is not a party to any treaty on nuclear arms limitations. The Soviet Union had not disclosed such information before it concluded the first SALT/START treaties. Even after the SALT I and SALT II were signed, for a long time the country pursued minimum openness. A 'transparency breakthrough' came only at the time of INF Treaty, START I and CFE Treaty negotiations in mid and late 1980s.

As of now the UK and France provide official information on their nuclear forces, although somewhat less specific one as compared to the US and Russia, yet a very detailed one in comparison to China. The same is true with regard to the relevant doctrines and nuclear forces development programs. These two countries are also not parties to any treaties on nuclear arms limitations, but are open democratic states. Besides, being NATO members (unlike China), they are covered by the US security assurances and are protected by the US nuclear deterrent and can afford nuclear forces openness.

In addition to data on strategic nuclear forces, in 2010 the US released official information on the total number of their operationally deployed nuclear weapons and nuclear weapons held in operational reserve, including historical evolution of their nuclear arsenal between 1945 and 2010. However, this total number was not disaggregated by strategic and non-strategic weapons or their types, neither any criterion were given based on which the weapons were subdivided into operational reserve and stockpiles designated for dismantlement and disposal. No quantitative assessment of the latter part of the stockpile was given, but for the words 'several thousand'.[8]

At the same time, it should be mentioned that in the US and Russia an enormous amount of informal factual and analytical materials on nuclear weapons is published, providing detailed data on the numbers, kinds, types, and specifications of weapon systems, including their historical genesis. Besides, both powers give a detailed account of their official military doctrines and strategic concepts, not to mention vast informal expert publications on this topic. The situation is similar for the UK and, to somewhat smaller degree, for France.

The remaining four nuclear-weapon states give an outline of their strategic concepts, but, like China, they disclose absolutely no factual technical information. Israel does not acknowledge possession of nuclear weapons, yet does not oppose the publication of extensive expert opinions on the issue. Except for dis-

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[8] Fact Sheet: Increasing Transparency in the US Nuclear Weapons Stockpiles. Department of Defense, May 3, 2010 (http://www.defense.gov/npr/docs/10-05-03_Fact_Sheet_US_Nuclear_ Transparency_FINAL_w_Date.pdf).

closure of secret information which is deemed a criminal offense, this apparently makes part of a deliberate 'latent' nuclear deterrence policy.

As for China, it makes up for the lack of factual information issuing numerous official statements on exclusively defensive nature of its nuclear forces and its minimum deterrence strategy. China's White Paper titled "China's National Defense in 2010" declares that "China unswervingly maintains its fine cultural traditions and its belief in valuing peace above all else, advocating the settlement of disputes through peaceful means, prudence on the issue of war, and the strategy of "attacking only after being attacked"... China consistently upholds the policy of no first use of nuclear weapons, adheres to a self-defensive nuclear strategy, and will never enter into a nuclear arms race with any other country".[9]

There is another, more detailed language for these provisions, which reads as follows: China "has adhered to the policy of no-first-use of nuclear weapons at any time and in any circumstances", and made the unequivocal commitment that it will not use or threaten to use nuclear weapons "against non-nuclear-weapon states or nuclear-weapon-free zones".[10] China also calls on all other nuclear-weapon states to "abandon any nuclear deterrence policy based on first use of nuclear weapons, make an unequivocal commitment that under no circumstances will they use or threaten to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones... nuclear-weapon states should negotiate and conclude a treaty on no-first-use of nuclear weapons against each other".[11] As for the level of the necessary nuclear forces, the paper says that China will maintain "the minimum level required for national security".[12]

It is clear that such definitions mean nothing specific (like stating that the legs should be long enough to reach the floor). At the same time one should admit that the strategic forces sufficiency criteria contained in the US and Russia's doctrines are more extensive, but almost as specific.[13]

Strategic expert discussions. Recently China has seen many informal analytical materials of general nature, devoted to the concept of strategic stability, the impact of missile defense and high-precision conventional weapons, as well as sufficiency, operational readiness and operational concepts of Chinese nuclear forces. US researcher Lora Saalman provides an in-depth and comprehensive analysis of today's Chinese discussion of this issue in her recent booklet titled "China and the US Nuclear Posture Review".[14]

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[9] China's National Defense in 2010: II. National Defense Policy // China.Org.Cn. (http://www.china.org.cn/government/whitepaper/2011-03/31/content_22263420.htm).

[10] Ibid.

[11] Ibid.

[12] Ibid.

[13] The 2010 Russian Military Doctrine sets forth a task of maintaining the levels of strategic forces "guaranteeing the infliction of the required damage on the aggressor whatever the conditions of the situation" (Military Doctrine of the Russian Federation. February 5, 2010 (http://news.kremlin.ru/ref_notes/461, in Russian). The new US language reads as follows: "The fundamental role of US nuclear weapons is to deter nuclear attack on the United States and their allies and partners. The United States would only consider the use of nuclear weapons in extreme circumstances to defend the vital interests of the United States or its allies and partners". (Arbatov A., Dvorkin V., Oznobishchev S., Contemporary Nuclear Doctrines. Moscow, IMEMO, 2010).

[14] Saalman L. China and the US Nuclear Posture Review. Carnegie - Tsinghua, 2011.

However, it remains unclear whether and to what extent the factual data discussed in these open sources can be trusted and reflects China's real military policy. It also remains unclear whether this discussion is controlled by Chinese authorities and serves as a means of their propaganda. Being unable to build on factual data on numbers and specifications of China's weapons and consequently to give objective assessment to the strategic concepts of their country, Chinese experts make up for that with extensive and rather scholastic theoretical constructs.

By way of example Lora Saalman cites several Chinese experts' speculations on strategic stability between the US and China. They note that its key difference from the US-Russia strategic relations lies in the fact that it is not based on approximate nuclear missile parity. In this context they argue that China should build sufficient 'comprehensive power', including economic, political and military might, to be on par with the other two nations and thus prevent them from dominating in any strategic talks.[15]

Other Chinese experts contend that the US calls to strategic stability negotiations with China, which is expressly contained in the 2010 Nuclear Posture Review, are intended to retain the status-quo between the two countries, which does not satisfy China. This dissatisfaction rests on the fact that "the United States does not see China as a strategic rival with balanced power but rather as a strategic adversary with a great gap [in power]". The experts say that if the US really wants a stable strategic balance, they should recognize China's sovereignty over Taiwan, Tibet and Xinjiang and not interfere in these issues.[16] This gives an obvious example of politico-military mishmash where the borders of substantive discussion are blurred in order to make up for the absence of data on quantitative and qualitative characteristics of China's nuclear forces and the concepts governing their use.

Besides, Chinese experts name a principle of 'strategic trust' as a prerequisite and a condition for attaining strategic stability. In their view in order to build such trust the US should acknowledge their mutual vulnerability with China, renounce the first use of nuclear weapons (or clarify in detail under what circumstances it can use nuclear weapons), give up their 'extended deterrence' (nuclear assurances to their allies) and engage in deep irreversible reductions of nuclear weapons (involving elimination rather than stockpiling of warheads), which also by default applies to Russia.[17] Destabilizing factors in the unanimous opinion of Chinese experts include the US missile defense, high-precision conventional weapons, boost-glide and space-based systems developed under the Prompt Global Strike (PGS) concept, deployment of nuclear submarines in Western Pacific and the militarization of outer space (including space radars).[18]

It has been leaked out to newspapers (most likely with the authorization of the Chinese leadership) that in response to these threats China has been qualitatively improving its missile technologies, enhancing the survivability and maneuverability of its ballistic delivery systems and building more missile submarines. It has also engaged in developing kinetic energy ("hit-to-kill") warheads and di-

[15] Ibid., P. 16.
[16] Ibid., P.28.
[17] Ibid., PP. 18-20.
[18] Ibid., P. 32.

rected-energy weapons (DEW) to be used for missile defense and anti-satellite weapons (to prevent the "science surprise"), and started deploying anti-ship ballistic missile with special guidance systems (to combat potential adversary's aircraft carriers and ships armed with Aegis/SM-3 ballistic missile defense).[19]

All the 'independent' experts unanimously deny the idea of transparency with regard to China's nuclear forces and the programs of their development, which is another proof to the fact that the open discussion in China never oversteps a narrow framework and is closely controlled by the authorities. They assert that "ambiguity on nuclear strength is a mode of nuclear deterrence" for China, whose deterrent is lagging behind the US and Russian ones in size. They claim that it is necessary "to build strategic trust before engaging in strategic transparency"[20] (whereas transparency is logically the first prerequisite for trust and predictability).

Chinese experts are equally unanimous in demanding the US (which also tacitly implies Russia) to renounce the first use of nuclear weapons as a condition for greater transparency with regard to Chinese nuclear forces. All of them invariably reiterate that "once the United States and Russia promote nuclear disarmament down to a certain level [equal to those of China? – *auth.*]... there would not remain too many obstacles to China's participation in the disarmament process".[21]

On the whole it should be noted that in recent years public strategic discourse in China has made a considerable step from the ponderous and unshakeable revolutionary ideology clichés of the past and has become more substantial and pragmatic. It has featured a number of rational and well-founded assessments. It can be subjected to expert analysis, although with relevant reservations and allowances for the influence of control and directions from the authorities. At the same time, to date it cannot be considered as a source for objective analysis of China's actual military policy, as it serves more or less as a tool of the state's PR policy. The discussion of these issues in China has much in common with the relevant public discussions in the USSR of the mid-to-late 1970s.

It is notable that apparently in order to send specific political signal, in contrast to extremely 'modest' strategic declarations, at the parade on the occasion of the 60th anniversary of the People's Republic of China held on October 1, 2009, China definitely strived to show the rest of the world that its military power, including strategic nuclear capability, is rapidly growing.

No first use of nuclear weapons. China officially explains complete secrecy with regard to its nuclear forces and programs by the fact that it possesses only a small number of nuclear weapons that are technically incomparable to those of other P-5 states, so allegedly China needs to maintain ambiguity in order to preserve its nuclear deterrent. At the same time China is the only of the great powers that has officially committed to no first use of nuclear weapons and, what is more, has made no reservations for that. As Beijing attaches priority to this commitment in its military policy, it apparently does not realize that complete secrecy with regard to its nuclear forces and plans is the main factor undermining

[19] Ibid., P. 25.
[20] Ibid., P. 18.
[21] Ibid., P. 17.

the credibility of China's obligation on the no first use of nuclear weapons for the rest of the world. This contradiction is not recognized by any informal Chinese expert, which also proves the fact that in China there is a rigid framework of what is permitted while discussing strategic issues.

To corroborate the commitment to no first use of nuclear weapons experts give some vague unofficial explanations (most likely permitted by the authorities) that while the country is at peace, its nuclear warheads are stockpiled separately from the missiles. They also point out that in case of a surprise nuclear strikes against China the warheads are to be brought and mated to the delivery vehicles within two weeks in order to mount a retaliatory strike against the aggressor. If this is true, the explanation might lie in the absence of reliable system to prevent unauthorized use of nuclear weapons (negative control), consisting of relevant organizational and technical means, including electronic blocking devices, rather than the commitment to the mentioned obligation. In fact, this was the reason why the US and the USSR stored the missiles and warheads separately back in 1950s.

Besides, the concept of bringing nuclear warheads to and mating them on the surviving delivery vehicles after a disarming strike mounted by the US or Russia is highly unrealistic, especially taking in consideration that the adversary may very well check the result of the first strike using reconnaissance systems and strike again. These doubtful concepts are hardly suitable for China which has a brilliant school of strategic thought that has a history of two thousand five hundred years and still serves as an example for the strategists of the leading military powers.

It is common to think that a nuclear-weapon state that has committed to no first use of nuclear weapons relies on the retaliation (second strike) concept and assets. However, according to generally accepted assessments, so far both China's SNF and ballistic missile early warning systems, as well as command and control infrastructure are too vulnerable to enable either a retaliatory strike or launch-under-attack after a hypothetical disarming (counterforce) nuclear strike by the US or Russia.

For these reasons China's official doctrine should rather be regarded as an instrument of political propaganda (similar to the USSR's 1982 no first use obligation) that does not reflect real operational planning of SNF. It is likely that the latter envisages making missile forces fully operational and mounting a preemptive strike in a crisis, if the probability of the nuclear attack by an opponent seems unavoidable. (In fact, this was exactly the nuclear posture of the USSR in the late 1950-s and first half of the 1960-s.).

In any case, in the near future, Chinese nuclear forces modernization programs will objectively enhance its survivable retaliation capability, if missile early warning and command-and-control systems are made less vulnerable, and reliable negative control systems are introduced. This will enable China to dismiss separate storage of nuclear warheads and their delivery vehicles.

However China's adherence to the concept of no first use of nuclear weapons and the denial of transparency might have a different explanation, which is discussed below.

Nuclear forces and programmes. The People's Republic of China first tested its nuclear weapons in 1964. According to the experts, it has 20-24 tons of

highly enriched uranium and 4-4.8 tons of weapon-grade plutonium in the form of nuclear warheads and stockpiles of weapon-grade nuclear materials.[22] China's nuclear warheads are mostly thermonuclear with a yield ranging between 200 kilotons and 3.3 megatons.

Due to complete unavailability of official data, the estimations of China's nuclear assets are based on the data from foreign government and private sources. According to SIPRI, China has about 130 strategic ballistic missiles with nuclear warheads. Those include 32 old Dongfeng 4/5A type fixed-based ICBMs, and 12 obsolete Dongfeng 3A type medium-range ballistic missiles (MRBMs). Besides, China has deployed about 25 Dongfeng 31/31A type road-mobile ICBMs (somewhat analogous to Russian Topol-type missiles, called SS-25 in the West) and 60 new Dongfeng-21 type road-mobile MRBMs (similar to the Soviet RSD-10 Pioneer - or SS-20 - missiles of the 1970s).[23] According to Russian data, China has 12 Dongfeng-31/31A missiles, and 71 Dongfeng-21/21A MRBMs. All the above systems are single warhead missiles.[24]

According to most recent Western sources, China possesses 17 obsolete Dongfeng-3A MRBMs, 17 Dongfeng-4 ICBMs and 20 Dongfeng-5A ICBMs[25] and a total of 130-140 strategic nuclear missiles. Some believe that about 30 Dongfeng-21 MRBMs carry non-nuclear warheads. According to forecasts, the number of Dongfeng-21 missiles will reach 75-100 pieces by 2015.[26]

The latest developments include Dongfeng-41 ICBM with multiple re-entry vehicles (6-10 warheads) for road-mobile and rail-mobile launchers (similar to the eliminated Russian RS-22 – SS-24 - ICBM). Until recently China periodically sent to sea its experimental Xia-class nuclear powered submarine carrying 12 Julang-1 SLBMs. In addition 3 to 5 more Jin-class SSBNs are at various stages of construction, each carrying 12 launchers for longer-range Julang-2 SLBMs.[27] The airborne component of the triad is represented by 20 obsolete Hong-6 type medium bombers derived from the Soviet Tupolev Tu-4 aircraft of the 1950s.

Although China denies having tactical nuclear weapons (on the dubious pretext that China will only fight on its own territory, where it does not intend to use nuclear weapons), according to some estimates China has deployed at least 100 such weapons. Those include 48 mobile tactical Dongfeng-15/15A missiles and 48 mobile tactical Dongfeng-11/11A. China has also been actively deploying Dongfeng-10 ground-launched cruise missiles (GLCMs), the number of which has increased from 350 to 500 in recent years. Most of these missiles may have non-nuclear warheads and be intended for strikes against US aircraft carriers and US and Japanese Aegis/SM-2/3 ships. China is also developing an air-launched

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[22] SIPRI 2010. Armaments, Disarmament and International Security. L.: SIPRI; Oxford University Press. 2010., PP. 367-369.

[23] Ibid., PP. 340-343.

[24] Вильданов М., Ануфриев А. Ставка на ответный удар // Национальная оборона. 2009. № 12(45). С. 32-35.

(Vildanov M., Anufriev A. Reliance on retaliation // Natsionalnaya oborona. 2009. # 12(45). PP. 32-35).

[25] Kearns I. Beyond the United Kingdom: Trends in the Other Nuclear Armed States. L.: BASIC. P. 18.

[26] Ibid., PP. 18-19.

[27] Ibid.

cruise missiles (ALCMs) to arm its Hong-6 medium bombers in addition to nuclear gravity bombs (about 40 pieces). Tactical strike aviation, possibly capable of carrying nuclear bombs, is represented by Qian-5 type new aircraft technically based on Russian Su-30 and Su-35 fighters.[28]

In general, China's operationally deployed capability is estimated at about 180-400 warheads, which may render China, rather than France, the third largest nuclear-weapon state after the US and Russia, if the available informal assessments are accurate.

No doubt, China's economic and technical capabilities can enable it to rapidly build up its nuclear missile forces of all types. Should China make such political decision, it would be able during 10-15 years to deploy a major force of mobile Dongfeng-41 missiles with multiple reentry vehicles consisting of 200-250 missiles and 1,200-1,500 warheads. China also makes efforts to enhance the survivability and efficiency of its land-based and space-based ballistic missile early warning systems and command-and-control assets and has engaged in R&D in the field of BMD and ASAT warfare.

At the same time, one cannot exclude that foreign assessments of current China's forces and the prospects of their buildup are absolutely erroneous. Mass media give periodic accounts of enormous tunnels constructed in China, the total length of which is estimated at about 5,000 km.[29] It is noteworthy that the tunnels are constructed by the Second Artillery Corps that controls land-based strategic forces (a counterpart of Russian Strategic Missile Forces). These tunnels infrastructure is far too big to hold nuclear warheads that according to a semi-official version are to be mounted on missiles after China has come under an adversary's nuclear attack. Rather, they may be intended for covert storage of reserve mobile launchers, as well as strategic and tactical missiles and nuclear warheads. According to various forecasts, including one by the US Defense Intelligence Agency, to date China may possess 1,000 to 3,500 nuclear warheads and many hundreds or more than a thousand reserve missiles concealed underground.[30]

If these estimations are at least partly correct, true reasons for total secrecy with regard to China's nuclear forces, as well as Beijing's reluctance to engage in nuclear arms limitations may be seen in a completely different light. They are meant to obscure the huge surplus of China's nuclear capability rather than its 'small size' and 'weakness'. At the same time such an arrangement would make its second-strike posture and the plan of mating nuclear warheads to missiles, bringing them out of the tunnels and launching them after enemy's attack – quite realistic in a specific Chinese way of strategic thinking. Enormous construction projects (the Wall, the channels) would also fit into China's historic tradition.

Likewise, China's sea-based missile program at first sight may seem a waste of money for the sake of prestige (to have a triad like US and Russian). To get from Chinese navy bases to the ocean one has to pass through the island chain of Japan, Ryukyu, Taiwan, the Philippines, Malaysia and Indonesia, which may

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[28] SIPRI 2010. Armaments, Disarmament and International Security. L.: SIPRI; Oxford University Press. 2010. PP. 342-343.

[29] Stephens B. Plumbing the Secret Underground Great Wall // The Wall Street Journal. October 24, 2011.

[30] Ibid.

serve as a theater of effective operations by US, Japanese, South Korean and Taiwanese navies, in particular powerful anti-submarine forces.

However, here again China's SSBNs project may well fit into its specific national mentality, very different from the Western way of cost-effectiveness thinking. This program may be a sign of China's ambitious broader plan to develop naval power and to make up for its historic mistake of unilaterally curtailing it in the XV century. The available data shows[31] that at first stage (by 2015) China is to develop naval capability (including land-based missile forces) to efficiently counter the US, Japanese and other nations' fleets in the close-in zone, that is in the Yellow Sea, East China Sea and South China Sea. At the second stage (2015-2020) China is to attain complete military superiority in the mentioned sea areas (sea-dominance), and to enable Chinese fleet to actively counter the US navy (sea-denial) in the middle zone of the Sea of Okhotsk, Sea of Japan, and the seas of the Indonesian archipelago, as well as in ocean areas extending to the Marianas, Carolinas, and New Guinea. At the following stage (after 2020) China expects to secure naval dominance in the mentioned middle zone and become capable of sea-denial against the US navy in the third extended area (all the way to the Hawaiian Islands). In other words, in the long term China hopes to divide the Pacific into two zones of dominant naval presence with the US approximately along the longitude of Hawaii. That will enable China's navy to protect its sea-based strategic forces both in the adjacent seas and outside. By the way, China's ambitious plans also include deployment of bases and naval forces in the Indian Ocean in order to exercise control over the energy supply lines from the Persian Gulf and Africa.

Offensive nuclear weapons. As it has already been mentioned, China is the only nation that assumed, at least at the declarations level, the obligation on no first use of nuclear weapons and made no reservation. Nevertheless, in the face of superior US and Russian forces and their major counterforce capability China's official retaliation concept has so far caused doubts (if the speculations on the underground reserve are incorrect), and the retaliatory strike seem hardly impossible. However, over time China will certainly build such capability first as regards Russia and subsequently as regards US - by deploying mobile ICBMs and SSBNs.

If China manages to considerably build up its operationally deployed missiles, it will be capable of mounting a counterforce strike against India, and possibly later on against Russia, especially if a major part of Russia's SNF is still represented by silo-based ICBMs (including the new heavy missile system that is currently developed and that may be deployed at Strategic Missile Forces' bases Dombarovsky and Uzhur not far from Chinese borders).

The US will remain invulnerable to China's counterforce capability, as its land-based missile force is shifting to single warhead missiles, and the major part of its strategic force continues to be sea-based, most of which (8 SSBNs out of 14) are now deployed in the Pacific instead of the Atlantic (i.e. it is aimed primar-

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[31] See: Шлындов А. В., Тебин Н. П. Поднебесная выставляет рубежи в океане // Независимое военное обозрение. № 4, 3 ноября 2011 г., С. 8-9.

(Shlyndov A.V., Tebin N.P. China sets boundaries in the ocean // Nezavisimoe voennoe obozrenie. # 42, November 3, 2011, PP. 8-9).

ily against China rather than Russia). In fact, Chinese experts express great concern over this fact in their works and consider it to be a new destabilizing factor.[32]

Building up its nuclear forces China will strategically secure its superiority in terms of general-purpose forces over all its neighbors. This prospect causes serious concerns on the part of Japan, South Korea and Taiwan, undermining the credibility of security assurances provided to them by the US. This may induce them either to engage in appeasing of China or to join their efforts, and, possibly, opt for nuclear independence. This also causes fears on the part of India and South-East Asian countries, which are competing with China over the oil-rich shelf of the South China Sea.

For Russia, the buildup of China's capability for a strike against its European part may imply shearing off its advantage in medium-range bombers and various tactical nuclear weapons that so far has made up for China's superiority in conventional forces in the vicinity of Russia's Siberian and the Far Eastern territories.

In any case, save for the US and Russia, China is the only country possessing an economic and technical capability large enough to enable a rapid buildup of its strategic nuclear forces. That makes it imperative that China's nuclear forces are taken into account (or made transparent and subjected to limitation) when a new START follow-on Russian-US agreement on strategic arms reductions is considered.

This is the main difference between China and the UK and France. What is more, the two European nuclear-weapon states are allied to the US in NATO, and Russia usually sums their capability with the US potential. Although Russia's attempts to bring the aggregate capabilities of the three countries under the SALT I, SALT II, INF and START ceilings were in vain, Russia balances these nuclear arms with its medium-range nuclear weapons (medium bombers and SLCMs) and some tactical nuclear arms. Furthermore, even in purely military terms one can hardly imagine a conflict between these two powers and Russia in which the US would fail to engage. Hence, a capability sufficient to deter the US would logically be enough to deter NATO as a whole. The two European powers are reducing their nuclear forces unilaterally and ensure sufficient transparency and predictability with regard to them. In the longer term such transparency and predictability may well be transformed – if political environment is favorable – into legally binding obligations of the UK and France and reinforced by confidence-building measures similar to those provided for in the new START.

China is allied neither to the US, nor to Russia, and both leading powers in the future will have to take its capability into account while planning their strategic forces and negotiations on nuclear arms reductions. This becomes even more complicated due to the lack of transparency and predictability with regard to China's nuclear capability, as well as great potential of its rapid buildup. This seriously hampers further nuclear arms reduction by Russia and the US, and hence, the whole cause of nuclear disarmament and non-proliferation. Meanwhile China declares that it is ready to engage in disarmament process only on condition of further deep reductions of nuclear arms by Russia and the US.

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[32] See: Saalman L. Op. cit.

Defense systems. The fact that China may build up its nuclear forces serves as a considerable, although unstated inducement for the US and their allies to develop their missile defense in the Far East. Apparently, Washington intends to use missile defense to make as difficult and distant as possible the prospect of China's acquiring nuclear deterrent relying on assured nuclear retaliation capability against the US, not to mention Beijing's attaining strategic parity.

It remains unclear, whether Russia's Air-Space Defense and the ambitious program of its development up to 2020 has a similar objective as regards China. However, Beijing is most likely to view these deployments (including those to the East from the Urals) in this particular light.

China has naturally been concerned with regard to Russian-US/NATO negotiations on cooperation on European ballistic missile defense. Chinese experts may have good reasons to doubt the possibility to operationally and technically distinguish between the joint (or shared) Russian-NATO missile defense for Europe and the US missile defense in the Far East, as well as Russian Air-Space Defense in Asian Russia. One could feel China's invisible presence at Moscow-Washington talks on missile defense, although that issue was not given formal consideration and neither party elaborated any solutions of the issue. Obviously, while the US could at least in theory envisage a joint US-Russian missile defense, its cooperation with China, the main US competitor in the XXI century, would be completely out of the question. As for Russia, its missile defense cooperation with the US could be fraught with considerable complications of Russian-Chinese relations.

Therefore, Moscow must have always seen the possibility of China's negative political or military response (i.e. missile force buildup) to a joint US-Russian missile defense as a constraining factor of paramount importance in its dialogue with the US. The negotiations failed, which has relieved China's concerns for the time being, but their possible renewal continues to be a major factor influencing China's strategic planning.

Resumption of Russian-US cooperative missile defense project is directly linked to the possibility of negotiations on further treaties on strategic arms reductions. The latter was named as a prerequisite for China's eventual engagement in nuclear disarmament. At the same time, China would perceive a joint US-Russian missile defense as an impediment for its engagement in the disarmament process, even if it seriously planned to join the project in the future.

These circumstances are the most complicated tangle in trilateral strategic relations of Russia, the US and China in the field of offensive and defensive strategic (and non-strategic) weapons.

Judging by official Beijing postures and the works of experts from the academic community, China is deeply concerned over the development of the US long-range high-precision non-nuclear arms, such as submarine and air-launched cruise missiles matched with space surveillance (especially radio electronic), navigation and communications systems. It has expressed an even more serious preoccupation over possible development of suborbital hypersonic boost-glide systems carrying high-precision conventional weapons under the PGS concept (testing of X-37B spacecraft in April 2010[33] and the launches of Minotaur Lite IV).

[33] Ibid., P. 33.

It is noteworthy that China, like Russia views these systems as aimed exclusively against itself. At the same time, the only scenario generally and seriously discussed in China involves an armed clash with the US over an attempt to resolve the Taiwan issue by force.[34] Bearing in mind low efficiency of China's early warning systems, as well as small size and low operational readiness of operationally (on the surface) deployed land-based missile forces, China may believe that the mentioned US systems would be able to mount massive multiple disarming strikes against China's nuclear forces. Beijing does not seem confident that it would use nuclear weapons in response to an attack using high-precision conventional weapons. (It is possible that China considers maintaining major underground stocks of missiles in this particular context, if the suspicion has grounds.).

As for China's sea-based missile force, it is threatened not only by US and Japanese anti-submarine warfare. China is also gravely concerned over US ability to repel its SLBM strikes with the help of missile defense (GBI) in Alaska and California, as well as missile defense on US ships and Japanese land bases and ships (Aegis/SM-3 system). In a research unique in terms of military details and technical assessments Chinese experts prove[35] that such multi-layered missile defense will be highly efficient against Chinese SLBMs launched by submarines in shallow adjacent seas where they can enjoy the protection of the Chinese fleet and are harder to detect by the US and Japanese acoustic anti-submarine systems.

China's SSBNs would be more vulnerable to an adversary's anti-submarine forces in the Open Ocean, but it would be impossible for the mentioned missile defense systems to intercept SLBMs launched against the US territory from southern azimuths. To do that, a considerable buildup of the BMD system, the introduction of space and sea-based detection and tracking systems and the improvement of land and ship-based interceptors would be required. The US is capable of developing such system, if it sets itself an objective to further deter the growth of Chinese missile attack capability.

Prospects of negotiations. It should be noted first and foremost, that one can hardly hope to 'teach' China Russian-US strategic theories and negotiating methods (as a "new pupil") and based on that to engage it in the arms reduction and limitation process in a manner suitable for the US and Russia. China is informed well enough on the theory and practice of strategic stability and would not be content with someone else's methodology. It will develop its own strategic philosophy building on its national posture and security interests, and will advance it at any negotiations.

Beijing's official stance unanimously and uncritically supported by the country's professional strategist community runs as follows: "countries possessing the largest nuclear arsenals... should further drastically reduce their nuclear arsenals in a verifiable, irreversible and legally-binding manner, so as to create the necessary conditions for the complete elimination of nuclear weapons. When conditions are appropriate, other nuclear-weapon states should also join in multilateral negotiations on nuclear disarmament. To attain the ultimate goal of complete and thorough nuclear disarmament, the international community should de-

[34] Ibid., PP. 22, 35.

[35] Riqiang Wu. Survivability of China's Sea-Based Nuclear Forces // Science & Global Security. Vol. 19. # 2. 2011, May-August. PP. 91-120.

velop, at an appropriate time, a viable, long-term plan with different phases, including the conclusion of a convention on the complete prohibition of nuclear weapons".[36]

As the experience of the USSR of the 1950-1960s has shown, such propagandistic rhetoric demonstrates the lack of readiness to engage in serious negotiations on nuclear arms reduction and limitation. This is even more so in view of the fact that China links such dialogue with the powers' renunciation of the first use of nuclear weapons ('strategic trust') and the resolution of the Taiwan issue. Taking in consideration China's perspective of strategic stability, one can expect that it also links negotiations on nuclear arms limitation with the US ceasing submarine patrol of the Western Pacific, foregoing space-based radar surveillance systems, stopping the development and deployment of PGS boost-gliders and sea- and land-based missile defenses.

Although there is a rational explanation for all of these points, and Russia also raises some of these issues in the context of its strategic dialogue with the US, making them prerequisite for negotiations would automatically mean blocking such negotiations for a very long time.

Furthermore, Beijing views the transparency of its nuclear forces (alongside with its enormous economic and technical capabilities for their possible buildup) as the main bargaining chip in its relations with nuclear super-powers and in any possible dialogue on strategic stability and nuclear arms limitation. China will hardly be persuaded to enhance the transparency of its nuclear forces as an act of good will, a first step, or a minimum contribution to the transition to multilateral disarmament. It is Beijing's fixed intention to drive a hard bargain and to sell at as high price as possible every single part of its transparency.

Apparently, the CTBT is the only exception in this regard. Should the treaty be ratified by the US Senate, China will certainly follow the example. Another multilateral treaty directly linking nuclear disarmament and non-proliferation, FMCT, will unlikely have China's backing, as Russia and the US supposedly have accumulated a much superior stock of enriched nuclear material as compared to China. China's reluctance to move forward in this field became obvious when it artificially linked FMCT to the non-militarization of outer space at the Conference on Disarmament at Geneva (and tacitly supported Pakistan's resistance).

It appears, however, that China may be involved in the nuclear arms limitation process on a step-by-step basis. This has nothing to do with wishful thinking about expanding the range of participants in the process, especially as the US and Russia have not put forward any convincing strategic reasoning as to the stage of their reductions, at which the third countries should be involved, what would serve a basis for reductions (stability, parity, or else), what systems should be subject to limitations and how they should be verified.

China's involvement can only be achieved on pragmatic basis, if China deems that concessions on the part of the US (which implies on the part of Russia, too) in matters of interest for Beijing make up for its own concessions on transparency or certain arms ceilings.

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[36] China's National Defense in 2010: X. Arms Control and Disarmament // China.Org.Cn (http://www.china.org.cn/government/whitepaper/2011-03/31/content_22263885.htm).

A number of current Beijing's conditions and understandings smack of claims and playing on political convenience of the moment (the Taiwan issue, formal renunciation of the first use of nuclear weapons, US submarines in Western Pacific and US radar satellites, elimination of nuclear warheads, limitation of stockpiled nuclear weapons, etc.). Later on China may give up some of them. However, there are concepts that China will never renounce and that seem reasonable enough from any perspective.

Unlike the US vision of stability enshrined in the 2010 Nuclear Posture Review, China's understanding does not envisage transparency (even as a first step), but rather implies the recognition by US (and Russia) of the right of China to its own nuclear deterrence as regards the two super-powers, despite the lack of strategic parity. This implies first and foremost the recognition by the two leading powers of their vulnerability to China's nuclear retaliation potential and unacceptability of destructive effect of such retaliation, in spite of China's considerable gap in numbers and quality of its operationally deployed nuclear forces. Further, it implies that the two leading powers assume an obligation to make no attempts to undermine such deterrent through offensive (either nuclear or conventional) weapons and defense systems (theater and strategic missile defenses).

If the US and Russia agree in any form to the mentioned conditions of common understanding of strategic stability, this would serve as a basis for elaborating specific provisions of arrangements on eventual transparency and arms limitation.

However due to political and strategic reasons the US and Russia would find it extremely difficult to agree with these points. For the US this is linked, inter alia, with their security guarantees to their allies and partners (Japan, South Korea, Taiwan), while Russia's rationale is its increasing inferiority in general-purpose forces in Siberia and the Far East.

What is more, Beijing views the new START Treaty as an interim hastily agreed instrument to replace the START I Treaty that expired in December 2009, and as whittling away, to a certain extent, strategic nuclear forces reduction (minimum real reductions, peculiar counting rules, reductions through moving warheads to storage sites, etc.). If suspicions on China's relatively large underground stocks are correct, the disarmament under the new START through increasing the number of stored nuclear warheads by the US (and thus, formal reduction of operationally deployed warheads) should bring about even more serious objections from Beijing. This would explain its critical attitude to the new Treaty.

Before seriously considering any reduction of its nuclear weapons, China is expecting at least a follow-on US-Russian START treaty envisaging real reduction of the two parties' strategic nuclear forces. Meanwhile, today the prospects of such treaty seem doubtful due to the parties' differences as to missile defense and tactical nuclear weapons.

Therefore, involving China in nuclear disarmament is to a certain extent a matter of changes in the US and Russia's policy, rather than just changes in China's policy. As opposed to the conditions smacking of political propaganda that China sets today, the following could serve as real prerequisites for its consent to gradual 'opening' of its strategic arms and their limitation (at least through verifiable commitment not to increase their numbers):

- US obligation not to build up sea and land-based missile defense assets in the Pacific;
- obligation by the US and Russia to limit their missile defense system – should they reach an agreement on cooperative BMD development – by the European-Atlantic zone and to give China access to certain projects (e.g. exchange of data from early-warning systems) in the format it finds acceptable;
- US and Russia's proceeding with negotiations on follow-on START Treaty envisaging elimination of strategic delivery vehicles, limitation on high-precision conventional weapons, and suborbital boost-gliders (which is of interest to Russia as well);
- the progress in limiting tactical nuclear weapons of both the US and Russia, which would make it possible to raise the issue of ensuring transparency and limiting China's medium-range systems and tactical nuclear weapons (which should also be of interest to Russia, Japan and India).

The relevant negotiations could be held as bilateral dialogue between the US and China in parallel to US-Russian negotiations on strategic arms reductions and regular Russian-Chinese strategic consultations. Trilateral talks might become possible later on, as the parties discuss missile defense cooperation (exchange of data from early warning systems).

In a longer term Russia and the US could switch to a new model of nuclear disarmament through deep reductions of their operationally deployed strategic weapons while retaining a considerable number of their non-deployed (de-alerted) arms. China could be directly involved in these limitations should it consent to the thresholds for deployed warheads and delivery vehicles equal to those of the other two powers. Beijing may find the asymmetry in non-deployed weapons acceptable, if it does possess a secret underground stockpile of nuclear weapons. In the end, these holdings of nuclear weapons in storage (tunnels) may also be included in the scope of transparency measures and agreed limitations.

PART II
CONTEMPORARY NUCLEAR DOCTRINES

II.1. US NUCLEAR POSTURE REVIEW 2010

The 2010 Nuclear Posture Review was released on April 6. It outlines the Administration's approach to promoting the President's Prague agenda for reducing nuclear dangers and pursuing the peace and security of a world free of nuclear weapons. The review identifies the steps needed to sustain a safe, secure, and effective nuclear deterrent as long as nuclear weapons exist.

This is the third comprehensive review of US nuclear policies and posture since the end of the Cold War. It has been a truly interagency effort conducted by the Department of Defense in close consultation with the Departments of State and Energy. The President has been directly engaged and provided clear guidance to focus the review. The release of this report better aligns US nuclear policies and posture with the current security environment, emphasizing the need to focus on today's most pressing security challenges: nuclear proliferation and nuclear terrorism.

The NPR lays the strategic foundation for a comprehensive approach to these challenges. The President signed New START in Prague on April 8; the Nuclear Security Summit was held on April 12-13, in Washington; and the Nuclear Non-Proliferation Treaty Review Conference convened in New York on May 3. During the course of the NPR, the US consulted extensively with their allies and partners. Washington will work closely with them in its implementation.

The analysis and conclusions of the NPR were driven by the changed and changing international security environment. There are several key factors: today's most urgent nuclear threats are posed by nuclear proliferation and nuclear terrorism; the easing of Cold War rivalries – although there is an enduring challenge in preserving strategic stability with existing nuclear powers, most notably Russia and China; and the growth of unrivaled US conventional military capabilities and major improvements in missile defenses against regional threats.

Changes in the nuclear threat environment have altered the hierarchy of our nuclear concerns and strategic objectives. In coming years, we must give top priority to discouraging additional countries from acquiring nuclear weapons capabilities and stopping terrorist groups from acquiring nuclear bombs or the materials to build them.

At the same time, we must continue to maintain stable strategic relationships with Russia and China. We must also strengthen deterrence of regional threats, while reassuring our allies and partners that our commitments to their defense remain strong.

These objectives can be met with reduced reliance on nuclear weapons and with significantly lower nuclear force levels than was true in the past. Therefore, even as we strengthen deterrence and reassurance, we are now able to shape our

nuclear weapons policies and force structure in ways that will better enable us to meet our most pressing security challenges.

The findings and recommendations of the NPR support five policy objectives:

The first objective is to prevent nuclear proliferation and nuclear terrorism. To support this objective, the NPR calls for:

- leading international efforts to strengthen the nuclear non-proliferation regime, including revitalizing the Nuclear Non-Proliferation Treaty (NPT), strengthening the International Atomic Energy Agency (IAEA), seeking ratification and entry into force of the Comprehensive Nuclear Test Ban Treaty (CTBT), the Fissile Material Cut-Off Treaty (FMCT), and, of course, seeking ratification and implementation of New START;
- increased nuclear security efforts, including increased funding in FY2011 for DoE nonproliferation programs by $2.7 billion, or more than 25%;
- accelerating efforts to implement the President's initiative to secure all vulnerable nuclear materials in four years, and increasing our ability to detect and interdict nuclear materials;
- initiating a comprehensive national research and development program to support continued progress toward a world free of nuclear weapons, including expanded work on verification technologies and the development of transparency measures.

The NPR also clearly attests to the commitment of the United States to fulfill its obligations to the NPT, including its Article VI obligations.

The Administration is also renewing the US commitment to hold fully accountable any state, terrorist group, or other non-state actor that supports or enables terrorist efforts to obtain or use WMD, whether by facilitating, financing, or providing expertise or safe haven for such efforts.

The second objective is to reduce the role of US nuclear weapons. Since the end of the Cold War, the United States has been able to reduce the role of nuclear weapons in deterring non-nuclear attack on themselves, their allies and partners. However, today the US believe they can and must do more. The fundamental role of US nuclear weapons is to deter nuclear attack on the United States and their allies and partners. The United States would only consider the use of nuclear weapons in extreme circumstances to defend the vital interests of the United States or its allies and partners.

The Administration is strengthening the long-standing US “negative security assurance” associated with the NPT, by declaring the United States will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the NPT and in compliance with their nuclear non-proliferation obligations.

The recently completed Quadrennial Defense Review and Ballistic Missile Defense Review direct further investments that will strengthen deterrence while reducing the role of nuclear weapons, including investments in missile defenses, counter-WMD capabilities, and other conventional military capabilities. One objective of these investments is to help create the conditions that would make it possible, over time and in close consultations with allies and partners, to declare that the sole purpose of US nuclear weapons is to deter nuclear attack.

The third objective is to maintain strategic deterrence and stability at reduced nuclear force levels. The Administration is committing to continuing the

process of reducing Cold War nuclear arsenals and to doing so in partnership with Russia in a way that promotes strategic stability at ever lower numbers. The New START is an important step in accomplishing that priority.

The NPR determined some of the guidelines for US negotiators on what objectives would meet the requirements of strategic stability. With the treaty now successfully agreed, we seek the Senate's quick ratification. The United States and Russia agreed to limits of 1,550 accountable strategic warheads, 700 deployed strategic delivery vehicles, and a limit of 800 deployed and non-deployed strategic launchers. The US will retain the nuclear Triad under New START, and "de-MIRV" our ICBMs to one warhead each, to enhance strategic stability.

The US seeks a continuing dialogue with Russia on future additional reductions, with the objective of limiting all the weapons of both sides, not just strategic, but also non-strategic weapons, as well as deployed and non-deployed weapons. It also seeks high-level dialogues with Russia and China aimed at promoting more stable and transparent strategic relationships. With Russia, this includes future bilateral reductions as well as measures to increase stability and mutual confidence. With China, the purpose of a dialogue on strategic stability is to provide a venue and mechanism for each side to communicate its views about the other's strategies, policies, and programs on nuclear weapons and other strategic capabilities.

The fourth objective is to strengthen regional deterrence and reassurance of US allies and partners. The NPR reflects a commitment to strengthen deterrence against the range of 21st century threats. In particular, deterrence must be strengthened to deal with regional actors seeking nuclear weapons in violation of their treaty obligations and in defiance of the international community.

As the NPR notes, deterrence can be strengthened in many ways, most of them non-nuclear. The administration is committed to working with its allies and security partners to strengthen regional deterrence by enhancing conventional capabilities, fielding missile defenses, and improving counter-WMD capabilities.

But a nuclear component must remain in these regional security architectures so long as nuclear threats to US forces and allies remain. To support this commitment, the NPR reflects a series of decisions, including modernization of the capability to forward deploy US nuclear weapons on tactical fighters and heavy bombers, and full scope life extension of the associated B-61bomb. This does not prejudge future NATO decisions, which should be taken through NATO consensus.

Having conducted close consultation with allies, we will retire the nuclear-equipped sea- launched cruise missile (TLAM-N). We continue to be able to extend our nuclear umbrella through forward-deployable fighters and bombers, as well as US ICBMs and submarine-launched ballistic missiles (SLBMs). We will continue close consultations with allies and partners to ensure the credibility and effectiveness of the US extended deterrent in years to come.

The fifth objective is to sustain a safe, secure, and effective nuclear arsenal. As the President has said, we will sustain a safe, secure, and effective nuclear arsenal as long as nuclear weapons exist. Several key principles will guide future US decisions on stockpile management:

The US will not conduct nuclear testing, and will seek ratification and entry into force of the Comprehensive Nuclear Test Ban Treaty:

The United States will not develop new nuclear warheads. Life Extension Programs (LEPs) will use only nuclear components based on previously tested designs, and will not support new military missions or provide for new military capabilities.

The United States will study options for ensuring the safety, security, and effectiveness of nuclear warheads on a case-by-case basis, consistent with the congressionally mandated Stockpile Management Program. The full range of LEP approaches will be considered: refurbishment of existing warheads, reuse of nuclear components from different warheads, and replacement of nuclear components.

In LEPs, the United States will give strong preference to options for refurbishment or reuse. Replacement of nuclear components would be undertaken only if critical Stockpile Management Program goals could not otherwise be met, and if specifically authorized by the President and approved by Congress.

The US will modernize the nuclear weapons infrastructure and sustain the science, technology and engineering base – over a 13% funding increase over FY 2010. This investment is critical to addressing our aging infrastructure, sustaining our deterrent, and enhancing our efforts against nuclear proliferation and terrorism. It will also allow the US to reduce many non-deployed warheads currently kept as a technical hedge.

Finally, the NPR notes the importance of recruiting and retaining the "human capital" needed in DoD and DoE for the nuclear mission, and proposes building on current efforts.

II.2. RUSSIA'S NUCLEAR STRATEGY

Extracts from the Russian nuclear policy are officially represented in the new Military Doctrine of the Russian Federation approved by President Dmitry Medvedev on February 5, 2010 and in the National Security Strategy of the Russian Federation through 2020 approved by the Russian President on May 12, 2009.

The Military Doctrine refers to nuclear threats, the role of nuclear policy, its aims and objectives in most of its sections. In particular, it is noted that despite the fact that a large-scale war involving the use of conventional and nuclear weapons is less likely to be unleashed against Russia, there are areas where military threats have increased. The threats include the creation and deployment of strategic missile defenses undermining global stability and undermining the balance of powers in the missile-nuclear sphere, as well as militarization of outer space, deployment of strategic conventional high-precision weapons, proliferation of weapons of mass destruction, missiles and missile technologies, an increase in the number of nuclear-weapons states. Other threats include hindering the functioning of civil and military authorities, disrupting the operation of strategic nuclear forces, missile attack early warning systems, space surveillance, nuclear weapons storage facilities, nuclear power facilities, nuclear and chemical industry facilities and other potentially hazardous installations.

According to the Military Doctrine, in case of a military conflict involving conventional capabilities (large-scale war, regional war) and threatening the very existence of the nation, the availability of nuclear weapons can lead to the escalation of this conflict to a nuclear armed conflict. For this particular reason nuclear weapons will remain an important factor preventing nuclear armed conflicts and armed conflicts involving conventional arms, while the primary objective of the Russian Federation is the prevention of nuclear or other kinds of military conflicts.

Therefore, the major tasks facing Russia in terms of deterring and preventing armed conflicts include "maintaining sufficient level of strategic stability and nuclear deterrence capability". According to the Military Doctrine, the condition for the country's using nuclear weapons is as follows: "the Russian Federation retains the right to use nuclear weapons in response to an attack against itself or its allies with the use of nuclear and other weapons of mass destruction and in case of aggression against the Russian Federation with use of conventional weapons when the very existence of the state is threatened".[37]

To this effect, the document sets the task to maintain the composition and state of combat and mobilizational readiness and training of the strategic nuclear forces, their infrastructure and command and control systems at a level guaranteeing the infliction of the assigned level of damage on an aggressor under any conditions of war initiation. Other tasks include maintaining nuclear deterrence potential at the prescribed level and ensuring introduction of up-to-date systems of weapons, military and specialized equipment to the strategic nuclear forces.

The threats listed in the National Security Strategy include "the policies of a number of leading foreign states, directed at achieving predominant superiority in the military sphere, primarily in terms of strategic nuclear forces, by developing

[37] Military Doctrine of the Russian Federation. February 5, 2010. (The Russian text is available at http://news.kremlin.ru/ref_notes/461).

high-precision, informational and other advanced means of warfare, strategic non-nuclear arms, as well as by unilaterally creating a global missile defense system and militarizing space".[38] This may result in yet another cycle of the arms race and lead to the proliferation of nuclear, chemical and biological weapons, and their delivery vehicles.

The document also specifies that the negative impact on the military security of the Russian Federation and its allies is aggravated by the departure from international agreements on the limitation and reduction of weapons, as well as by activities aiming at undercutting to shake the stability of civil and military command-control systems, missile early warning and space surveillance systems and disruption operation of strategic nuclear forces, nuclear weapons storage facilities, nuclear power plants, nuclear and chemical, as well as other potentially hazardous installations.

In this regard, it is noted that "the primary task in terms of strengthening national defense in the mid-term perspective is the transition to a brand new image of the Russian Armed Forces while preserving the strategic nuclear forces' capabilities".[39]

Comparing the Military Doctrine and the National Security Strategy in terms of military threats, including nuclear threats, reveals the flexibility of the wording, i.e. the way it adjusts to the changing environment. For example, the Strategy lists among the threats the superiority "of the leading foreign states… in terms of strategic nuclear forces" and the departure "from international agreements on the limitation and reduction of weapons" that are missing in the Military Doctrine. This can be explained by the fact that in May 2009, the prospect of signing a new START Treaty between the United States and Russia seemed more remote than it did in February 2010, when negotiations were in full swing and there was no longer any doubt that the new START Treaty equalizing the US and Russia's strategic nuclear capabilities would be eventually signed and would enter into force.

Evolution of the Russian nuclear doctrine. Of particular interest is the way the Russian doctrine has evolved since 1993, when the General Provisions of the Military Doctrine of the Russian Federation were approved. The General Provisions declared that "Russia will not use nuclear weapons against any non-nuclear state that is party to the Treaty on the Non-Proliferation of Nuclear Weapons, except when:

a) such a state being allied to a nuclear-weapon state perpetrates an attack against the Russian Federation, its territory, the Armed Forces and other military forces or against its allies;
b) such a state, jointly with a nuclear-weapon state, perpetrates or supports an invasion or an armed attack against the Russian Federation, its territory, Armed Forces and other military forces or against its allies".[40]

This wording dates back to the end of the 1960s; it is associated with the efforts to strengthen the regime of the Treaty on the Non-Proliferation of Nuclear Weapons by providing security guarantees to non-nuclear-weapon states that

[38] National Security Strategy of the Russian Federation through to 2020. May 13, 2009. (The Russian text is available at http://www.president.kremlin.ru/ref_notes/424).

[39] Ibid.

[40] General Provisions of the Military Doctrine of the Russian Federation (summary) // Krasnaya Zvezda. November 19, 1993.

were signatories to or were intending to sign the Treaty. Since then, the wording referred to as "negative security assurances" to non-nuclear-weapon states has been reiterated by representatives of the official members of the nuclear club with only the slightest variations. However, neither the Conference on Disarmament in Geneva, nor the United Nations have succeeded in agreeing on the general formula of the negative assurances. Negative assurances were expressed in the wordings similar to the one contained in the 1993 General Provisions on the Military Doctrine of the Russian Federation, in the unilateral statements by the Foreign Ministries of Russia, the US, the UK and France. Yet, apart from Russia, neither of these countries has included a similar wording in their doctrines.

The text of the 2000 Military Doctrine of the Russian Federation included new conditions for the use of nuclear weapons: "The Russian Federation reserves the right to use nuclear weapons in response to an attack using nuclear and other types of weapons of mass distraction, as well as in response to large-scale aggression with conventional weapons in situations critical to the national security of the Russian Federation".[41]

In fact, this wording replicated the principles that the United States, the United Kingdom and France have adhered to for quite a number of years. These states have never denied the possibility of a first use of nuclear weapons in the context of significant superiority of the Warsaw Treaty states led by the Soviet Union in general-purpose forces. Starting in 1991, NATO has enjoyed a decisive superiority in this respect and has also intended to expand the Alliance's area of responsibility.

In Russia's new Military Doctrine of 2010 the main condition for using nuclear weapons has undergone a change that was insignificant in form but very important in terms of the implication. The end of the phrase that used to read "in response to large-scale aggression with conventional weapons in situations critical to the national security of the Russian Federation" was replaced by "in case of aggression against the Russian Federation with use of conventional weapons when the very existence of the state is threatened".[42] The latest wording, at least on the declarative level, has raised the threshold of using nuclear weapons.

The issue related to information protection. It should be admitted that all the three military doctrines published since 1993, present a rather fragmented idea of Russia's nuclear policy which does not allow for a comprehensive and mature assessment. Practical nuclear policy is not so much a matter of declarations related to threats of and conditions for using nuclear weapons. Instead, it is a matter of adopting programs for maintaining and developing the strategic nuclear triad, non-strategic nuclear weapons and missile defense, including specific budgets allocated to each component, the levels of operational capabilities defined (operational and technical characteristics) and the stages specified for the introduction of new systems and the retirement of the old ones.

All the above should be included in the decennial state arms programs. However, in Russia this data is traditionally assigned a high degree of classification and is not presented even at closed sessions of the State Duma (Russian Par-

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[41] Military Doctrine of the Russian Federation. April 21, 2000. (The Russian text is available at http://www.mil.ru/articles/article3923.shtml).

[42] Military Doctrine of the Russian Federation. February 5, 2010. (The Russian text is available at http://news.kremlin.ru/ref_notes/461).

liament, lower house) and the Council of Federation (Russian Parliament, upper house) Committees when they are discussing the state defense orders for the coming year. Moreover, it seems that these days the parliament members display no interest in obtaining and assessing this data.

In this respect what is referred to as Russia's nuclear policy is far different from, for example, the US nuclear policy reflected in quadrennial nuclear posture reviews that invariably include all the details on the status of nuclear weapons and the plans for their development and supporting systems with the Congress discussing and adopting their respective budgets. This deep-rooted weakness of Russia's nuclear policy is only partially and barely offset by the data that may be obtained from separate statements by official representatives of the Defense Ministry and the military-industrial complex. However, this information may at times be quite inconsistent.

For example, there is information that four class 955 ballistic missile submarine designed to carry Bulava-30 SLBMs will be introduced within the next 10 years with another four SSBNs to follow in the future. However, no data on the required appropriations is provided. There is contradictory data on the retirement periods of the 'heavy' RS-20 missiles and the 'light' RS-18 ballistic missiles currently in the inventory of the Strategic Missile Forces (the assumed periods vary from 2016 to 2020). Even vaguer is the outlook for the development of a new strategic bomber system to replace the TU-95MS heavy bombers. Meanwhile, it has been announced that a new 'heavy' ballistic missile will be developed, which seems to be an obvious strategic miscalculation.

The information on the current composition of Russia's nuclear triad could be obtained primarily from the results of data exchanges between the United States and Russia under the START I Treaty.

It is rather difficult to get an insight into Russia's actual nuclear policy compared to the situation of openness in the developed democratic states possessing nuclear weapons. The reason is that Russia's nuclear policy is excessively closed not only from the public and independent experts, but also from the main legislative body of the state. Nuclear deterrence principles that Russia adheres to, as well as the primary instrument of these principles – strategic and non-strategic nuclear assets, their state and development programs require a higher level of transparency. The more so, given the context of the US-Russian strategic arms reduction treaties and the two countries' possible consultations on limiting non-strategic nuclear weapons and their cooperation on ballistic missile defense, which has a direct effect on the possibilities for further nuclear arms reductions.

Most importantly, moving away from totalitarian practice of taking the decisions in secrecy and proceeding with developing democracy in Russia is inseparable from increasing the transparency of military policy and military organization, including their nuclear component. The parliament and the society have the right to know how and on what the state's huge material and intellectual resources are spent, how it contributes to the country's defense capability and reduces the possibility of the most dreaded catastrophe – the nuclear war. In this regard, 'more' does not necessarily mean 'better'. For example, the parliament might inquire how much (including potential costs overruns, as was the case with class 955 SSBN and the Bulava-30 SLBM) it will cost to develop, test, produce and deploy the new heavy ICBM, against whom it will be targeted and how vul-

nerable it will be in fixed silos for nuclear or high-precision conventional weapons of a potential adversary. It would also be of use to calculate how many well-proven mobile and stationary Yars-type ICBMs with multiple reentry vehicles could be deployed using the same budget and/or how much the effectiveness of missile attack warning systems (including space-based systems) and strategic nuclear forces combat command control systems could be improved.

All this requires rather an inclusive and open discussion and independent expert estimates, in order to avoid strategic miscalculation. For example, the secrecy in the policy-making resulted in miscalculations in 2000-2001, when the decision was made to abruptly curtail the ICBM land-based forces and their modernization programs. Similar miscalculations may happen again in relation to the new heavy ICBM or the issue of withdrawing from the Intermediate-Range Nuclear Forces Treaty (INF Treaty) of 1987.

It is also essential in terms of finally proceeding to transform such a legacy of the Cold War as mutual nuclear deterrence which is obstructing the consolidation of the efforts of the two nuclear superpowers to counter the real new threats. The mentioned article co-authored by four Russian prominent political figures also notes that mutual nuclear deterrence runs counter to the US and Russian interests.[43] This viewpoint is also expressed in the resolution by the US Senate Foreign Relations Committee on the ratification of the new START Treaty signed in Prague.

[43] See: Примаков Е.М., Иванов И.С., Велихов Е.П., Моисеев М.А. От ядерного сдерживания к общей безопасности // Известия. 15 октября 2010 (Primakov Y., Ivanov I., Velikhov Y., Moiseev M. From Nuclear Deterrence to Universal Security // Izvestia, October 15, 2010. (The Russian text of the article is available at http://www.izvestia.ru/politic/article3147325).

II.3. EVOLUTION OF NATO NUCLEAR DOCTRINE

Changes in political situation both within and outside Europe bring about changes in the position of the North Atlantic Alliance with regard to nuclear weapons, traditionally outlined in a document titled NATO Strategic Concept. Still, it should be emphasized, that the transformation of this position is lagging far behind the improvement in the relations between Russia and the West.

True, one cannot deny that in the 1990s and early in the 2000s, Russia's relations with NATO were quite unstable. There was no long-term positive trend that could have a telling impact on the language of the Strategic Concepts of 1991, 1999 and 2010.

Moreover, during that period the legacy of the Cold War still affected relations between the West and Russia.

Besides, the political elites of the new NATO member-states have not abandoned the phobias about Russia in their relations with a post-Soviet Moscow.

Generally, two groups of geopolitical realities influenced the provisions of the new NATO Strategic Concept throughout the period of its development. The first one includes the perception of the level of traditional threats, primarily the nature and dynamics of relations with the former potential adversary, that is, Russia. The second embraces the perception of the so-called new challenges and threats. This refers first and foremost to the perception of the conflicts in the regions adjacent to Europe, the threats of the proliferation of WMD and terrorism.

Western expert community remains concerned over both political stability within Russia and the consistency of the course towards cooperation with NATO, pursued by Russia in its foreign policy.

This was reflected, in particular, in the most important document specially intended to outline major ideas of the future Strategic Concept (NATO 2020) – the report of the Group of Experts headed by Dr. Madeleine Albright. It stresses that "because Russia's future policies toward NATO remain difficult to predict, the Allies must pursue the goal of cooperation while also guarding against the possibility that Russia could decide to move in a more adversarial direction".[44] According to many politicians, it is nuclear weapons that remain the most stable and reliable guarantee in today's world. It is likely that this particular reasoning have prompted the desire to preserve the role and place of nuclear weapons in the new Strategic Concept of NATO.

Alexander V. Grushko, Deputy Minister of Foreign Affairs of the Russian Federation referred to the report by Madeleine Albright's group in the following way: "During the extensive consultations with the alliance and with individual NATO nations and the Wise Men, we very clearly told them of our vision of the main elements of NATO's strategic concept. The first and perhaps most important thing is that NATO should avoid ambiguity in the formulation of its attitude to Russia. Up until now, NATO's position was characterized by ambivalence: on the one hand, they argued that Russia was a partner. On the other hand, more or less

[44] NATO 2020: Assured Security. Dynamic Engagement Analysis and Recommendations of the Group of Experts on a New Strategic Concept for NATO. May 17. 2010. (http://www.nato.int/cps/en/natolive/official_ texts_63654.htm).

covertly they would suggest that Russia could be a problem in the field of security and even a direct threat".[45]

In only a short time, Russia's complaints were once again confirmed. As a result of unauthorized disclosure of diplomatic mail through WikiLeaks in December 2010, the public got access to NATO's secret plans to protect the Baltic States against potential threat posed by Russia. Russian Foreign Minister Sergey Lavrov stated that in these circumstances one could rightfully ask in which case NATO was sincere: talking about partnership or discussing plans to defend against Russia.[46]

In the 1990s some senior officials of the US Department of State made statements in this vein explaining that the expansion of NATO was necessary in case of possible development of a negative scenario in Moscow.[47] In response throughout 1990s and 2000s Russian political and expert community tended to perceive with great suspicion and hostility this very expansion of NATO.[48]

Despite infinite optimistic statements of NATO officials on building partnership with Russia, the 2010 Russia's Military Doctrine gave quite a negative assessment to the results of the two decades of attempts to establish partnership with NATO. It implies that 15 years after the expansion commenced, Moscow continues to consider "the desire to endow the military potential of the North Atlantic Treaty Organization (NATO) with global functions carried out in violation of the norms of international law and to move the military infrastructure of NATO member countries closer to the borders of the Russian Federation" as the main external military danger.[49] It is first on the list of other military dangers in the Doctrine. According to the majority of Russian experts (including liberal ones), it is the thoughtless policy of the expansion of NATO that inflicted the greatest damage to Russia-NATO relations.

Apparently, certain progress has been made in the relations between Russia and the West during the current Obama-Medvedev political cycle. Nevertheless, the recent positive developments appear insufficient to lay the groundwork for a radical and irreversible change in the relations between Russia and NATO and, more generally, Russia and the West.

The assessment by Russian Prime Minister Vladimir Putin are notable, taking into account his broad support in political elite and public at large. In one of his interviews of late summer 2010 (i.e. after major steps in resetting US-Russian relations) he expressed certainty that his famous 2007 Munich speech criticizing the Western countries' position with regard to Russia, remained quite up-to-date.[50]

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[45] Interview of Russian Deputy Foreign Minister Alexander Grushko // Interfax, October 2, 2010. (http://www.ln.mid.ru/brp_4.nsf/0/C357E256B864EB40C32577B4002D30DC).

[46] http://www.rbc.ru/fnews.open/20101210034805.shtml

[47] See: Ознобищев С. Россия – НАТО: реалистичное партнерство или виртуальное противостояние? // Мировая экономика и международные отношения. 2006. № 1. С.18.

(Oznobishchev S. Russia-NATO: real partnership or virtual confrontation? // World Economy and International Relations. 2006. # 1. P. 18).

[48] See: details in: Arbatov A., Dvorkin V., Oznobishchev S. NATO-Russia Relations (Prospects for New Security Architecture, Nuclear Reductions, CFE Treaty) / Moscow, IMEMO RAN. 2010.

[49] Military Doctrine of the Russian Federation. February 5, 2010. (The Russian text is available at http://news.kremlin.ru/ref_notes/461).

[50] See: Владимир Путин: даю вам честное партийное слово // Коммерсантъ. 20 августа 2010.

As for the second group of threats, it is obvious that NATO's concern over these grows. The Alliance's spokespersons constantly highlight the increasing risks of WMD proliferation and terrorism.

Political and expert community had had certain optimistic expectations as to the new NATO Strategic Concept. Yet those were right who had predicted that Brussels would not resolve to significantly modernize its nuclear strategy and would be more likely to confine itself to merely cosmetic changes consistent with the current situation (i.e. expressing support to the idea of a future world free of nuclear weapons).

The final result was quite disappointing compared to the opportunities of the unprecedented process of elaboration of the document presented in Lisbon. There were numerous consultations in different formats involving representatives of Western and Russian political and expert communities and devoted to the main provisions of the document. Unfortunately, one can hardly find any trace of this intense and unique brain-storming in the new document. Most of it proved to be slightly modified provisions that had been included in previous Strategic Concepts in 1999 and 1991.

Moreover, the new 2010 Strategic Concept has turned out much more conservative than the recent US Nuclear Posture Review containing many novelties as to Washington's intention to reduce the role of nuclear deterrent and its readiness to take more active steps towards strengthening non-proliferation regime and continue nuclear arms reductions and limitations.

To give objective assessment to the major provisions of the new Strategic Concept related to nuclear weapons, one should compare it to the NATO document of 1999 based on the following list of criteria:

- what are the threats NATO nuclear weapons should address;
- what are the ways to ensure security with the help of nuclear weapons;
- on what nuclear weapons the Atlantic Alliance counts in its strategy;
- how high is readiness to talks on nuclear weapons reduction and limitation;
- what is the impact of nuclear weapons on relations with Russia.

The last point is directly linked to nuclear weapons, as NATO has traditionally had nuclear weapons in the context of its military relations with the USSR and subsequently Russia.

Security threats. In the 2010 Strategic Concept, the so-called “nuclear tradition” turns out to be the most important factor. As it goes in the first lines of the Strategy, “as long as there are nuclear weapons in the world, NATO will remain a nuclear Alliance”.[51] There was no such provision in the 1999 Strategic Concept, although nothing challenged the necessity of nuclear weapons. At the same time it should be acknowledged that the Alliance decided to keep up with the recent “fashion” in this sphere, which will be discussed in greater detail below.

To justify the need to maintain an efficient nuclear capability the authors of the Strategic Concept point to the fact that the modern security environment contains “a

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(Vladimir Putin. Upon my word of party honour // Kommersant. August 20, 2010. (Russian text is available at http://www.kommersant.ru/doc.aspx? DocsID=1495411).

[51] See: Active Engagement, Modern Defense. Strategic Concept for the Defense and Security of the Members of the North Atlantic Treaty Organisation. (http://www.nato.int/lisbon2010/ strategic-concept-2010-eng.pdf).

broad and evolving set of challenges to the security of NATO". At the same time they note that the threat of a conventional attack against NATO territory "is low", although "the conventional threat cannot be ignored". These provisions, although with a slightly different wording were in the 1999 Strategic Concept. In fact, Russian national security documents has also stated almost the same since 1990-s.

Statements of the kind are quite equivocal and may stay so for indefinite time, as the movement of NATO towards Russia's borders has made a direct armed conflict with it or at the post-Soviet space hypothetically possible.

It is nothing more than just an inertia of strategic mentality, directed towards the threats of the past century, rather than new and real dangers. An act of "catastrophic terrorism" of September 11, 2001 was aimed against the most powerful nuclear-weapon state, the United States of America. This obviously challenged the adequacy of post-Cold War nuclear deterrence, as it is pointless to use nuclear weapons in the fight against terrorism, and all the deterrence principles just do not work in this case.

Nevertheless, the novelty of the situation failed to bring about a fundamental review of positions with regard to nuclear deterrence in the official documents of the five nuclear-weapon states. They stick to various pretexts for retaining nuclear weapons, including terrorist threat, while in reality these weapons are tied to the basic mutual nuclear deterrence tasks of Cold War era. One can find numerous evidence of the persistence of this deterrence pattern both in official documents and in the works of the leading US and Russian experts.

Relevant recent Russian documents (the Military Doctrine of the Russian Federation adopted on February 5, 2010, Strategy of the National Security of the Russian Federation through 2020 adopted on May 13, 2009) imply but not explicitly mention the US as a part of rationale for maintaining and modernizing nuclear capability. The recent US Nuclear Posture Review says frankly that "Russia's nuclear force will remain a significant factor in determining how much and how fast we [the US — authors] are prepared to reduce US forces".[52]

According to respected US experts, common view in political and academic community holds that "Russia's nuclear weapons remain the greatest military danger to the United States".[53] These views within the main nuclear power of the North-Atlantic Alliance are affecting the corresponding nuclear policy of NATO. A senior military expert Brigadier General Klaus Wittman stressed that the concept of "Extended deterrence, including forward basing of some nuclear systems by the United States," adopted by NATO, is directly connected with "Russian weapons of this kind".[54]

All this attests to the fact that despite geopolitical and other changes in recent decades, Russia remains the main "object" of nuclear deterrence for the Alliance.

The new Strategic Concept also pays considerable attention to new threats: the proliferation of nuclear weapons and other weapons of mass destruction and

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[52] Nuclear Posture Review Report. April 2010. (www.defense.gov/NPR/docs/2010).

[53] Toward True Security. A US Nuclear Posture for the Next Decade. Federation of American Scientists, Center for Defense Information, Natural Resources Defense Council, Union of Concerned Scientists. June 2001, P. 14. (http://www.fas.org/ssp/docs/010600-posture.pdf).

[54] Wittmann K. NATO's new Strategic Concept // An Illustrative Draft. September 2010. P.4. (http://www.ndc.nato.int/news/current_news.php?icode=8).

terrorism that "poses a direct threat to the security of the citizens of NATO countries".[55] In this context, there are increasingly common references to "cyber attacks" against critical communication networks, as well as statements recognizing the growing dependence on foreign energy supplies (although NATO plays a disputable role in preventing these threats).

On the whole, like Russian national security documents, the Strategic Concept states that "the Alliance does not consider any country to be its adversary". This language follows almost word for word the similar provision of the 1999 Strategic Concept, but it does not reflect NATO actual nuclear operational planning and force structure. The Concept notes that "no one should doubt NATO's resolve if the security of any of its members were to be threatened".[56]

Ways to ensure security with nuclear weapons and NATO's nuclear assets. Taking in consideration the geopolitical and geostrategic changes that took place in Europe in recent 20 years, one could expect NATO to announce that the only purpose of the Alliance's nuclear weapons on the continent is to deter the use of nuclear weapons by other powers.

Instead, the new Strategic Concept abounds in ambiguities. On the possibility of use of nuclear weapons it notes that the circumstances "in which any use of nuclear weapons might have to be contemplated are extremely remote".[57] This vague statement duplicates corresponding phrases of Russian and US doctrines (despite NATO unique geostrategic position of conventional superiority and absence or real military aggression threats in Europe) and reproduces exactly the wording from the 1999 Strategic Concept.

Moreover it stresses that "the supreme guarantee of the security of the Allies is provided by the strategic nuclear forces of the Alliance, particularly those of the United States; the independent strategic nuclear forces of the United Kingdom and France, which have a deterrent role of their own, contribute to the overall deterrence and security of the Allies"[58] (this provision also reproduces the phrasing of the 1999 Strategic Concept). A series of measures is envisaged to ensure the full range of capabilities necessary to deter and defend against any threat. Those include primarily the "appropriate mix of nuclear and conventional forces"[59] — also a used formula from the 1999 Strategic Concept.

As the new Strategic Concept highlights, to ensure the maximum credibility of the deterrence, the broadest possible participation of Allies "in collective defense planning on nuclear roles" is required, which involves "peacetime basing of nuclear forces", and command, control and consultation arrangements.[60] This provision (para. 19, 2010 Strategic Concept) is an exact copy of the language from the 1999 Strategic Concept (para. 63).[61] Both 1999 and 2010 nuclear-conventional pos-

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[55] See: Active Engagement, Modern Defense. Strategic Concept for the Defense and Security of the Members of the North Atlantic Treaty Organisation. (http://www.nato.int/lisbon2010/ strategic-concept-2010-eng.pdf).

[56] Ibid.

[57] Ibid.

[58] Ibid.

[59] Ibid.

[60] Ibid.

[61] The Alliance's Strategic Concept. April 24, 1999. (http://www.nato.int/cps/en/natolive/official_texts _27433.htm).

tures of NATO have a déjà vu effect as relics from the times when Soviet shock tank armies stood at a distance of a few days of march from la Manche.

The only profoundly new element of the Concept is the focus on ballistic missile defense. This can be explained by the recognition of threats posed by the proliferation of nuclear weapons (first and foremost, Iranian missile and nuclear programs), new technical capabilities, and Washington's desire to deploy missile defenses in Europe. The authors of NATO military policy announced that the Alliance would develop the capability to defend their populations and territories against ballistic missile attack "as a core element of our collective defense".[62]

In this context, the prospects of cooperation with Russia which promotes a cooperative BMD since late 1990s, gains special importance. The announced intention to actively seek cooperation with Russia in ballistic missile defense is a new and refreshing declaratory element of the Concept. The document also states the Alliance's resolve to step up political consultations and practical cooperation on this subject.

Readiness to negotiate. Relations with Russia. The new Strategic Concept stresses that "NATO seeks its security at the lowest possible level of forces" (para. 26). This provision, except for a couple of words was also borrowed from the 1999 Strategic Concept (para. 40). This definition drives one to the conclusion that nothing has changed in NATO's policy in these 11 years, although the Alliance proclaims its desire for "seeking to create the conditions for further reductions in the future".

It is mentioned that since the end of Cold War NATO has "dramatically reduced the number of nuclear weapons stationed in Europe" and lowered the "reliance on nuclear weapons in NATO strategy". The first part of this statement is shared by experts who assume that besides nuclear capabilities of the UK and France, there remain about 200 nuclear tactical gravity bombs located in five European countries.

However, no official data is given in this connection. Leaving this issue apart, as well as the criteria and methods of assessment, the new Strategic Concept insists on the existing disparity with Russia's stockpiles of tactical nuclear weapons. NATO is instructed "in any future reductions... to seek Russian agreement to increase transparency on its nuclear weapons in Europe and relocate these weapons" away from the territory of NATO members. (The question is where – towards the territories of China or Japan, and to what effect taking into account the capabilities of modern transportation to bring them back.) This language seems unconvincing and smacks of politics and propaganda, which is far from facilitating dialogue on this matter.

When possible content of the future NATO Strategic Concept was discussed, political and expert community expressed doubts as to whether the Alliance resolved to declare the purpose of progressing towards the world free from nuclear weapons. However, it seems that after the majority of the five nuclear-weapon states leaders (including Russian) recognized the need to jointly move towards this aim, it turned out inappropriate to pass off this issue. Moreover, in relation to this declaration the European leaders are not required to take any urgent steps.

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[62] Ibid.

It is noted in this context that the cooperation between NATO and Russia is of strategic importance. The document stresses that the Alliance poses no threat to Russia: "On the contrary, we want to see a true strategic partnership between NATO and Russia, and we will act accordingly, with the expectation of reciprocity from Russia". It also recognizes that "a strong and constructive partnership based on mutual confidence, transparency and predictability" can best serve common security.

No doubt, NATO's desire to step up cooperation with Russia is welcome. However, Russian presidents have repeatedly hinted at the possibility of Russia's directly acceding to NATO, which implies a much higher level than "strategic" or any other partnership. For example in June 2001, after the first US-Russian Summit, during their joint press-conference Vladimir Putin reminded George W. Bush that a year before the Summit he (Vladimir Putin) was asked whether it was possible that Russia joined NATO somehow. He had answered "Why not". He also recalled that former US Secretary of State Dr. Madeleine Albright who had been "some place on a trip to Europe" had said to this "look, we're not talking about this right now".[63]

Addressing the Council on Foreign Relations in November 2008 (with the Madeleine Albright as a moderator) President Dmitry Medvedev said that the situation was far from conducive to Russia's accession to NATO, but mentioned a saying: "never say never".[64]

Nonetheless heads of NATO chose to ignore these messages by the top Russian leaders.

Taking into account the resetting of US-Russian relations and building up cooperation on BMD, Afghanistan and Iran it might be expected that the new NATO Concept could at least contain a proposal to engage in serious consultations on the possibility, conditions and timeframe of Russian alliance-type relations with NATO (as well as formal recognition of CSTO and expanded cooperation with it on Afghanistan).

Instead, on this issue NATO Concept confined itself to repeating amorphous and non-committing formulation, made many times in the past with very little practical steps following such statements. Indeed the call to build "a strong, stable, enduring and equal partnership" was included in the NATO-Russia Founding Act adopted as far back as in 1997.[65]

For more than 15 years, one of the major obstacles to cooperation (let alone partnership) has been the policy of NATO expansion towards the East. For all this time Russia's concerns have never been taken into account nor discussed at the official level. The new document introduced no changes to this policy of Brussels. The Strategic Concept says in a tone of approval that "NATO's enlargement

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[63] Joint press-conference with President George W. Bush of the United States of America, June 16, 2001, Ljubljana. (Russian text is available at http://president.kremlin.ru/text/appears/2001/06/28562.shtml).

[64] Meeting with the Council on Foreign Relations, November 16, 2008, Washington, D.C.

(Russian text is available at http://www.president.kremlin.ru/appears/2008/11/16/0526_type63376type63377type 82634_209249.shtml).

[65] See: the Founding Act on Mutual Relations, Cooperation and Security between North Atlantic Treaty Organization and the Russian Federation. Paris, May 27, 1997. (http://www.nato.int/cps/en/natolive/official_texts _25468.htm).

has contributed substantially to the security of Allies; the prospect of further enlargement and the spirit of cooperative security have advanced stability in Europe more broadly". This statement is erroneous from Moscow's point of view, if the relations with Russia are to be viewed as an inalienable part of ensuring stability at the continent.

Thus, the new NATO Strategic Concept continues to declare the Alliance's commitment to traditional nuclear deterrence as a basis of ensuring security while preserving the "trans-Atlantic link", that is, nuclear assurances by the United States. What is more, the nuclear part of the Strategic Concept contains very few if any new provisions, compared to the 1999 NATO Strategic Concept. It appears that as the number of the Alliance members has grown – including France's returning to NATO military structure with its ambitious national nuclear doctrine – coming to a consensus on tangible innovations on important subjects like nuclear strategy and policy has become that much more difficult.

All in all there is no reason for Russia to perceive this new document as a turn in relations with NATO, which might correspond to the changes in its relations with the United States.

Achieving a radical change in relations implies taking practical steps which were announced at the Lisbon NATO-Russia summit. After the meeting of Dmitry Medvedev and Anders Rasmussen specific instructions were given to the bureaucracies to develop a comprehensive joint analysis of future framework conditions for cooperation on ballistic missile defense, and specify steps of cooperation on common security challenges of the 21st century.[66] If, in contrast to the past, these instructions are fulfilled at a practical level – there may be a real change of NATO and Russia's nuclear strategies, and their radical departure from the Cold-War principles.

[66] See: Meeting of the NATO-Russia Council. Lisbon, November 20, 2010, (http://www.president.kremlin.ru/news/9568).

II.4. COMPARATIVE ANALYSIS OF MODERN NUCLEAR DOCTRINES

Generally, any state's military doctrine, including its nuclear aspect, has a dual nature. On the one hand, it is a guide to action for the country's armed forces and defense industry inasmuch as it defines the type of potential wars and conflicts and their probability, as well as the aims and objectives of the country's military operations and the corresponding combat training principles and weapon programs. On the other hand, a doctrine sends a message to other countries, both potential adversaries and allies, and contains a warning to the former and a set of guarantees to the latter, while explaining under what circumstances and in what manner the state will resort to military action. Given the huge stockpiles of nuclear weapons that had been accumulated during the Cold War, the world came to realize that using such weapons on a large scale is unacceptable. Thus, the task of defining the ways to deter the adversaries from resorting to nuclear weapons became a top priority of a military doctrine agenda: to prevent a nuclear war either following an intended attack or resulting from the escalation of conventional military operations.

The relation between these two aspects in military doctrine varies from state to state. It may also change in one state's military doctrine over time. Indeed, official military doctrine of the USSR was mainly an instrument of propaganda and had little relation to actual military strategy and operational planning. In today's Russia this relation is more tangible, which does not make the military doctrine free from internal contradictions (and possibly makes them more visible – reflecting actual problems of military planning, technical development and budgeting).

Nuclear-weapon states' doctrines may be classified despite the variety of official strategic concepts, considerable differences in the weight of their political and propaganda elements, as well as in the extent to which they reflect actual plans of using nuclear weapons.

Nuclear strategy of the leading states. As for the circumstances in which the use of nuclear weapons is deemed justified, the situation is as follows. New Russian and US doctrines adopted in 2010 contain very similar languages with this regard.

The United States. According to the new US doctrine, "the fundamental role of US nuclear weapons, which will continue as long as nuclear weapons exist, is to deter nuclear attack on the United States, our allies, and partners". The US will "consider the use of nuclear weapons in extreme circumstances to defend the vital interests of the United States or its allies and partners". Besides, the role of nuclear weapons in deterring attack with the use of conventional, chemical and biological weapons will be reduced. The US is prepared to declare that they "will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the NPT and in compliance with their nuclear non-proliferation obligations".[67] However, this obligation does not apply to NPT nuclear weapon states and the states breaching their obligations under the NPT.

Apparently, implying allied assurances for Japan and South Korea, the US strives to retain the possibility of a nuclear retaliation in case of an attack involving

[67] Nuclear Posture Review Report. April 2010. Wash., DC., 2010. P. VIII.

conventional weapons or other types of WMD (for "a narrow range of contingencies", as the documents says). In other words, the use of nuclear weapons is admitted not only globally (as a basis for deterring a nuclear attack against the US), but also for the purposes of deterrence at the regional level in response to an attack against the allies involving nuclear weapons, and, in certain cases, in response to an attack using other types of WMD or conventional arms and armed forces.

The United States is therefore "not prepared at the present time to adopt a universal policy that the "sole purpose" of US nuclear weapons is to deter nuclear attack on the United States and our allies and partners, but will work to establish conditions under which such a policy could be safely adopted".[68]

Russia. Current Russian military doctrine says: "The Russian Federation ensures constant readiness of Armed Forces and other troops to deterring and preventing armed conflicts, ensuring armed protection of the Russian Federation and its allies in accordance with the norms of international law and the international treaties of the Russian Federation... Preventing nuclear armed conflict, as well as any other armed conflict, is the main task of the Russian Federation".[69]

The military doctrine envisages the use of nuclear weapons under the following circumstances: "The Russian Federation reserves the right to use nuclear weapons in response to the use of nuclear weapons and other weapons of mass destruction against it or its allies, as well as in case of aggression against the Russian Federation using conventional weapons, when the very existence of state is threatened".[70]

In other words, first, the nuclear forces of Russia are intended for nuclear retaliation in case of a nuclear strike against Russia and/or its allies. Second, they are intended for the first use of nuclear weapons in response to an attack against the Russian Federation (or its allies) using chemical, bacteriological or radiological weapons. Thirdly, for the first use of nuclear weapons in the face of inevitable catastrophe as a result of strike against the Russian Federation (but not its allies) using conventional armed forces and arms. The latter, apparently, refers to the threats posed by the superiority of the expanding NATO in general-purpose forces and high-precision conventional arms, and, possibly, probable threats posed by the strategic situation in the East which is changing to the detriment of Russia.

In comparison to the country's previous official Military Doctrine of 2000 (nuclear "response to large-scale aggression with conventional weapons in situations critical to the national security of the Russian Federation"), a distinctive feature of the most recent document is a more reserved and conservative language as regards the use of nuclear weapons in a response to a non-nuclear aggression. It is also notable that the new Doctrine lacks a number of "novelties" of the 2000 military doctrine, in particular, the task of "de-escalation of aggression... through the threat of or direct delivering strikes using conventional and/or nuclear weapons". Neither it provides for "discriminating use of certain components of Strategic Deterrent Forces", demonstrating the resolve by "increasing their combat readiness, conducting exercises and relocating certain components".[71]

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[68] Ibid.

[69] Military Doctrine of the Russian Federation. February 5, 2010. (Available in Russian at http://news.kremlin.ru/ref_notes/461).

[70] Ibid.

[71] Актуальные задачи развития Вооруженных Сил Российской Федерации. Министерство обороны. М., 2003. С. 42.

The attention of commentators, especially foreign ones, was drawn to the following passage of the new Doctrine: "in case of a military conflict involving conventional capabilities (large-scale war, regional war) and threatening the very existence of the nation, the availability of nuclear weapons can lead to the escalation of this conflict to a nuclear armed conflict".[72]

The sense of this provision is not quite clear. If it refers to the possibility of use of nuclear weapons in a regional way by the nuclear-weapon states in South Asia, Middle East of Far East, this statement raises no objection. However, as it makes part of the Military Doctrine of the Russian Federation, it definitely lacks the description of the danger posed to Russia by such events and the military response to them.

If it refers to the possibility of use of nuclear weapons by Russia in the course of regional conflict (as it has been interpreted by many experts), it is not quite clear how a regional conflict, even at the post-Soviet space, may threaten "the very existence of the nation", that is, Russia. This is even less true in case of armed confrontation between Russia and other powers in remote regions (for instance, Latin America, Persian Gulf region, or in South-East Asia). Further, if a conflict between Russia and NATO, or Russia and the US and their allies in the Far East is meant, this war would certainly be global rather than regional. One can hardly imagine a war involving the US and their allies in the Atlantic region while peace is preserved in the Pacific (or visa-versa). Finally, the conflict with other countries at the post-Soviet space, or in the adjacent regions would hardly threaten "the very existence" of Russian state.

However, there is one exception, a hypothetical war with China. It would be of a regional nature, would be fraught with Russia's defeat in conventional warfare and could jeopardize "the very existence of the state" through the loss of territories in the Far East and Siberia. One can expect that Russia uses nuclear weapons in order to prevent such catastrophe.

Nevertheless, it is far from obvious that the authors of the new doctrine intended any hidden meaning in its provisions, in particular, by failing to mention the possibility of use of nuclear weapons in case of conventional aggression against Russia's allies, or admitting the possibility of use of nuclear weapons in regional war against China. It is possible that the collective process involving military theoreticians and various agencies, excess of scholastic and irrelevant provisions –brought about some ambiguities and inconsistencies in the final text and allowed for logical interpretations that would be unexpected for the authors of the Doctrine.

China is the only great power that remains bound by a commitment on no-first-use of nuclear weapons, without any reservations. However, it is generally believed that a nuclear power that has committed itself to no-first-use of nuclear arms is relying on the concept of and means for a retaliatory (second) strike. According to the generally accepted estimates, the Chinese strategic nuclear forces, as well as missile attack early warning systems and combat command-control and

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(Pressing issues of the development of the Armed Forces of the Russian Federation. Ministry of Defense. Moscow. 2003. P.42).

[72] Military Doctrine of the Russian Federation. February 5, 2010. (Available in Russian at http://news.kremlin.ru/ref_notes/461).

communications infrastructure, are too vulnerable and could not survive to ensure a retaliatory strike after a potential disarming nuclear strike by the United States or Russia.

In the light of these considerations, the official doctrine of the People's Republic of China is regarded primarily as an instrument of politics and propaganda (similar to the 1982 Soviet commitment on no-first-use of nuclear weapons), which does not reflect the actual operational planning of strategic nuclear forces which are actually intended for a preemptive strike. Nevertheless, in the foreseeable future, Chinese nuclear forces modernization programs will increase its survivable retaliation capability if China reduces the vulnerability of nuclear weapons at their launching sites, as well as the vulnerability of its early warning systems, combat command and control sites and develops reliable systems to prevent unauthorized use (which would allow to give up the practice of separate storage of warheads and their delivery vehicles).

Classification of nuclear doctrines. As for the retaliatory (second) use of nuclear weapons in response to a nuclear strike, it should be stressed that all nuclear-weapon states are prepared to use nuclear weapons in response to such attacks against them. Besides, the US and Russia intend to resort to nuclear weapons in case of nuclear aggression against their allies.

As regards the first use of nuclear weapons, the situation is as follows:

- Russia, France, India (and possibly, Israel) intend to use nuclear weapons in a response to attack against them with the use of other (chemical, bacteriological and radiological) WMD;
- Russia allows for the use of nuclear weapons in case of a WMD attack against its allies. The new US nuclear doctrine of 2010 does not provide for a nuclear retaliation to the use of other WMD against the US and its allies (apparently, with the exception of defending Japan and South Korea against such aggression on the part of DPRK);
- Russia, Pakistan (and most likely Israel) are ready to use nuclear weapons if there is a danger of their catastrophic defeat in a conventional warfare;
- the UK and France, and the US before 2010 (in the framework of NATO strategy) planned to use nuclear weapons to prevent the defeat of their general-purpose forces. The new US nuclear doctrine does not envisage the use of nuclear weapons in this case;
- all powers, except for China and India, tacitly envision the use of nuclear weapons in a preemptive strike in order to destroy missiles and other means of delivery of WMD of the threshold states, especially those breaching their NPT obligations;
- previously, the US planned selective use of nuclear weapons against terrorist facilities and in other situations at their discretion, while the new nuclear doctrine makes no mention of that;
- apparently Russia may use nuclear weapons in response to conventional strike against its strategic forces, missile attack early warning systems, administration centers, nuclear and other hazardous and critical facilities, and vital industries and infrastructure.

In all cases, potential strikes will be aimed against targets in the territory of adversary, its allies, especially those on whose territory nuclear weapons are deployed, as well as where foreign military facilities, bases and troops are located.

First nuclear strike. The powers' readiness to the first use of nuclear weapons makes it, in addition to deterrent, an actual instrument of war and means of achieving success in it, whatever the latter means. The plans of the first use of nuclear weapons are much more than just nuclear deterrence, or, at least, are quite a broad interpretation of deterrence (including a preemptive strike).

As opposed to deterrent that implies retaliatory nuclear strike, the concept of the first use is usually associated with the strategy of a disarming (counterforce) strike. Moreover, the first nuclear strike may be considered as necessary to counter adversary's superior general-purpose forces (by preventive strike) or to avoid the adversary's disarming nuclear strike (by preemptive strike).

It should be noted, however, that the focus on the first use of nuclear weapons does not necessarily demonstrate the aggressiveness of a state's military and, more generally, foreign policy. Although very important, nuclear strategy is merely an element of a whole most complicated and dynamic picture of global and regional military balance.

On the other hand, the degree of reliance of any state on the concept of first use of nuclear weapons has profound implications in a number of respects. First, it affects a probability of nuclear war in a crises situation, in which one state may be under pressure to employ nuclear weapons, if the “red lines” defined by the doctrine are crossed by an opponent –while the latter may choose a nuclear preemption to prevent an imminent nuclear attack or to reduce its ensuing damage. Nuclear first strike concept may look an attractive “macho-type” and comforting instrument in peacetime, but can turn into a recipe for disaster in a real crisis.

Second, even in peacetime the first use concept cannot but negatively affect political relations between states and hinder their cooperation on security issues. Indeed it is hard to imagine joint defense systems (like BMD) or large-scale military operations (like counter-proliferation or counterterrorist) if the countries are seriously planning to initiate (and have weapons and forces for) a nuclear attack on each other under certain circumstances.

Third and last, but not the least, this concept is a doctrinal obstacle to nuclear disarmament. A purely retaliatory (second strike) strategy does not preclude nuclear disarmament if other states join this process and control regime is reliable. Removal of nuclear weapons of other states makes nuclear attack impossible and thus does away with the need for nuclear retaliation. However, if a given state has a concept of first nuclear strike (i.e. strives to achieve other than purely retaliatory goals), then nuclear disarmament of other countries would not remove the need for its nuclear weapons. In this case other countries would not agree to disarm and nuclear disarmament would be impossible.

Ranking the modern nuclear powers in terms of their readiness to the first use of nuclear weapons, judging by both their official doctrines and their objective geostrategic situation and probable operational planning, the following conclusions may be offered.

Israel's and Pakistan's nuclear potentials are of the unequivocally offensive nature with their exceptional reliance on the first use due to both strategic necessity and technical characteristics.

Russia apparently occupies the second place based on this criterion. Its relative nuclear power vis-à-vis its hypothetical adversaries (NATO, China and the US in the Far East) will decrease in the future, while its inferiority in general-

purpose forces, modern non-nuclear weapons, accompanied by its regional vulnerability encourage concepts and planning of the first use of nuclear weapons.

The third position tentatively belongs to the US Due to their objective situation and military capability they have no serious incentives for the first use of nuclear weapons. However, the provisions of their doctrine, their allied obligations and enormous superiority of their nuclear counterforce capability determine continuous reliance on the concept of the first use of nuclear weapons in the new 2010 Nuclear Posture Review.

The US is followed by India with its obligation of no-first-use. It is most likely that in practice it will continue to maintain capability to mount a disarming strike against Pakistan, but be vulnerable for a counterforce strike on the part of China. Apparently, India assumed the obligation of no-first-use in order to avoid provoking a preemptive strike on the part of China or Pakistan. The latter is also corroborated by the fact that India's conventional capability and forces will be quite enough to deal with Pakistan without resort to nuclear weapons.

The fifth position in this list goes to China. It assumed a declarative obligation of nuclear no-first-use without any reservation. However, China's retaliation strike capability (in accordance with its declaration) so far has seemed insufficient as compared to superior forces of the US and Russia. Over time China will certainly accumulate such potential vis-à-vis the US and Russia and improve offensive (counterforce) capabilities of its nuclear forces against India and, possibly, against Russia later on.

The sixth one is France, whose doctrine relies rather aggressively on nuclear deterrence for vast variety of purposes, including the first use of nuclear weapons. Yet neither its actual nuclear forces, nor its geostrategic situation (in the center of NATO zone) imply either feasibility or necessity of such “romantic” nuclear posture.

The UK occupies the last, seventh position. Several years ago the country gave serious consideration to completely renouncing not only the first-use concept, but its nuclear weapons in general. With the geostrategic situation and capability similar to those of France, the UK, as opposed to it, defines in quite a vague manner the concept of the first use, probably deeming it unnecessary but trying to avoid additional political complications for NATO and with the US

Finally, there is North Korea, which so far could not fit in the above ranking due to the fact that apparently it has not yet developed a nuclear warhead compact enough to be carried by a missile or an aircraft. Its capability can be characterized mainly as “provocative” or “subversive” (that is, carried by non-traditional delivery means such as civilian vessels and aircraft).

Certainly, all nuclear-weapon states view nuclear weapons as a legitimate and indispensable pillar of their own security and the security of their allies, as well as an attribute of a special status and political influence in the world. Each of them gives irrefutable reasoning in support of this, at least, from their viewpoint. At the same time, they find all claims for the right to nuclear weapons on the part of other countries as groundless, unacceptable and dangerous.

To sum up, after the end of the Cold War the inequality between the nuclear-weapon states and non-nuclear-weapon states has been deepened and legalized, rather than downgraded. The military strategies of most nuclear-weapon states lowered the threshold for the use of nuclear weapons (that is, conditions in which

nuclear weapons may be used) instead of raising it. Needless to say, none of them has renounced the first-use concept (at least at practical, if not declaratory level) and the nuclear deterrence doctrine and philosophy in general.

The variety of nuclear-related objectives. From political and military perspective, there are five major objectives that different states may alternatively assign to nuclear weapons:

1) maintaining prestige and status internationally (all eight nuclear-weapons states, excluding Israel);
2) preventing a nuclear attack (eight nuclear-weapons states, possibly excluding Israel);
3) deterring and countering an attack with the use of other types of weapons and armed forces (relevant for six nuclear-weapons states and not relevant for the People's Republic of China and – with reservations – for the US and India);
4) security guarantees and influence on the allies (adopted by Russia, the US, the UK and France);
5) a bargaining chip when negotiating other issues with other countries (Russia, DPRK, and potentially, Israel).

Logically, the listed reasoning and material interests brought about the formation of nuclear-related political and lobbyist groups within the countries, which usually turn into an additional internal factor favoring nuclear weapons.

The Table in Annex 2 outlines these objectives and groups them for each nuclear-weapon state while describing them in greater detail. The term "prevention" of an attack may apparently refer to the planning of both retaliatory and preemptive strikes, and the term "countering" an attack may be interpreted as either successful defense against aggression using nuclear weapons, or escalation of hostilities to a higher (nuclear) level. The US reservations related to maintaining nuclear capability to deter attack against their allies with the use of other WMD, refer to possible aggression of North Korea against Japan and South Korea. Question marks indicate vagueness and ambiguity of a state's official doctrine, or the probability of its changes in the future.

As the table demonstrates, different countries assign different sets of objectives to their nuclear weapons. Currently, Russia is the only state with a nuclear strategy that includes all five of these objectives. These Russia's specific doctrinal concerns, obligations and provisions need to be taken into account while planning long-term and realistic policy of building a world without nuclear weapons. One cannot expect any serious progress towards this end unless these obstacles are removed through agreements or by other measures.

However, Moscow should also realize that without advancing towards a world free of nuclear weapons it would be impossible to curb the proliferation of nuclear weapons and the scientific and technological progress of advanced states in other military spheres. The said two processes will eventually render nuclear weapons and nuclear deterrence incapable of performing the tasks that Russia is presently assigning to them.

PART III
NON-NUCLEAR FACTORS OF NUCLEAR DISARMAMENT

III.1. PROSPECTS FOR COOPERATION BETWEEN RUSSIA AND US ON BALLISTIC MISSILE DEFENSE

Experience of cooperation. For around 15 years, there have been various discussions and proposals on the practical forms of cooperation between Russia and the US/NATO on BMD. In mid-1990s the Russian and US experts were proposing the joint use of missile early warning systems by the two countries. In mid-2000 Russian leadership tried to implement certain elements of such cooperation, including the initiative to use the missile early warning radars in Mingechaur, Azerbaijan (Gabala radar station), and near Armavir, Russia, to revive the Joint Data Exchange Center (JDEC) for monitoring the launches of ballistic missiles and space launch vehicles. However those proposals could hardly be successful, since Russia viewed them as an alternative to US planned deployment of strategic BMD sites in Poland and the Czech Republic.

Still, cooperation progressed in terms of arranging joint training exercises on non-strategic BMD. In the US-Russia format, five computer exercises on TMD were held alternately in Russia and the United States in 1996-2006. In 2003-2008 four trainings were held in the US-NATO-Russia format (in Colorado (US), the Netherlands, Moscow and Munich). There were further plans to explore the possibility of arranging a live exercise at a test range in Russia, including the use of operational S-300 and Patriot anti-aircraft missile systems. However, these plans were "frozen" after the armed conflict between Russia and Georgia in 2008.

As the Democratic Administration came to power in the United States, the intention to cooperate was expressed rather clearly. During his Moscow visit, Barack Obama said, "I want us to work together on a missile defense architecture that makes us all safer. But if the threat from Iran's nuclear and ballistic missile programs is eliminated, the driving force for missile defense in Europe will be eliminated. That is in our mutual interest". US Deputy Secretary of State William Burns added that the "two countries have devoted more study and resources than any other to defending against the threat from ballistic missiles". NATO Secretary General Anders Rasmussen fully supported this idea, stating that NATO and Russia should cooperate in the development and building of defense against ballistic missiles. Russia's leadership also takes a favorable view of such cooperation. At the meeting of presidents of the United States and Russia on June 24, 2010, Barack Obama noted that various options of cooperation in this sphere had been presented to Russia.

Russia's cooperation potential. The United States is an unquestionable leader in the development of non-strategic and strategic BMD. Unlike the previous plans of the Bush Administration on the deployment of strategic BMD that had not been properly developed, the four-stage program announced by the cur-

rent Administration appears to be quite well thought through. Sustained perfection of the profoundly tested Aegis sea-based BMD system with its SM-3 interceptors provides for further enhancement of the effectiveness and the range by increasing the solid-propellant mass of the interceptor (with the diameter of stages 2 and 3 increased by one and a half from 13.5 in. to 21 in.), as well as by upgrading the guidance and control systems. It is expected that owing to the increased speed, the interceptor missile will be capable of destroying Iran's missiles in boost phase (providing that Aegis-capable ships are deployed in the Mediterranean Sea). Also there hardly will be any problem in adjusting them for deployment as land-based interceptors.

However, at this stage there is no ultimate certainty on the European deployment of not only the land-based version of the SM-3 interceptors, but also of the X-band (centimeter wavelength) radars. One cannot exclude the possibility of these radars to be deployed in Turkey, Georgia and Eastern Europe. In any event, these radars will be part of the general BMD of the United States and Western Europe which includes the radars of the missile early warning system.

At the same time, further buildup of GBI-type strategic three-stage ground-based interceptor missiles in Alaska (Fort Greely, 26 interceptors) and California (Vandenberg Air Force Base, 4 interceptors) is being suspended. Another 14 GBI launching silos are currently under construction in California. These launching silos are intended as reserve and will house the interceptors if necessary. Though it is assumed that these measures will protect the US against single ballistic missile launches, test launches of GBIs will continue. It is known that the flight tests have begun for the two-stage version t of GBI that was previously intended for deployment in Poland.

Despite the dominance of the US in this sphere, Russia also has certain cooperation potential – primarily in the field of information support and interception capabilities of a joint BMD. At this stage, the space echelons of Russia's missile early warning system can hardly be expected to make a major contribution to cooperation, given the current state of these echelons. And then again, the US space-based missile early warning system has growing capability in terms of predicting the trajectory of a ballistic missile once the launch is detected.

However, the probability of detecting missile launches by the space echelons may be affected by clouds at the launch areas, and therefore it may not be a hundred per cent reliable. The Russian radars of the Russian missile early warning system and of the US Ballistic Missile Early Warning System (BMEWS) are the most reliable means of missile launch detection and trajectory prediction. The US experts are well aware of the unique capability of the Russian early warning radar in Mingechaur and the one built near Armavir in terms of detecting missiles launched by Iran.

When a missile is test-launched southeastwards from the site in northern Iran, the Mingechaur radar detects it in 110-120 seconds as it progresses along its flight path, while in case of north-westward operational launches the detection speed of the radar is even higher, which is beyond the capability of any US BMEWS radars. According to the estimates of some independent experts, the integration of US and Russian missile early warning systems will increase the efficiency of detecting launches of ballistic missiles and space launch vehicles by 20 to 70 percent.

Further, there may be certain demand for Russian missile early warning radars with high manufacturing readiness that can be quickly built at the missile-threat directions.

As far as space launch vehicles, the effectiveness and range of interception is known to sharply increase if a space-based information system, such as Space Tracking and Support System (STSS), is deployed. Spacecraft of this type, each of around 650 kg, with infrared and visible-spectrum sensors should be placed in the circular orbits 1,350 to 1,400 kilometers above the ground with a 60 to 70 degree inclination. To place them in orbits, Russian launch vehicles may be used, foremost the converted heavy missiles developed under the Russia-Ukraine Dnepr Project.

In the course of the strategic arms race, the energy characteristics of the heavy missile were perfected to achieve the highest specific characteristics in its class in the world. A number of such launch vehicles converted from RS-20 (SS-18) ICBMs that had been retired upon expiration of their service life cycle were successfully used in commercial projects to launch foreign-owned satellites, demonstrating utmost reliability. Such a launch vehicle with a boost stage and an engine of multiple ignition capability may place in orbit two STSS spacecraft at a time at an altitude of up to 1,400 kilometers with the required inclination. Thus, a low orbit BMD information support force may be deployed much faster and at a significantly lower cost.

In the field of systems and capabilities of missile intercept, Russia's advanced experience in the development of unique software for the detection of attacking missiles, discrimination of reentry vehicles against decoys and jamming, as well as other developments may be quite useful. In addition, Russia has a well-developed ground test infrastructure with a network of radar, optical-electronic and telemetry stations. Finally, it would be reasonable to include Russian antiballistic missile systems in the BMD architecture in Europe as an important element of cooperation. For example, the Triumf (Triumph) S-400 air defense systems are considerably superior to the US Patriot SAM in terms of range of destruction of airborne targets and ballistic missiles. In the future, the use of still more advanced S-500 air defense system may also be considered.

It is important to emphasize that the above areas of cooperation would not make the parties critically dependent on each other in BMD systems and functions. Russia and NATO would retain the capability to independently provide for their defenses – albeit at a lower level of effectiveness. Also cooperation would not prevent the parties to take steps at independently raising the level of their BMD efficiency – provided it is not perceived by the other side as a threat.

Priority steps. In the meantime, all the joint projects mentioned above can hardly be implemented in the near term in view of the persisting mutual mistrust and conservatism of the state agencies of the parties, as well as considering their concerns for loosing sensitive technologies. To counter these obstacles, first of all it would be reasonable to restore the elements of cooperation that have been abandoned over the recent years. In the first place, the project of a Joint Data Exchange Center (JDEC) to monitor the launches of missiles and space launch vehicles must be immediately revived. The decision to establish the JDEC was made 12 years ago by the then presidents of Russia and the United States. The incum-

bent presidents of the two powers reaffirmed their intention to move on with the project at their Moscow meeting in 2009.

A more recent idea is to create a virtual JDEC which would in the first place allows avoiding the expenses for setting up a new facility to replace the one that was dismantled. In addition, it would facilitate the resolution of issues related to the liability for damages. To do so, it would be reasonable to call to mind its tasks and operational procedures that were fully agreed in the past.

The JDEC was supposed to facilitate sustainable exchange of data on ballistic missile and space launch vehicle attacks received from US and Russian missile attack warning systems (MAWS), as well as to minimize the consequences of false warning of missile and carrier vehicle launches and prevent false alarm missile launches in response. In addition, the JDEC was supposed to contribute to potential implementation of the multilateral regime of exchanging notifications on the launches of ballistic missiles and space carrier vehicles.

The basic missions assigned to the Joint Data Exchange Center were as follows:

- providing information on announced and unannounced launches of ballistic missiles and space-launch vehicles detected by US ballistic missile early warning systems (BMEWS) and the Russian missile attack warning systems;
- achieving fast resolution in the Joint Commission of possible ambiguous situations associated with information from early warning systems;
- facilitating the preparation and servicing of a unified database for the multilateral regime of exchange of notifications concerning launches of ballistic missiles and space-launch vehicles.

Information was to be exchanged on the launches of ballistic missiles and carrier vehicles detected by the early warning systems, as well as on ballistic missile launches by third states that might pose a direct threat to the United States or Russia or might bring about an ambiguous situation and lead to its possible incorrect interpretation. The data intended for exchange is the information received from the space-based and ground echelons of the US and Russian early warning systems.

Information should be provided in a processed form, if possible, in near-real time.

The following formats were provided for the exchange of information:

- when a ballistic missile launch is detected: time of launch, generic missile class, geographic area of the launch, geographic area of payload impact, estimated time of payload impact, launch azimuth;
- when a launch of space vehicle is detected: time of launch, generic class, geographic area of launch, launch azimuth.

The process of data exchange was to develop in phases.

Phase I. In phase I of the JDEC operations, information was to be provided on detected launches of ICBMs and SLBMs belonging to either of the parties and, with rare exceptions, for detected launches of space-launch vehicles also belonging to either party, including firings of ICBMs, SLBMs and space-launch vehicles from territories of third states as well as launches of ICBMs, SLBMs and

space-launch vehicles of third states made from the territory of the United States or Russia.

Phase II. In this phase it was assumed that Russia and the United States would provide information on detected launches included in phase I, as well as information on detected launches of other types of ballistic missiles belonging to either party with a range in excess of 1,500 kilometers and a maximum altitude in excess of 500 kilometers.

Phase III. The parties were supposed to exchange information on detected missile launches specified for the two preceding phases, as well as information on the detected launches of ballistic missiles of third states with a range in excess of 500 kilometers or an altitude in excess of 500 kilometers, if part of the flight trajectory of the ballistic missile as calculated by the launch azimuth was expected to go over the US or Russia's territory, or if the impact area of its payload was projected to be within either party's territory. Russia and the United States were also supposed to provide information on detected starts of space-launch vehicles of third states, if projection of the initial launch azimuth indicated an intersection of the territory of either party within the first half-orbit of launch. At the parties' discretion, information could also be provided on other detected launches of space-launch vehicles of third states, regardless of launch azimuth.

The US and Russia were to provide information on launches of third states that they believed could create an ambiguous situation for their respective warning systems and lead to possible misinterpretation of each other's actions. Subsequently, the Joint Commission was to consider the possibility of exchanging information on missiles that intercept objects not located on the earth's surface (i.e. BMD and ASAT systems). In the future, the US and Russia were planning to consider the possibility of expanded data sharing on detected launches of ballistic missiles and space-launch vehicles globally, taking into account changes in the global strategic situation and the level of development of multilateral regime for the exchange of notifications of launches of ballistic missiles and space-launch vehicles.

The US and Russia were to appoint their Heads (1 person each) and Deputy Heads (2 persons for Russia and 1 person for the US) who were to have equal rights in managing the activities of JDEC. The JDEC Heads were to jointly carry out the daily management of JDEC activities and be jointly responsible for the performance of the tasks assigned to the JDEC. Operations of the JDEC were to be carried out by specially trained personnel of the parties (the US and Russia – 12 persons each: 6 teams consisting of 2 persons).The maintenance was to be performed by technical support personnel (4 persons for Russia and 2 persons for the United States). Russia was to provide security and support personnel (62 persons).

If a virtual JDEC was created in Russia's territory at the command center of a MSWS or at the Nuclear Risk Reduction Center (Defense Threat Reduction Agency in the United States), national duty shifts were to be formed at each of the selected sites to exchange the information. The Russian duty shift would transmit the authorized information on the detected launches with a delay measured in minutes. The information transmitted to a duty shift did not need to be cleared from all false alarms, since it would be better if the BMD received erroneous information rather than missed actual missile launches.

The strengths of the virtual JDEC include reduced number of communications channels required, and increased promptness of data transmission achieved through the reduced number of transmission links.

The weaknesses of the virtual JDEC include the necessity to transmit the data through the channels of the Internet which raises the issue of protecting the exchanged data. Another weakness is the need to integrate the hardware/software of the Russian and US parts of the JDEC. Before the JDEC starts its operations, a series of additional joint research tests must be completed to resolve hardware- and software-related issues.

Still, considering the strengths and weaknesses of a virtual JDEC in terms of reliability of received information and avoiding confusion, reviving the previously agreed project appears to be the best option.

To resume joint exercise on BMD, it is essential to recreate the experience derived from the latest joint exercise on BMD in the US-NATO-Russia format when the parties achieved certain progress in the training on the conceptual structure and compatibility of information systems and means of interception. Interruption of such exercises result in the loss of the accumulated experience due to professional turnover. Meanwhile, joint research is in any case necessary to enable the parties to move from computer assisted exercises to full-scale command exercises and later on to using the US and Russian operational anti-missile weapons on test grounds, as it was agreed during the latest exercise in the US-NATO-Russia format.

Thus, the organization- and technology-related opportunities for the cooperation of Russia, the United States and the European members of NATO exist in a number of complementary areas. These opportunities may be realized if there are political decisions on the US-Russia strategic partnership at the top national level.

However, the joint exercise on TMD should reach beyond the limited theatre of operations, since given the recent developments; there is no point in convincing the Europeans that they may only be threatened by short-range ballistic missiles. In other words, the intention to cooperate with Europe only in the sphere of non-strategic BMD is an anachronism, to say the least.

There is divergence in the parties' actual positions on BMD. The rationale of the US opponents of such cooperation may be the reluctance to make additional commitments and therefore fall into a position of dependence on Russia, as well as concerns related to a potential technology leakage.

Russia does not regard Iranian and South Korean missile capabilities as a threat, with higher priority assigned to politico-military and technical threats emanating from the United States and NATO. In the recent years, the new endeavors of Moscow and Washington have somewhat defused this perception. However, a decisive turn for the better is still a long way to go.

Still, even aside from debates on whether Iranian and South Korean missiles are posing a threat to Russia, Moscow's cooperation with the US and NATO appears more than desirable for a variety of reasons.

First, such cooperation may play a crucial part in promoting positive strategic partnership of the two nuclear superpowers and other NATO countries. It will also embrace other areas of security and help to flesh out the new Euro-Atlantic security architecture proposed by the president of Russia with concrete programs.

Second, in case of unilateral implementation of the new plan on building BMD in Europe as proposed by the Barack Obama Administration, the absence of such cooperation will inevitably cause another BMD crisis between Russia and the West as the weapons within the BMD acquire strategic potential. Notably, a new crisis will have an even more acute and devastating character.

Third, despite the tough and well-tried measures taken by the members of the nuclear club to prevent unauthorized or accidental single missile launches, there is no hundred per cent guarantee that such launches will be always prevented. This issue is even more relevant for other existing and potential nuclear and (or) missile states. Therefore, it does make sense to protect against such cases.

Fourth, history shows that the relations between states may deteriorate quite drastically (especially in case of unstable, radical regimes), turning non-hostile nuclear missile capabilities into a key national security threat. This was the case with the USSR-China relations in the 1960s-1970s and with the US-Iranian relations in the 1980s.

Finally, even if Iran and the DPRK do not turn into Russia's enemies, Iran with its nuclear missiles and DPRK by further developing its capabilities may potentially destabilize the situation both regionally and globally, causing a chain reaction of proliferation (in Saudi Arabia, Syria, Turkey, Egypt, Libya, Japan, South Korea, Taiwan) that would create a threat for Russia as well.

For the past four decades, ballistic missile defense was a major area of strategic rivalry in the USSR/Russia-US relations. In the new environment, with due wisdom and political will, ballistic missile defense could become a major positive factor for the consolidation of efforts of the great powers and their allies on addressing new global security challenges.

III.2. STRATEGIC OFFENSIVE CONVENTIONAL WEAPONS

According to Russia's new military doctrine released in February 2010, one of the key tasks of the Russian Armed Forces is "to ensure the air defense of most important military facilities of the Russian Federation and (provide for) readiness to rebuff strikes by means of air and space attack".[73] Considering that there are currently no orbital weapons, and there is no prospect that they will appear in the foreseeable future, the notion 'means of air and space attack' apparently relates to conventionally armed cruise missiles and ballistic missiles, with high precision guidance provided by space information systems.

In the Russian expert community, including reports by the institutes of the Ministry of Defense, articles in, specialized magazines and newspapers, there have been plenty of comment on the increasing number and improved efficiency of such weapons in terms of a potential attack against Russia, particularly a disarming (counterforce) strike against its strategic nuclear forces, missile early warning systems, and combat command centers.[74] Moreover, Russia's senior military officials regularly declare the existence of this threat, the necessity to mobilize resources in order to counter it, and the critical lack of relevant capabilities, as an indisputable truth.

For example, Colonel-General Alexander N. Zelin, Commander-in Chief of the Russian Air Force said: "The development of anti-aircraft, missile and aerospace defense is a priority in building the Russian armed forces". He left no doubt, that he was not meaning defense against individual attacks from irresponsible regimes or terrorists: "I am not referring to the S-400 air defense systems that the five anti-aircraft missile regiments will be equipped with, I am talking about much larger numbers, and I also mean S-500s", designed to destroy ballistic missiles and their warheads, manned and unmanned aerial vehicles at all altitudes –from outer space to extreme low altitudes.[75]

General of the Army Anatoly Kornukov, Former Commander-in-Chief of the Russian Air Force says: "Presently, an airspace attack is a sure card, and when it is played, the game ends very fast. …Russia's eventual adversaries are intensively developing airspace offensive and defensive weapons. They are preparing, while we are sitting on our hands. Aerospace defense is intended for sending a warning of a proper rebuff to a potential aggressor".[76] As former Chief of Armaments of Russia's Armed Forces, Colonel General Anatoly Sitnov put it, "…They

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[73] The Military Doctrine of the Russian Federation. February 5, 2010. (Available in English at http://www.sras.org/ military_doctrine_russian_federation_2010).

[74] See: Храмчихин А. Диагноз: отечественная ПВО в развале // Независимое военное обозрение. № 6, 19-25 февраля 2010 г.

(Khramchikhin A. Diagnosis: national air defense in ruins // Nezavisimoye voyennoye obozreniye, # 6, February 19-25, 2010).

[75] Военно-промышленный курьер, № 28(344), 21-27 июля 2010 г., С. 1.

(Voyenno-Promyshlenny Kurier, # 28(344), July 21-27, 2010, P. 1).

[76] Владыкин О. Прорехи космической защиты // Независимое военное обозрение, № 18, 21-27 мая, 2010 г. С. 3.

(Vladykin O. The Holes in Space Defense // Nezavisimoye voyennoye obozreniye, # 18, May 21-27, 2010. P. 3).

were telling us, that we were not to engage in the militarization of space. So we quit, and the US took up the ball… All the experience we once had and then lost, is now being successfully used… by other parties, while we are trailing behind".[77]

This issue has invariably been the subject of extensive and detailed discussions in a number of military periodicals for quite a time. The discussion is based on the common assumption that the US and their allies represent the key threat in terms of an air-space attack. Indeed, The Vozdushno-Kosmicheskaya Oborona (Aerospace Defense) periodical, the mouthpiece of this establishment, expressly declares that "in the military political sense, airspace defense is one of the key factors of ensuring strategic stability, a deterrent against potential adversaries unleashing armed conflicts, a means of preventing the conflicts from escalating to a conventional and a nuclear war." In addition, to leave no doubt about the identity of the adversary, the periodical emphasizes "the survivability of basic main forces of the Armed Forces while countering massive strikes (emphasis added) of airspace attack weapons with no significant loss in efficiency within the required period of time" as the main requirement to aerospace defense.[78]

The selection of similar extracts may indeed be very long. This testifies to the fact that in the top echelons of the Russian military establishment, the military-industrial complex, as well as among the vast majority of the country's expert community there is an explicit perception of a new and increasing threat from the US and their allies. This is a perception that receives no reaction from Washington and runs counter to Moscow's current foreign policy to promote cooperation with the West. Meanwhile, the perception is gradually taking root in Russia's military policy and is sure to affect the US-Russia strategic relations in the long term.

High-precision conventional weapons. Statistics shows that high-precision weapons are playing an increasing role in armed conflicts. Guided air bombs and missiles accounted for only 2 percent of the total ordnance dropped by American aviation during the Vietnam War in 1972, 8 percent of the total during the first Gulf War in 1991, around 30 percent in the Allied Force operation in Yugoslavia in 1999, more than 50 percent in the Enduring Freedom operation in Afghanistan in 2001-2002, and more than 60 percent during Operation Iraqi Freedom in 2003.[79]

As Russian experts claim, "the high-precision weapons in the US armed forces' arsenal today can be used to destroy a wide range of targets, including hardened fixed facilities (underground bunkers, reinforced structures and bridges), and mobile armored targets (tanks, armored vehicles and artillery). With due targeting, the existing types of cluster bombs can effectively destroy mobile land-based ICBMs. High-precision weapons could also pose a threat to existing silo-based launchers".[80]

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[77] Ibid.

[78] Борзов А. ВКО: Пора прекратить терминологические дискуссии // Военно-космическая оборона, № 4 (53), 2010. С. 16.

(Borzov A. VKO: It's Time We Stopped Terminological Discussions // Vozdushno-Kosmicheskaya Oborona, # 4 (53), 2010, P. 16).

[79] Watts B.D. Six Decades of Guided Munitions and Battle Networks: Progress and Prospects // Center for Strategic and Budgetary Assessments, March 2007, P. 20.

[80] Myasnikov E. Counterforce Potential of High-Precision Weapons // Nuclear Disarmament: New Technology, Weapons and Treaties / Edited by A. Arbatov and V. Dvorkin. Moscow, 2009. P. 107.

In the opinion of the authors of this work, using high-precision weapons as a means for a counterforce strike may be possible only when the attacking country is confident that this kind of large-scale surprise strike will be effective. The current US decisions concerning strategic programs are only adding to Russia's fears. The program documents released by the US Department of Defense give high-precision weapons and the related information technology and infrastructure development a key role. New concepts and principles are emerging, objectively aimed at expanding the range of applications for nuclear weapons. Meanwhile, non-nuclear high-precision weapons are gradually taking over the missions that were initially assigned to nuclear weapons.[81]

The appearance of the new US Prompt Global Strike operational strategic concept is an example of this tendency. Under this concept, the US is to maintain the capability of inflicting high-precision strikes from a great distance against targets in any corner of the globe in a minimum amount of time.[82] This program also includes converting part of the strategic delivery systems towards non-nuclear use.

The US is known to have converted some of its strategic bombers for non-nuclear missions as early as in the 1990s. The US Navy is currently completing the retrofitting of four Ohio-class nuclear ballistic missile submarines, equipping them to carry non-nuclear long-range sea-launched cruise missiles. In addition, the US Air Force and Navy are pursuing research on the development of effective conventional warheads that can be delivered by strategic ballistic missiles. Until recently large-scale deployment of these weapons has only been contained by the restrictions imposed by US Congress.[83]

By 2007, the US Air Force had 94 B-52H, 67 B-1B and 20 B-2 bombers.[84] The Air Force is planning to maintain the fleet of B-2 and B-1B aircraft in the medium term while reducing the fleet of B-52H bombers to 56, of which 44 will be kept at combat ready.[85] There are no current plans to buy new strategic bombers. Research engineering on the development of the next generation of planes in this class is currently underway. The new planes are expected to enter service no later than 2035.[86] All of the US Air Force's strategic bombers are based on US territory. However, in case of an armed conflict, the airfields of the US allies can

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[81] Обзор состояния и перспектив развития ядерных сил США // Зарубежное военное обозрение, № 4, 2002 г., С. 2-20.

(Overview of the Situation and Development Prospects of the US Nuclear Forces // Zarubezhnoye Voyennoye Obozreniye, # 4, 2002, PP. 2-20).

[82] Gen. Cartwright J.E., Commander, US Strategic Command, Statement Before the Senate Armed Services Committee Strategic Forces Subcommittee on Strategic Forces and Nuclear Weapons Issues in Review of the Defense Authorization Request for Fiscal Year 2006, April 4, 2005.

[83] Дьяков А., Мясников Е., «Быстрый глобальный удар» в планах развития стратегических сил США. Центр по изучению проблем разоружения, энергетики и экологии при МФТИ, 14 сентября 2007 г., С. 9. (Dyakov A., Myasnikov E., "Prompt Global Strike" as part of the Plans on the US Strategic Forces Development. Center for Arms Control, Energy and Environmental Studies at Moscow Institute of Physics and Technology, September 14, 2007, P. 9).

[84] Young Susan H.H., Gallery of USAF Weapons. Air Force Magazine, May 2007.

[85] Statement by Maj. Gen Roger Burg before the Senate Arms Services Committee, Subcommittee on Strategic Forces, March 28, 2007.

[86] Statement by Maj. Gen Roger Burg before the Senate Arms Services Committee, Subcommittee on Strategic Forces, March 28, 2007.

also be used. For example, the B-52H and B-1B planes that were used in the NATO military operation in Yugoslavia in spring 1999 were operating from Britain.

In the foreseeable future, the maximum number of the US high-precision long-range cruise missiles on strategic delivery vehicles and attack nuclear submarines may reach a total of 2,900 units.[87] It is possible to assumed that only hard-to-detect delivery systems may be used to carry out disarming strikes (Stealth-type planes, submarine-launched and air-launched cruise missiles). The potential for using air bombs and air-to-surface tactical guided missiles against strategic targets is limited by their range, which does not exceed 300 kilometers. To attack strategic targets, delivery systems for such weapons would have to operate within zones well protected by enemy air defenses. Therefore of all the existing delivery systems this mission can only be fulfilled by the 'invisible' strategic B-2 bomber.

If the programs of deployment of ballistic missiles with conventional warheads proposed by the US Navy and Air Force are implemented, the number of weapons posing a potential threat to Russia's strategic nuclear forces may increase by another 100 to 200 units.[88]

While keeping a watch on the implications of high-precision weapons development, it would be wrong to go to the other extreme and overstate their effectiveness as weapons for counterforce strike against Russia and, therefore, as a force undermining the country's nuclear deterrence potential. In this scenario, both political and operation-strategic aspects of the issue should be taken into account.

Airspace attack threat: political aspects. Twenty years after the end of the global confrontation, the Russian military minds arrived at an unexpected conclusion: there is no Cold War, therefore the nuclear war is unlikely. Therefore, there is a possibility of a war of the United States and their allies against Russia using high-precision conventional weapons in an airspace attack. To counter such an attack Russia apparently needs effective air and missile defense weapons to cover its strategic forces, general-purpose forces and all the areas where the administrative-industrial centers are located.

Besides, any defense would be virtually useless in terms of protection against nuclear missiles, given the tremendous absolute destruction power of even the few warheads that manage to get past the defense. A different situation arises with high-precision weapons: the more weapons of this class are intercepted, the more will be Russia's advantage in the operation, including the power of its nuclear retaliation.

Apparently, this scenario results from mechanical extrapolation to Russia of the NATO operations in Yugoslavia in 1999 and in Iraq in 2003. However, Rus-

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[87] Counterforce Potential of High-Precision Weapons / Nuclear Disarmament: New Technology, Weapons and Treaties. Edited by A. Arbatov and V. Dvorkin. Moscow, 2009. PP. 105-128.

[88] The current plans of the US Navy include the deployment of up to 4 conventional warheads on each of the 28 Trident SLBMs (with each of the 14 submarines equipped to carry 2 SLBMs). The US Air Force is considering the possibility of deploying several tens of Minuteman II or MX conventional ICBMs.

See: Дьяков А., Мясников Е., «Быстрый глобальный удар» в планах развития стратегических сил США. Центр по изучению проблем разоружения, энергетики и экологии при МФТИ, 14 сентября 2007 г., С. 9. (Dyakov A., Myasnikov E., "Prompt Global Strike" as part of the Plans on the US Strategic Forces Development. Center for Arms Control, Energy and Environmental Studies at Moscow Institute of Physics and Technology, September 14, 2007. P. 9).

sia's recent Military Doctrine does not provide any specific scenarios of such a conflict, and therefore leaves much room for guesswork. Another mystery is why the escalation of such a conflict to the nuclear level is currently perceived as less probable, while during the Cold War it was viewed as an inevitable outcome.

At any rate, the Russian military minds in their conclusions proceed from the assumption that the US and their allies continue to be Russia's potential adversary and have inherently aggressive intentions. In addition, they keep in mind the development of modern military infrastructure and the recent experience of the largest-scale operations of the world's leading powers.

Meanwhile, it seems that the Russian political leadership declares the new foreign policy principles and priorities (globalization and interdependency, the new Euro-Atlantic security architecture, partnership for modernization, achieving a world free from nuclear weapons, etc.), disregarding the diametrically opposed implications of the military policy, including the Aerospace Defense Concept approved by the President of Russia in 2006, the recent Military Doctrine of 2010 and the State Arms Procurement Program for 2011-2020.

In particular, the Kremlin and the Government of Russia are apparently not a bit embarrassed by the fact that the country's military policy relies upon the assumed possibility of a global war between Russia and the West involving the use of conventional armed forces and weapons and, subsequently, of nuclear weapons. True, provisions related to peaceful resolution of conflicts, curbing wars and disarmament are scattered all about the text of the Military Doctrine. However, they dovetail perfectly with its basic ideas.

The line of military policy should not run through some independent plane exclusive from the plane of foreign policy and the economic strategy of the leadership. Russia's military policy, foreign policy and economy are inseparable in the long-term perspective, and either of them will be the one defining vector of the national security.

Airspace attack threat: technological and strategic aspects. Aside from discussions as to the relevance of the airspace attack scenarios from the political perspective, the military aspects of the issue require a more detailed analysis.

Indeed, some targets that could previously be attacked only by nuclear weapons may now be attacked by high-precision weapons. However, it its evident that despite the popular newfangled assertion, conventional high-precision weapons cannot be reasonably compared with nuclear weapons in terms of effectiveness in case of a strike at strategic hardened or mobile military objectives, let alone administrative and industry centers.

For example, given the accuracy and yield of the current US nuclear warheads (300-500 kilotons in W-87/88 missiles and Minuteman III and Trident II), each adversary's launching silo is assigned maximum two warheads, positioned in such a manner that prevents the explosion of one warhead from damaging or distracting the other one. Therefore, if the missile does not fail during its flight, one can be 100 percent certain that the launching silo will be disabled, as it will inevitably fall within the range of the crater.

As to land-based mobile ICBMs, their main threat is the high-yield warheads on part of Trident II missiles (400 warheads on W-88-type missiles) covering a huge part of the operational deployment area of Topol, Topol-M and Yars ICBMs. The airfields of heavy bombers and bases of strategic nuclear submarines

need not even be mentioned, as no surface-to-air missiles or fighters may prevent a strike by nuclear ballistic missiles. Maintaining durable deterrence implies an increased focus on mobile missiles, further development of missile early warning systems and control systems, and withdrawal of the submarines and aircraft from the non-survivable bases in a crisis.

The situation is totally different for conventionally armed cruise and ballistic missiles: the target destruction effectiveness must be verified since further strikes may be required. The electro-optical reconnaissance satellites will pass this point once in a few hours, at best. The information received from these satellites has to be analyzed to coordinate further strikes. In terms of missile release lines, conventionally armed cruise missiles are strictly limited by their maximum range (1,800 kilometers). In addition, the flight-in-time of Tomahawk subsonic cruise missiles is 1.5 hour (while SLBMs and ICBMs have the flight-in-time of 15 to 30 minutes). Reconnaissance and target-setting would require vast numbers of long-range unmanned aerial vehicles (UAVs), which would themselves be vulnerable during their prolonged air patrolling missions.

Another way to fight cruise missiles and SLBMs is to use electronic warfare, other active interference and decoy systems, etc. Finally, they may be destroyed not only by S-300 and S-400/500 surface-to-air missiles or Su-27/35 and MiG-29/31 fighters. Rapid-fire anti-aircraft artillery rocket systems, such as Pantsir convoying the mobile missiles and protecting the launching silos, will be sufficient.

As to massive high-precision weapons strikes against industry centers, this scenario appears even more absurd. Indeed, a prolonged massive attack by high-precision weapons on oil refineries, chemical factories and storage facilities, hydroelectric power plants and transportation hubs, not to mention nuclear power plants and nuclear cycle facilities, and nuclear weapons and radioactive materials storage facilities, would be equal to a WMD attack. If the US were the target of such an attack, it would no doubt resort to a retaliatory nuclear strike, so there is no need to apply other standards to Russia.

In a hypothetical limit, with a full load of high-precision weapons carried by their heavy bombers, multifunctional vertical launching systems of surface ships[89] and attack submarines, four strategic Ohio ballistic missile carriers, as well as part of its ICMBs and SLBMs, the United States could deploy up to 12,000 long-range cruise missiles and conventional warheads on ballistic missiles. Is it a large or a small amount?

It will be remembered that in a war against Yugoslavia in 1999, NATO used 15,000 air attack weapons, of which 30 percent accounted for high-precision weapons. In 2003, the US showered even more bombs and missiles on Iraq, with high-precision weapons comprising 60 percent of the total amount. In case of a strike against Iran or DPRK, much larger arsenals will be required. However, all these conflicts are absolutely incommensurable with a hypothetical large-scale war against Russia.

Unlike a nuclear counterforce strike, the mass use of high-precision weapons will require quite lengthy preparations (even operations against much weaker adversaries, such as Iraq, Yugoslavia and Afghanistan, required several months).

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[89] In point of fact, in conventionally armed surface ships SLCMs comprise only around 30 percent of the combat load of the vertical launching system, the remaining 70 percent accounts for anti-submarine and air-defense missiles.

It would be impossible to conceal these preparations, and the other party will have enough time to bring its nuclear assets, missile warning systems, combat control systems and general-purpose forces into advanced alert.

Further, unlike a counterforce strike, a high-precision weapons operation against strategic forces would take much longer (at least several days rather than several hours). Thus, in the course of the operation, the attacked party would have an opportunity to use its surviving strategic nuclear forces in line with its declared military doctrine. Moreover, the aggressor can never be certain that its attack with only high-precision weapons would not provoke a nuclear response, not to mention the fact that at the initial stage the missile warning systems would not be able to distinguish between a non-nuclear and a nuclear missile attack.

It turns out that deciding on the massive counterforce strike, the aggressor will have to stick to conventional weapons and will consciously run the risk of getting a much more powerful nuclear retaliation than in case of a disarming nuclear strike. Therefore, it is assumed that the US would take this risk in a phantasm of hope that Russia will never resort to a nuclear strike in response to an aggression with massive use of high-precision weapons.

However, there is no evidence of the fact that the US policy-makers and generals are prone to such reckless behavior. Worthy of mention is the utmost cautiousness – despite all the provocative actions of Pyongyang – in their approach to the issue of using force against the DPRK possessing only a couple of primitive nuclear devices without delivery vehicles.

An additional source of uncertainty for the potential aggressor is Russia's tactical nuclear weapons: they are much more difficult to rapidly search and destroy, and they can deliver strikes at the US forward bases and advanced navy and air force groups involved in the airspace mission (according to experts' estimates, Russia currently has up to 1,400 nuclear bombs, missiles and torpedoes of the Navy, naval and frontline aviation).

Finally (and most importantly), there is a colossal risk of a nuclear escalation triggered by a high-precision weapons attack that is disproportionate to the real or expected gains of such an operation, especially with the Cold War over and the major powers moving towards greater economic, social and environmental interdependence, whatever the specific antagonisms between certain nations.

Disarmament and the issue of high-precision weapons. Nevertheless, it is obvious that the US high-precision weapons capability represents certain problem for Russia in military and strategic perspective. As long as Russia has considerable nuclear deterrence capability, direct military threat of massive use of high-precision weapons against it should not be exaggerated (neither should the capability of the planned US BMD to hold off a retaliatory nuclear strike). Hence, Russia should use the limited funds allocated for defense for maintaining an optimum deterrence capability, rather than developing a layered network of air defenses to counter invented threats.

Russia needs a ramified missile and air defense to counter a much more real threat of unintended or provoking multiple and single missile strikes on the part of new nuclear-weapons and missile countries, and terrorists' air attacks (including those involving cruise missiles with generally accessible space navigation and airplanes carrying WMD). Such Russian defense systems could be integrated

with the US and NATO BMD and air defense and comprise common elements and programs. Such cooperation would greatly benefit both parties.

Yet, the deployment of long-range high-precision non-nuclear weapons would also hamper nuclear disarmament and cooperation of the powers.

Firstly, the US shifting their strategic resources (primarily cruise missiles) from strategic nuclear forces to the sphere of strategic high-precision weapons and removing such resources from the scope of limitations set forth for strategic offensive arms would inevitably bring about serious objections on the part of Russia as early as at the next stage of negotiations on strategic arms reductions. One can hardly expect that Moscow consents to lowering the threshold for strategic nuclear forces, for example, to 1,000 warheads, while the US possesses up to 3,000 conventional warheads on strategic platforms (converted SSBNs and HBs) and up to 2,000 conventional warheads on tactical platforms (ships and nuclear submarines).

Most likely, Moscow would maintain its strategic nuclear assets at the levels provided for by the new START Treaty (1,550 warheads) and retrofit them within these limits for the next generation of systems. Like the prospect of unilateral BMD deployment by the US and NATO, the deployment of long-range high-precision weapons would become an obstacle to nuclear disarmament at strategic level.

Secondly, besides NATO's superiority over Russia in general purpose forces in Europe, the deployment of high-precision weapons would hinder negotiations on Russia's and the US non-strategic (operative-tactical) nuclear weapons (TNWs). Moscow would consider such weapons as a counterbalance to the US high-precision weapons (as a means of striking against forward bases of the US air force and groups of navy) and an asymmetrical deterrent of the “threat of aerospace attack”. There is an opinion that the use of TNWs at early stages in response to aggression with the use of high-precision weapons is more likely than mounting a retaliatory strike with strategic nuclear forces (which would provoke the other party to mount strategic nuclear strike).

Thirdly, the deployment of the US high-precision systems would constitute an additional obstacle to the US-Russian BMD cooperation. As it has already been mentioned, today Russian military community views the development of missile, air and aerospace defense primarily as a means of “holding off an aerospace attack” rather than a means of defense against the missiles of rogue states or terrorists. The former obviously means aggression from the part of the US and its allies.

With this attitude of the military agencies and the military industrial complex of Russia, one can hardly expect it to engage in meaningful political cooperation with the “potential aerospace aggressor”, even if Russia's political leadership decides so. The military establishment would find a huge variety of ways and pretexts to obstruct such undertakings, guided by their own understanding of the country's security interests. (In fact, a similar attitude can also be expected from the part of the US military industrial complex striving to retain for the US the maximum freedom to develop BMD and to protect sensitive technologies).

At the same time, it would be absolute nonsense, in operative and technical perspective, for Russia to simultaneously develop two BMD systems: a joint NATO-Russian system for the defense against third countries and terrorists, and a system against NATO to counter its possible aerospace attack.

Possible legal-treaty solutions. With respect of US high-precision weapons, the new START Treaty has already made some progress. It has been agreed to apply the same counting rules to ballistic missiles with conventional warheads and to nuclear missiles (Article III), which prevents large-scale deployment of SLBMs and ICBMs with conventional high-precision munitions. Yet the issue of long-range cruise missiles with high-precision weapons will remain unsolved till further negotiations on arms limitation, confidence-building and transparency measures. In fact, the US strategic nuclear forces will be largely reduced not only through "offloading" a part of re-entry vehicles from missiles with multiple reentry vehicles, but also through retrofitting of some strategic submarines and bombers for non-nuclear cruise missiles.

If the parties exercise due political will, the problems caused by high-precision weapons can be resolved or eased by means of legal agreements. This implies, in particular, a ban on basing strike aircraft (in addition to non-placement of nuclear weapons) in the territories of the new NATO members. Russia may assume similar obligations with respect to its CSTO and CIS allies.

The hypothetical threat posed by the Ohio SSBNs equipped with SLCMs may be considerably diminished if such submarines are based on the US Western coast only (when in the Pacific and Indian Oceans, most of Russian ICBMs bases remain outside their range, while passage for deployment in the Arctic Ocean entails operational difficulties).

Generally speaking, massive development of high-precision weapons cannot be stopped, due to its effectiveness in contemporary remote control wars against local adversaries. Russia will almost certainly pursue this course; it officially names scaling up high-precision weapons and its information support systems (including space-based ones) as a top priority of its armed forces modernization. At the same time, for local operations, no country needs possessing increasingly long-range high-precision weapons and accordingly retrofitting strategic platforms capable of covert deployment for massive attack. Local adversaries would hardly have efficient reconnaissance, detection and early warning systems to counter such systems in contrast to the leading powers.

For these reasons, during further strategic offensive arms negotiations Russia can decisively raise the issue of limiting the retrofitting of SSBNs and HBs to carry non-nuclear cruise missiles, keeping attack submarines, surface ships and tactical aircraft for these purposes.

It would also be helpful to introduce confidence-building measures involving the exchange of information on the practice of deploying high-precision weapons on ships, submarines and aircraft, on operational principles of their deployment and use in local conflicts, the exchange of visits and observers to attend military exercises. Subsequently, in the longer term, joint air force and navy exercises in operations of counter-proliferation, peace-enforcement, counter-terrorism and fighting sea piracy, could be held. As the US claims that their massive introduction of high-precision weapons is aimed against third countries and terrorists, Russia may insist on extensive confidence-building and cooperation measures, if it is ready to do that on a reciprocal basis.

Farther reaching measures could involve limiting the patrol areas of submarines carrying cruise missiles, in order to prevent possible deployment of major part of US submarines in the vicinity of Russia's territory and vice versa. This

would also resolve other issues which had been repeatedly raised by Russia in the course of negotiations on strategic offensive arms (banning covert anti-submarine activities in SSBNs deployment and patrol areas and the prevention of collisions of nuclear submarines).

The extension of this ban to submarines carrying nuclear and conventional ballistic missiles (due to the difficulty of distinguishing between the types of submarines when submerged) would additionally increase the stabilizing effect of such arrangement. More specifically it would limit the counterforce strike assets with a short flight time, and would reduce incentives to keep strategic nuclear forces on high alert for a launch-on-warning strike upon receiving information from the missile attack warning system.

Certainly, it would be very difficult to verify compliance with such an agreement, given that stealth is the main advantage of submarines. Yet with the required will, solutions can be found in this area, too. For example, the parties could agree for submarines to surface in response to a request from the other party, and there could be an agreed annual quota for such requests. With the help of reconnaissance satellites, the parties will know approximately which of the other party's submarines are away from their base at any given time. This would make the risk of violations being discovered quite high if, upon Russia's request to the US national command, a submarine surfaces on the order of the latter in a prohibited area or does not surface at all.

Such an arrangement could turn out to be helpful in any case, as third countries develop their submarine fleets, and there is a danger of a provocative strike with SLBMs or SLCMs from underwater or from a surface vessel.

In any case, it is obvious that it is up to the US who created the problem, to take initiative and propose arms limitation, confidence-building measures and measures of cooperation on high-precision weapons, in order to encourage Russia's course towards nuclear disarmament and non-proliferation.

In a certain sense, despite all the technical differences between them, high-precision weapons can be compared to missile defense and space systems in terms of their military and political consequences. Originally developed to combat enemies more effectively at the regional and local level and to counter WMD proliferation and international terrorism, these weapons have begun to have a destabilizing effect on military and political relations of the US, Russia and other great powers.

In so doing they have started to undermine the nuclear non-proliferation regime and the prospects for cooperation among countries to counter common security threats. This was inevitable with the great powers maintaining relations based on mutual nuclear deterrence and developing new weapons systems (and using them locally) on a unilateral or alliance basis.

Like the prospective development of missile defense and space weapon systems, the development of high-precision weapons would create even greater obstacles to the progress towards complete nuclear disarmament.

However, if the parties concerned show political will, they can resolve or alleviate the problems created by high-precision weapons through a range of possible arrangements and legal means. They should agree upon ways to do that at the following stage of negotiations on strategic offensive arms reductions, or in parallel to it.

III.3. SPACE WEAPONS

Outer space as a theater of military operations. Ensuring the security of military, dual-purpose and civil orbital systems has become a key element of overall security for virtually all the developed countries. Besides military support space systems, space vehicles ensuring telecommunications and Earth surface monitoring play a crucial role. Orbital systems are vital for supporting financial and economic activities in a globalizing world, as the majority of such operations are already employing space communication and relaying systems.

Space systems have become an integral part of the military assets of armed forces of the leading countries. The lack of space facilities renders the developed countries' modern warfare inefficient. Space reconnaissance, navigation, communications, and command systems contribute most. In general, the military SVs account for about 40 percent of all orbital spacecraft. Overwhelming majority of military satellites belong to the US, as the US expenditures for military space programs far exceed those of all other space-faring states together (and those of Russia, by about 20 times at commercial exchange-rate[90]).

Currently, there are 125 countries that conduct outer space activities. The US and Russia are the leaders in this field, with France, China, Japan, Germany, the United Kingdom, Canada, the Netherlands, Belgium and Spain playing a growing role. India, Pakistan, Argentina and Egypt are becoming increasingly active. About 780 space vehicles (SVs) operate in the near-Earth space, of which 425 belong to the US, 102 to Russia, and 22 to China.[91] By 2015, the overall number of spacecraft may increase by over 400 SVs.

With the conflicting nature of today's international relations and political and military contradictions among the leading powers and alliances of states, and in view of the rapid advances in science and technology, outer space, given increasing significance of its military and peaceful exploitation, may in the foreseeable future turn into a new arena of arms race and potential use of force. This would pose an increasing threat for international security and entail immense expenses, which is especially hurtful in the situation of financial and economic crisis and the globalization of the world economy, politics, communications and information space.

Space weapons programs. History and present time. The space has become a “transit” zone and a weapons test area as far back as in the 1950s-1960s; first for nuclear weapon tests, then for flights of ballistic missiles, and then, of their interceptors of missile defense systems. Yet, apart from several experiment series and some anti-satellite weapons systems (ASAT) which were deployed and subsequently decommissioned by the USSR and the US, the large-scale militarization of space has never begun, at least with respect for the deployment of weapons for use in and from the space.

The first active steps to develop space weapons both in the USSR and in the United States date back to the early 1960-s. Their essence was very much the same.

The Soviet Union developed an IS anti-satellite system (satellite destroyer, Istrebitel Sputnikov), an analogue to the US SAINT (Satellite Inspection Tech-

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[90] Ibid.

[91] Военно-промышленный комплекс. Энциклопедия. Том 1. Москва. 2005. (Military Industrial Complex. Encyclopedia. Volume 1. Moscow. 2005).

nique) project designed for kinetic energy intercept of important and hardened space vehicles at low-orbit operation zone. All the main elements of this complex were developed by 1967 its tests began in October 1967 and lasted until the next decade. In February 1973 the IS complex was commissioned for an experimental service. It could intercept space vehicles at the altitude of 250 to 1000 km. Subsequently, the complex was upgraded, with the altitude of intercept increased, and in 1978 put into service under the designation of IS-M. In April 1980, the Soviet Union resumed the tests of this anti-satellite system (under the designation of IS-MU). A total of 20 flight experiments were held, of which 25 percent involved intercept of real targets. The last test took place on June 18, 1982.[92]

In August 1983, the USSR committed not to be the first to place in outer space any such weapons "while other states refrain from placing their anti-satellite weapons of any type in outer space".[93] The IS-MU complex had remained in service until 1993, when it was decommissioned by Russian President Boris N. Yeltsin's decree.[94]

Up to early 1990-s, the development of the Kontakt (Contact) airborne missile system had been underway; it was designed to intercept space vehicles at altitudes of up to 600 kilometers. MiG-31 (Foxhound) fighter-interceptor aircraft were to be used as carriers. However, as the funding ceased, the tests have never been completed.

Top projects, decision on which had been made as far back as in late 1970-s included the development of the Kaskad and the Skif orbital ASAT systems equipped with missiles and laser weapons. Nevertheless, the experts managed to convince the Soviet leadership that orbiting and testing such combat space systems would bring about a disproportionate response from the US in the development of space weapons, which would drastically deteriorate strategic positions of the USSR.

In 1980-s the Soviet Union's rapidly expanded the works on space weapons as a result of launching of the US Strategic Defense Initiative (SDI) announced by President Ronald Reagan on March 23, 1983. In the short term SDI posed no threat to Soviet nuclear deterrence capability. At the same time, the announcement of SDI

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[92] Молчанов Б. Милитаризация космоса и космические вооружения / Ядерное распространение. Новые технологии, вооружения и договоры. Под. ред. А. Арбатова, В. Дворкина. М.: РОССПЭН. 2009.

(Molchanov B. Militarization of Outer Space and Space Weapons / Nuclear Proliferation: New Technologies, Weapons, Treaties. Edited by A. Arbatov and V. Dvorkin. Carnegie Moscow Center. ROSSPEN. Moscow, 2009;

Тарасенко М.В. Военные аспекты советской космонавтики. Москва. ТОО Николь, Агентство Российской печати, 1992.

(Tarasenko M. Military Aspects of Soviet Cosmonautics. Moscow. TOO Nikol, Agentstvo Rossiyskoy pechati, 1992).

[93] Черкас С.В. Современные политико-правовые проблемы военно-космической деятельности и основы методологии их исследования. МО РФ. Москва, 1995.

(Cherkas S. Modern Political and Legal Issues in Military Space Activities and the Bases of Their Research Methodology. Ministry of Defense. Moscow, 1995).

[94] Космические средства вооружения. Энциклопедия XXI век. Оружие и технологии России, Издательский дом «Оружие и технологии». М. 2002.

(Space weapons. 21 century Encyclopedia. Weapons and Technologies of Russia. 'Oruzhie i Tekhnologii' publishing house. Moscow. 2002).

served as a strong encouragement for the powerful military industrial complex of the USSR, whose interests were also almost immediately lobbied by senior military officials. In 1985 Soviet development projects were divided into those related either to symmetrical of asymmetrical response and grouped into SK-1000, D-20 and SP-2000 programs.[95] The SK-1000 program titled "Multipurpose Combat Space System" comprised over 20 strike space systems projects and about as many projects relating to information support of space and earth-based combat systems. A project titled Naryad-B designed to intercept certain space vehicles and based on the SS-19 ballistic missile system, advanced as far as the interim stage of flight test. The task of orbiting components of space battle stations for their further assembly on the orbit was one of the compelling reasons that prompted the development of the most powerful Energia-Buran shuttle orbiter.

As for space information systems, a number of projects for communication, intelligence gathering, relaying, navigation, missile attack early warning, and space surveillance have been completed successfully.

Russia is currently unable, and it will remain so, to conduct such large-scale symmetrical and asymmetrical projects in the foreseeable future due to many reasons, including the collapse of cooperative ties among the military corporations and limited financial resources. However, in case the US deploys ASAT weapons, certain part of these projects, especially those related to asymmetrical response, may be revived despite additional burden on the national budget.

The US commenced work on ASAT systems in 1957. The most significant program was developed in the late 1970-s and early 1980-s. The system was based on F-15 fighter aircraft armed with SRAM/Altair ASAT system, designed to destroy satellites at altitudes of up to 1000 km. A number of tests were conducted in 1984-1985, including interception of a real target-satellite. The program was curtailed in 1988. The greatest volume of space-related programs originated under the SDI in the mid to late 1980-s. Currently, there are following anti-satellite systems under development, ground- and flight-tested, which are the nearest to completion:

- modified anti-missile (anti-satellite) sea-based Aegis Mk-7 system with SM-3 missiles;
- army land-based mobile systems developed under the KE ASAT program;
- laser anti-satellite and anti-missile air-based ABL system;
- the MIRACL land-based anti-satellite laser to functionally disable vital information SVs.

Research or experiments are underway for the following projects:

- space-to-Earth weapons;
- reusable space maneuvering vehicle (SMV) to perform a wide range of tasks, including anti-satellite missions and destroying ground targets from space;
- space-based electronic warfare;
- space inspection technology using autonomous micro-satellites for the protection of and diagnosis of malfunctions in US SVs, and potentially for destroying spacecraft of an adversary.

[95] Podvig P. The Window of Vulnerability That Wasn't: Soviet Military Buildup in the 1970s-A Research Note // International Security, Summer 2008, Vol. 33, # 1: PP. 118-138.

A range of works is conducted under the ANGELS program (Autonomous Nanosatellite Guardian Evaluation Local Space). This dual-use program lends its results to both electronic warfare and space defense.

The US concepts of weapons for destroying targets on the Earth surface from space were developed simultaneously with the first satellites (the FOBS project to deploy nuclear bombs in space). However, specific projects of such weapons appeared only in 1987. Those are known to include the SBGV (Space-Based Gliding Vehicle) project intended to destroy from space strategic targets, primarily mobile missile launchers and surface ships deep within the enemy's defense perimeter, rapidly and with high precision.

Although there are currently quite a few publications on the development of space vehicles for destroying targets deep within the adversary's territory, it appears doubtful that today there is an operational and strategic rationale for such systems. Most importantly, there are no operational or strategic missions that a space-based or fractionally-orbiting weapon could carry out more effectively than land-, air- or sea-based weapons.

The US assigns an important role to weapons for counter-information in space and from space, in space electronic warfare. That is indirectly confirmed by the measures the US takes to protect its space systems from electronic warfare. In particular, the 76th Space Control Squadron was established within the US Air Force to destroy or disable foreign satellites using land-based active jamming.

Beside the US and Russia, China also engaged in the development of anti-satellite weapons. In 2007, the news broke about the first successful test (after three failures) of an anti-satellite weapon in China. Media reported that on January 11-12, 2007 Chinese FengYun-1-3 space vehicle had been destroyed, and fragments of the satellite were detected. The SV was destroyed over Central China at an altitude of 864 kilometers. Besides, a correlation was revealed between the time of the destruction of the SV and the launch of an intermediate-range ballistic missile from the Xichang missile test range.

Great powers strategic concepts and interests. The existing potential of militarization of outer space can in the foreseeable future be realized by the US, Russia and China. The US holds absolute leadership in this sphere, as it possesses a wide range of state-of-the-art space technologies and scientific and technological capacity for the development of both land-based (fixed and mobile) and sea-based anti-satellite systems after 2010.

The development of such weapons has up to the present moment been envisaged in the US doctrines, with the rationale provided for in the US space policy. In particular US Space Command Long Range Plan Vision for 2020 specified the following priority actions:[96]

- the development of means and methods for the comprehensive control of space;
- the search for new forms and means of carrying out global military operations (including the potential capability to use force from space in any part of the world) and the attainment of full functional interoperability of space, land, sea and air forces;

[96] Howell M. Estes III General. Long Range Plan (Executive Summary). Commander in Chief, US Air Force, March 1998.

- the massive application of information technology in promising instruments of war at all levels of military operations.

In January 2001, the Commission on Space, authorized by the US Congress, strongly recommended that the United States maintain the capability of deploying weapons in space, and defined three possible tasks that space weapons should perform:

- protecting existing US space systems;
- preventing the adversary from using space and space systems;
- carrying out strikes from space against any targets on land, at sea, or in the air.[97]

On August 31, 2006, the US President approved the new National Space Policy. This document replaced Presidential Decision Directive NSC-49/NSTC-8 (US National Space Policy) of September 14, 1996, and set the main principles and objectives of the US policy relating to space activities.[98]

Due to the limited financial resources and organizational and technical problems of Russia's military-industrial complex, current Russian space programs are certainly lagging behind American in terms of scale and advancement. However, professional editions and various forums recommend increasingly that Russia develops space weapons. This is explained by the necessity to directly counter the US space systems for the information support of conventional precision weapons today, and the purposes of combating orbiting space vehicles of possible US space missile defense in the future.

There can remain no doubt that the US has been the largest investor of military, commercial and scientific assets in space programs. In this way, both their strategic forces and their general-purpose forces depend to a great and increasing extent on the functioning of SVs of various purposes. This is much less true with respect to Russia, China and other leading military powers of the world. Therefore, the US should, first, be concerned about the security of their orbiting systems much more than any other country. And, second, it would be much more important for the US to ensure the security of its own SVs rather than put under a threat other countries' satellites.

Apparently, this is the primary reason why despite its clear superiority over other powers in the advancement and the diversity of space weapons programs, the US has so far confined itself to separate experiments and tests in the 1980s and the current decade, including the 2008 satellite intercept. Yet Washington has withdrawn its former space defense means from service and never began deploying new operational space weapons, relying on the collateral anti-satellite capability of strategic and theater BMD (GBI, Aegis/SM-3, airborne lasers, etc.).

Inherent vulnerability of SVs (predictability of orbits, difficulty of concealing and passive protection etc.) and greater dependency on space support systems of strategic nuclear forces and general purpose forces, may put the US at a disadvantage in case other countries deploy their own — even less efficient — ASAT systems. Moreover, the range of such countries may go beyond Russia and China, as it has been the case with the proliferation of nuclear weapons and missile tech-

[97] Report of the Commission to Assess United States National Security Space Management and Organization. Washington, DC, 2001.

[98] US National Space Policy // Krasnaya Zvezda. March 5-11, 2008.

nology/ The US initially had a great superiority in these spheres, but now deems the proliferation of these technologies to be the most serious threat to its security.

As for Russia, so far it relied less on orbital systems in the operations of its general purpose forces, yet it plans to actively build-up such space capabilities. China's interests are objectively similar to those of Russia, although its priorities may differ. For example, China might be less concerned over the US space reliant conventional strike assets, while it may be alarmed more than Russia by potential US space missile defense projects, as it has a relatively limited nuclear deterrence capability.

Against this background, the new US National Space Policy approved by President Barack Obama in June 2010 was perceived quite positively. It probably lived up to the expectations of reputable American experts who (apparently bearing in mind serious problems in the international politics and the unprecedented financial and economic crisis) stressed that "the United States has made the greatest investment in space assets and is substantially dependent on them for conducting global military operations. The potential vulnerability of these assets to relatively unsophisticated attack presents a more significant threat than any other danger in space... A ban on space weapons would disproportionately benefit the United States, which therefore has the strongest reason to set and maintain exacting standards of verification".[99]

The extensive document approved by the US President should be studied and taken in consideration by Russia's and other countries experts involved in developing competitive space science, technology and security, including the limitations in international cooperation set forth for the US Federal space programs. It is notable that the new US space policy is aimed at both maintaining the US scientific and technological and security leadership (including accelerated development of reconnaissance, communication, command and navigation systems), and close international cooperation, unimpeded access to space for all countries and transparency with regard to space activities. This is an important difference from the previous Administration's space policy. Besides, it provides for a response to and protection from any intended actions to disable or attack space vehicles or land-based infrastructure supporting space activities.

The new document does not make it clear what anti-satellite weapons programs may be aborted, "frozen", or be further developed, especially taking in consideration the announced need to protect space vehicles and the relevant land-based infrastructure. The status of these programs will be clarified later, as the basic provisions of the new space policy are implemented. It is also stated that the US is ready to consider arms control proposals and concepts, if these are equitable, efficient, verifiable and contribute to the US security.

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[99] Gallagher N., Steinbruner J. Reconsidering the Rules for Space Security. American Academy of Arts & Sciences. 2008. P. 80.

III.4. NONARMAMENT OF SPACE

Draft treaties, subject of agreements and peculiarities of control. Presently, space law does not prohibit placing any types of weapons except for WMD in space. Neither it is prohibited to develop, test and deploy anti-satellite weapons in space. After the US withdrew from the ABM Treaty in 2002, there have been no restrictions on the development, testing and deployment in space of space-based BMD and its components. Besides, there are no prohibitions on the systems and means of countering missile defense, on active and passive satellite defenses, on the deployment in space of anti-optical-electronic and electronic warfare, on conduct of any military-related space experiments, except for hostile environmental modification techniques.

On February 12, 2008, the Russian Federation and the People's Republic of China jointly submitted at the Conference on Disarmament in Geneva the draft Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects (PPWT). This crowned the discussions which had lasted more than five years.

For the purposes of the Treaty, the term “weapon in outer space” means “any device placed in outer space, based on any physical principle, which has been specially produced or converted to destroy, damage or disrupt the normal functioning of objects in outer space, on the Earth or in the Earth’s atmosphere, or to eliminate a population or components of the biosphere which are important to human existence or inflict damage on them”. At the same time, it specifies that a weapon shall be considered to have been “placed” in outer space if it orbits the Earth at least once, or follows a section of such an orbit before leaving this orbit, or is permanently located somewhere in outer space. Hence, this excludes various classes of ballistic missiles from the scope of the Treaty, as they pass through space in order to fulfill their mission (including intercepting a space vehicle) but not follow an orbit around the Earth.

Under Article II of the PPWT, the States Parties undertake not to place in orbit around the Earth any objects carrying any kinds of weapons, not to install such weapons on celestial bodies and not to place such weapons in outer space in any other manner; not to resort to the threat or use of force against outer space objects; and not to assist or induce other States, groups of States or international organizations to participate in activities prohibited by PPWT.

It is also notable that the scope of the Treaty includes only weapons placed in space, and not Earth-to space systems, which are the fastest to develop and may enter service in the near future. Instead, it only deals with space missile defense and ASAT systems and space-to-Earth arms, which will be developed in the distant future, if developed at all. It offers a significant departure from an unrealistic, yet comprehensive Soviet position of the 1980s.

In general, the Russian-Chinese initiative has brought certain positive results, although of a political and propaganda nature, rather than as a practical solution to the problem.

The many years of initiatives and negotiations on these issues demonstrate primarily that among diplomats and experts there is a profound lack of clarity and understanding even regarding the very subject of treaties and legal regulation. In

other words, the main and fundamental task of defining the subject of negotiations has remained unsolved.

There is a more or less common understanding among the experts, that space weapons are instruments of war developed and tested for strikes against any targets and used from space vehicles (i.e. objects that orbited the Earth at least once; other celestial bodies and orbits have not been mentioned so far), and instruments of war developed and tested to strike against space objects (i.e. objects that orbited the Earth at least once).

This means, that existing definition of space weapons refers to their location (space) and/or the location of their targets (space), and not to their particular technical specifications. For example, one can imagine how difficult the disarmament would have been if the subject of limitations or prohibitions were specified as "any sea-based weapons or weapons to strike targets at sea".

In the past, disarmament talks were a success only when able to enshrine (or attain commonly understood) specifications of weapon systems and agreed designations of their kinds and types. At the moment, no such characteristics apply to space arms.

An especially complicated task would be banning directed-energy weapons, primarily lasers. Those can be used both for destroying aircraft, satellites, ballistic missiles and their elements at the flight trajectory, and for detecting, sounding and identifying objects on the Earth surface, under water and in space, for targeting other weapons systems and in the longer term, for promptly transmitting enormous volumes of information, i.e. for communication.

The development and application of means to destroy or disable Earth-based information and command facilities supporting space systems virtually cannot be prohibited, as almost all conventional and nuclear offensive arms, electronic warfare and the systems based on new physical principles may be used for this purpose.

The greatest overlap is associated with strategic missile defense systems of all types of basing, since they have an inherent capability to intercept satellites at the altitudes of up to 1000 kilometers. Except for early boost phase and terminal re-entry phase, missiles intercepted by BMD pass through the same space environment where most SVs orbit with orbital apogees up to 1000 kilometers. The satellites on these orbits move a little faster than the top stages and reentry vehicles of missiles (about 8 kilometers per second and 5–7 kilometers per second, respectively), yet despite this, they are easier to intercept.

Control issues. If the disarmament is to be real, and not confined to declarations and propaganda, it is pivotal and imperative that there is stringent control over the compliance with agreements. In most former and existing disarmament treaties the control focused on deployment and operational service of weapons systems (ABM Treaty, SALT-1 Agreement, START-1 Treaty, INF Treaty, CFE Treaty, CWC, Prague START Treaty). This is also the case with the 1967 Outer Space Treaty (as regards non-deployment of WMD), although it does not provide for any control measures.

The control measures of the mentioned treaties to a much lesser extent apply to weapons testing (the CFE Treaty does not apply to it at all). The only exceptions are the former ABM Treaty and START I Treaty envisaging stringent control over testing (and even prohibiting the encryption of telemetric information), and the CTBT fully pertaining to the tests. As for the development stage prior to

the testing – it remain outside the scope of any treaty besides ABM Treaty, CWC and BTWC, of which the former was prone to great controversies and the latter has never provided for any control.

Unlike other known weapons, the space arms would probably be the most difficult to ban or limit at the stage of deployment and operational service, especially if deployed in outer space, as provided for in the 2008 draft PPWT. It would be an enormous challenge to identify the prohibited satellites carrying weapons among approximately 800 SVs currently revolving on different orbits. It would be an even greater challenge to prove the applicability of the treaty to them without their inspection in outer space or retrieving to Earth (even if the treaty establishes specifications of the prohibited systems rather than their basing and the location of possible targets).

This is also true of prospective small satellites as a means of inspecting SVs on all orbits. Such space on-site inspections or retrieving spacecraft in many cases are technically impossible, dangerous, and are very unlikely to be acceptable for states for reasons of the protection of sensitive military or commercial information. The same presently relates to pre-launch on-site inspections, although in a distant future some cooperative measures of such type might become possible.

As for land-, air-, or sea-based space weapons which are more likely to appear in the foreseeable future (yet are not addressed by the Russian-Chinese draft), the picture is also mixed. The easiest to ban or limit would be systems based on ballistic missile launchers, like former Soviet IS-MU or recent China's vehicle. The experience of agreements on ICBMs and IRBM/MRBMs would be applicable. In case of the airborne systems like the 1980s American F-15 SRAM/Altair system and the Soviet ASAT system based on MiG-31 fighter, it would be very difficult to verify the deployment ban, due to the multi-purpose nature and the large number of such aircraft in operational service, as well as due to the fact that missile-interceptors are small and can be stored in any airfield storage facilities. Certainly, such ASAT systems have particular guidance and control systems, yet their prohibition would "interfere" with the general infrastructure of space complexes, and hence is not be feasible. Limiting the quantity of such systems would be more practicable, yet require greater transparency, agreeing upon functional distinctions of aircraft and missiles, measures to assist control, and permitted ASAT systems basing sites. It may also require the approval of the right of suspect-site inspections at short notice to other air force bases of the parties.

Prospects of agreements on space weapons. Negotiations to ban space weapons can become a practical task, as the whole disarmament process and architecture is revived, especially if President Obama's Administration engages in the revision of the US military space policy. In this case, previous experience and earlier proposed initiatives would require a new approach to the subject, format and ways to regulate through treaties this sphere of military and strategic relations among the space-faring powers.

It should be reminded that the treaties on strategic arms have in practice been based on the balance of the parties' asymmetrical military interests, rather than on their common peaceful intentions (i.e. heavy ICBMs reductions for cruise missiles limitations under START II). As for space, an obvious balance of the

parties' practical interests could be achieved through banning or strictly limiting anti-satellite systems in exchange for space-based BMD (that is, space-based strike systems: interceptors). The first would benefit the US, and the second Russia and China. In this treaty format, technical overlap of ASAT systems and BMD which makes it difficult to ban one and keep the other, would promote measures to limit or ban both of them.

Instead of prohibiting the deployment, initial arrangement could indirectly resolve this task by banning the tests of anti-satellite systems and space-based strike BMD. This would imply tests involving intercept of a real target satellite or a ballistic missile and its elements in flight trajectory, similar to those conducted by the USSR in 1960s-1980s, the US in 1980s and in 2008, and China in 2007. Verification of compliance with such agreement could employ the parties' NTMs, preferably in combination with cooperative measures and certain transparency regime. For instance, the existing format of notifications of all launches, including space launches, could be enhanced and expanded to apply to all activities and experiments involving destructive effect on space objects.

Defunct satellites representing a danger in case of falling, should be eliminated under observation of another party (parties) and involve the provision of sufficient information to exclude suspicions with regard to covert ASAT weapons tests, similar to the 2008 SV intercept held by the US.

The initial treaty could have a limited duration (for instance, 10 years with possible extension) not exceeding the projected time of the development of technically usable missile defense. Like any other treaty of the kind, it would include an article on the right of parties to withdraw from the treaty in case their “supreme interests” are stake.

The arrangement could at first stage include the US, Russia and preferably, China as its parties, and provide for possible future accession of any other states. A permanent joint commission could be established to exercise control and resolve disputes.

For both political and military, and objective technical and physical reasons (in particular, the special nature of outer space), the proposed treaty would, as necessary, be partial and selective. In fact, this was also the case with the 1972 SALT I Interim Agreement and the 1979 SALT II Treaty. However, without those natural stages of disarmament process, the parties would have never achieve the unprecedented comprehensive reductions, limitations, and transparency measures provided for by the START I Treaty signed twenty years later and the 2010 START Treaty concluded in Prague.

Today, the humanity has reached one of the history's key crossroads: the question is whether the space will turn into the area of space arms race or remain the sphere of peaceful and exclusively auxiliary military activities, international cooperation, ensuring strategic stability and disarmament. The main track will evidently be chosen in the nearest decade, or even in the years immediately ahead.

A global world faces new security issues that cannot be addressed unilaterally, especially through the use of military force. To resolve these issues, the leading powers and all responsible nations of the world should engage in cooperation, including the use of outer space, for fighting against the proliferation of weapons of mass destruction, suppressing international terrorism, facilitating multilateral peacekeeping operations, verifying radical disarmament steps, taking efficient

measures with regard to climate and environment in general, ensuring energy and food security.

This makes it imperative to promptly develop international agreements to prevent the armament of outer space. A first step towards this end could involve early adoption of the code of space conduct of states, enshrining common principles of peaceful and cooperative use of space to which states would voluntarily adhere.

Codes of conduct: primary steps in nonmilitarization of space. Working out of the codes of conduct is rather widely implemented in world practice especially in cases when the conclusion of a formal arrangement appears too complicated, redundant or hardly feasible. For example the International Code of Conduct against Ballistic Missile Proliferation (ICOC) was adopted in the Hague in 2002, and was signed by 93 countries. To date, more than 120 states have acceded to it.

This in itself is indeed telling. To compare, the missile and missile technology export control regime (MTCR) adopted over 20 years ago, in 1987, has a considerably smaller membership, that is, 34 countries, largely due to the fact that many countries consider the limitations under MTCR to be difficult to verify. Besides, as there are no reliable systems to ensure regional and global security, a considerable number of states prefer to retain freedom to develop missile technology.

The development of and voluntary adherence to a code of conduct for outer space activities might contribute to increasing the responsibility of states and serve as a step towards arrangements of a more binding nature. The purpose of the code of conduct could be to ban any activities aiming at destruction or undermining the stability of the functioning space systems, as well as to limit the development, deployment and use of weapons designed for these purposes. The code of conduct could also aim at establishing certain limitations regarding "provocative" deployment in space of destabilizing monitoring and reconnaissance space systems.

This prohibition should be in effect in peacetime and reduce technical and operational possibilities of destabilizing the situation (and uncontrolled escalation as the consequence of it) during armed conflicts. Some of its provisions could be also observed in wartime. At the same time, one could hardly expect the parties in an armed conflict to observe the prohibition on jamming systems like GLONASS, NAVSTAR, or Galileo, which are key to supporting the use of high-precision weapons, and the prohibition on disabling other military, dual-use and commercial support systems.

The idea of the code of conduct in space, with all the many shapes it has, has gained wide support. At the moment, several projects are discussed both by the expert community and at the official level.

According to Russian experts, the code of conduct should first of all specify those objects of space systems the effect on which disables them. Second, it should also specify ways and means of impact, and, finally, the types of weapons which can be placed in outer space or used from the Earth surface against space vehicles.

It should be stressed that the fulfillment of the mentioned conditions cannot be verified with national technical means of verification. However, it should be noted once again in this respect that the code is rather a document on intentions based on voluntary consent of states to act in a particular manner. For this par-

ticular reason it should contain neither rigid definitions, specific limitations and verification procedures, nor any sanctions for the breach of its provisions. In fact, this is what it has in common with other documents of the kind, for instance, with the above mentioned International Code of Conduct against Ballistic Missile Proliferation.

There are few possible ways to conceptually develop the idea of the code. One, chosen by some Western researchers, consists of proclaiming the principles of a rather general nature, acceptable for all and causing no objections. Another possible way: the call to prohibiting certain weapons systems or stages of their development (tests, for one), preferred by Russian experts.

Draft codes. In October 2007, a model Code of Conduct[100] was proposed, co-sponsored by non-governmental organizations of Canada, Russia, France, Japan and the US (coordinated by the Stimson Center). The Code provides for nine spheres of responsibility of space-faring states. Among those, the principle ones are: the responsibility to respect the rights of other space-faring states; the responsibility to abide by "rules of safe space operation" (not legally prepared yet), the responsibility to minimize space debris, and the responsibility to consult with other space-faring states regarding activities of concern in space. The responsibility to "refrain from harmful interference against space objects" is probably the most specific one. Although this provision could have many interpretations, it does nevertheless provide a framework for "consulting" mentioned above.

The Framework for Space Security (SSF) prepared by the Eisenhower Institute (Washington, USA),[101] goes far beyond that. It can be classified as "a voluntary agreement rather than a treaty" and is intended to coordinate the activities of the leaders of "like-minded" nations that acknowledge the need to adopt certain principles in order to enhance the security of all actors in space.

Unlike the Code of Conduct, the SSF provides a whole set of basic definitions for its purposes, which seems quite justified. It proposes specific responsibilities to be assumed by every party. Those include a highly important responsibility to refrain from the space testing of "destructive anti-satellite weapons" and the deployment of any space-based anti-satellite systems. Besides, it proposes to ban the deployment and testing of the weapons and component of a space-based BMD, because it would be "indistinguishable from a destructive space-based weapon".[102]

In order to develop and enhance confidence-building measures, an establishment of a joint Coordinated Space Awareness Center is proposed; the Center would be capable of detecting, tracking, and identifying man-made objects orbiting the Earth. The SSF proposals are, therefore, more specific and, if accepted, could prevent arms race in space.

In late 2008, the idea of elaborating a code of conduct received notable support on the part of the European Union. The draft Code of Conduct for Outer Space Activities proposed by the Council of the European Union, sets forth im-

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[100] Model Code of Conduct for Responsible Space-Faring Nations. Released by the Stimson Center. October 24, 2007. (http://www.stimson.org/pub.cfm?ID=575).

[101] Framework for Space Security: an Alternative to the Weaponization of Space. (http://www.eisenhowerinstitute.org/themes/international/fos/framework.dot).

[102] Ibid.

portant principles aimed at strengthening the "ideology" of preventing arms race in outer space.

For one, in accordance with its General Principles the subscribing states consent to abide by certain principles of the use of outer space. One of these provisions envisages the freedom of access to outer space "fully respecting the security, safety and integrity of space objects in orbit", while another provides for consent to "take all the appropriate measures and cooperate in good faith to prevent harmful interference in outer space activities".[103]

The section on measures on space operations says that the states shall "refrain from any intentional action which will or might bring about, directly or indirectly, the damage or destruction of outer space objects". For these purposes the subscribing states "resolve" to annually exchange information on "national space policies and strategies, including basic objectives for security and defense related activities".[104]

This draft code does not directly address space arms development or deployment. Nonetheless, adoption of such code would clear the path for expanding the consensus among the world's leading nations (including many US allies) on the need to prevent such arms race in order to assure "the security, safety and integrity of space objects in orbit", and "to prevent harmful interference in outer space activities".[105] European countries' accession to the code would also pave the way to further universalization of this initiative and its possible extension and the inclusion of new limitations.

All these, however, do not obviate the need for more rigid limitations in order to ensure peaceful use of outer space.

Certain hopes in this connection are inspired, in addition to the EU-proposed initiative, by the fact that the 2008 presidential elections in the US marked the tendency to serious changes in Washington's official posture. The Democratic presidential candidate promised to assure "restoring US leadership on space issues"…by seeking code of conduct for space-faring nations, including a worldwide ban on weapons to interfere with satellites and a ban on testing anti-satellite weapons".[106] This might be a monumental departure from the space policies of the preceding US government.

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[103] Council of the European Union. Brussels, December 3, 2008. Annex II. Draft Code of Conduct for outer Space Activities. (http://register.consilium.europa.eu/pdf/en/08/st17/st17175.en08.pdf).

[104] Ibid.

[105] Council of the European Union. Brussels, December 3, 2008. Annex II. Draft Code of Conduct for outer Space Activities. (http://register.consilium.europa.eu/pdf/en/08/st17/st17175.en08.pdf).

[106] Barack Obama and Joe Biden on Defense Issues. (http://www.barackobama.com/ issues/defense/).

PART IV
REGIONAL PROBLEMS OF DISARMAMENT

IV.1. RUSSIA AND NATO AFTER THE COLD WAR

Russia and the West. The end of the Cold War ended confrontation between Russia and the West. However, this opportunity was not used to the full extent. The end of the first decade of 21st century saw yet another downslide in Russia's relations with the US and the West at large in many respects, and foremost in the sphere of security.

One of the important reasons for the said developments was Russia's new course towards changing the “rules of the game” in terms of its relations with the West as of the 1990s, as well as the reluctance of the West – mainly the US – to accept this proposition.

The 1990s' paradigm of relations, with Moscow moving in the wake of the US political line, its interests invariably disregarded and its opinion nearly always ignored, by the beginning of the current decade had become unacceptable for all Russia's political parties and state institutions. “Never again!” is the unifying motto of all with regard to their approach to the country's foreign policy.

Russian ambition to recover its great power position in the world was often seen by the US and other Western states as an abnormity, a manifestation of the “old-line antagonism towards the West and its values”. It was considered a backslide into imperial designs and a Cold War mentality or – at best –as Moscow's misjudgment of global processes and its own interests. Only big failures of its own policy, economic crisis and a change of administration caused Washington to start reviewing such a perception in the last two years.

Recently, the self-assuredness and national pride of Russia's young political elite has risen perhaps even more than could be expected in the context of the nation’s actual economic, social and defense achievements. Hence, in the sharp contrast to the 1990s, the increased diplomatic activity of Moscow on every continent, as well as its reluctance to blindly take the cue from the US in dealing with regional crises (such as in Kosovo, Palestine, Iran and the DPRK), as well as forging or restoring relations with countries tossing a political challenge to the US domination. Besides, Russia has been increasingly active within interstate organizations that are independent from the US, NATO and the European Union (such as CSTO, EurAsEC and SCO).

In addition to competition in arms trade, Russia no longer hesitated to openly counteract the Unites States in certain military areas (its reaction to the deployment of missile defense) and to vie in dismantling disarmament agreements (the CFE Treaty and the INF Treaty). In August 2008, for the first time in many years, Moscow resorted to the use of military force outside its borders - in the South Caucasus.

Another reason of the frictions stemmed from the consequences of the Western (primarily the US) policy during the last fifteen years. When the times of

bipolarity and the Cold War were over, Washington was offered a unique historic opportunity to establish in the international politics the rule of law and the leading role of legitimate international institutions (first of all, the UN and the OSCE), the primacy of diplomacy as a means of conflict resolution, exclusive selectivity and justifiability of the use of force only in self-defense or with the purposes of ensuring peace and security (in line with Articles 51 and 42 of the Charter of the United Nations). Early in the 1990s, the US got a singular opportunity to lead in building a new multilateral world order in alliance with other centers of power – an opportunity they so ingloriously missed.

After an unexpected collapse of Communism there emerged in Washington a new and exciting sensation of remaining the only superpower in the world. Filled with euphoria, the US increasingly tended to substitute the force of international law with the law of force. The legitimate decisions of the UN Security Council were replaced by directives of the National Security Council, and the OSCE prerogatives – by NATO activity. The 1999 military operation against Yugoslavia was the most vivid and dramatic manifestation of such policy. After the change of administration in 2001 and the enormous shock of the 9/11 terrorist attacks, this policy was exalted to an absolute dogma. The US invaded Iraq (under a far-fetched pretext and without a sanction from the UN), aiming to eventually "re-format" all of the Greater Middle East – a source of oil, gas and Islamic extremism - to suit its military and political interests (replaying "the great reformation" of the Central and Eastern Europe in the late 1980's and early 1990's).

With regards to Russia during the 1990s, instead of interfering in Russia's internal affairs, the US and NATO should have encouraged its own way of reforming through ensuring a maximum favorable security environment and offering possibilities of its deep integration in the Western military and political as well as economic international institutions. During the said transition period, Russia's foreign policy was characterized not as much by its relations with the surrounding states than by choosing a model for its own economic and political development.

However, the West got it back to front: in addition to interfering with Russia's domestic affairs when the country was going through a profound internal crisis, the West was in a hurry to make the best use out of Russia's weakness in foreign policy and in the military sphere and nab as many advantages as possible, before the country started to advance its national interests. Furthermore, Russia was treated as the country that had lost the Cold War. This drew the indignation of the major part of Russia's new political class who assumed that the country had won the Cold War, defeating Communism, liberating Central and Eastern European satellite nations and obtaining Russia's own national identity, statehood and sovereignty.

The Western strategy was reflected in NATO's eastward expansion, in the unilateral actions of the Alliance in the conflicts in Yugoslavia with the resulting massive air-missile strikes on Serbia and large-scale exodus of Serbs from Kosovo. All this was done in defiance of Moscow's protests which were never taken seriously in any of the Western capitals.

A change of administration in 2000 resulted in an even tougher policy towards Russia. In this context, the mutual sympathy developed by the two Presidents at the Ljubljana Summit in 2001 could hardly smooth things over. In the

wake of the 9/11 terrorist attacks, Vladimir Putin made a major step towards the US. In spite of the negative attitude among the majority of the political elite, the Kremlin offered full unconditional support to the forming of the antiterrorist coalition, providing arms to Northern Alliance (composed of units of ethnic Tajiks and Uzbeks of Afghanistan) and facilitating a successful anti-Taliban military operation in Afghanistan (with minimal NATO casualties in ground combat).

All Russia got in return was the US withdrawal from the ABM Treaty (simultaneous signing of the Moscow SORT Treaty in 2002 could not repair the damage), the 2003 war in Iraq (involving the cancellation of Russia's major oil concessions in the country), as well as a new step in NATO's expansion to the East, including the former USSR territory – the Baltic states. In addition, Russia's potential admission to the World Trade Organization was subject to hairsplitting bargaining of the Republican Administration, while the Congress irrationally clung to the moss-grown Jackson-Vanik Amendment of 1974 (on economic sanctions for restricting emigration from the USSR).

Furthermore, the Western policy toward Russia distinctly smacked of rejection. Moscow was repeatedly given to understand that its full-scale integration to the Western military-political and economic organizations was out of the question even in the longer term.

It is hardly surprising that by 2004-2005 Russia eventually abandoned all hopes for a fairly swift and onward process of its integration with the West based on equal rights, mutual benefit and respect of each other's interests. Therefore, it started to look for more interested and less choosy partners in the South and in the East.

The last straw was the active involvement of the West in the color revolutions in Georgia and Ukraine in 2004-2005 with a view to support the most anti-Russian political groups (hence the suspicion appeared that the 2006 events in Kyrgyzstan were in line with a similar scenario). In addition, the plans on the accelerated admission of Georgia and Ukraine to NATO were revealed; then there emerged the project to build the US strategic missile defense sites in Poland and the Czech Republic – in defiance of the spirit of the Joint Declaration on a New Relationship Between the US and Russia of May 24, 2002 and contrary to the negotiations in the NATO-Russia Council on the development of a common theater BMD (TMD).

Vladimir Putin's address at the Munich Conference in 2007 was a message to the West that Russia would no longer play by the old rules or beg for a more advanced cooperation, if the West was not truly interested. However, it took an armed conflict in Georgia in August 2008 to make the Western world realize that Russia is talking seriously and is ready to support its statements with actions. The relations with Russia got to the brink of a military standoff in the Black Sea accompanied by political tensions unheard of since the Cold War.

Development of NATO-Russia relations. Dramatic geopolitical changes in Europe resulted in a sweeping reorganization of the entire European security architecture. The Warsaw Pact broke up and its former members joined the North Atlantic Alliance. The mere fact of NATO's continuing as a military alliance against a common external foe (Article V) was now the major issues Russian politicians and experts held against the West. To make things worse, NATO's pol-

icy of expansion dating back to the 1990s had been a constant negative background undermining opportunities for meaningful cooperation.

In Russia, this policy was universally perceived as a breach of commitments previously undertaken at the highest level. Andrei Grachev, former Deputy Head of the International Department of the USSR Communist Party's Central Committee and a close associate of Mikhail Gorbachev later recalled that two months after meeting with Gorbachev in Malta (December 1989), the US Secretary of State James Baker said: "if the future Germany joins NATO, there would be no extension of NATO one inch to the East". When the Alliance actually proceeded with its expansion that Russia's first President Boris Yeltsin warned the West of a possibility of ensuing "Cold Peace".

During the years that followed, the politicians and experts had more than one chance to recall this warning in light of recurring serious deterioration of NATO-Russia relations. Against the backdrop of NATO's sweeping expansion, Moscow once and again tried to obtain guarantees of ensuring its security interests as well as to gain a status equal to that of NATO in terms of pan-European policy-making.

Some step on this way was the NATO-Russia Founding Act signed in 1997. In particular, it included the following agreed language related to nuclear weapons: "The member States of NATO reiterate that they have no intention, no plan and no reason to deploy nuclear weapons on the territory of new members, nor any need to change any aspect of NATO nuclear posture or nuclear policy – and do not foresee any future need to do so". In addition, it stated that NATO "has no intention, no plan, and no reason to establish nuclear weapon storage sites on the territory of those members, whether through the construction of new nuclear storage facilities or the adaptation of old nuclear storage facilities".[107]

However, this statement was linked to a specific time and situation. It did not imply legally binding verifiable commitment and could be changed if NATO decided to revise its "plan and reason to deploy nuclear weapons on the territory of new members". This had actually happened with respect of alliance expansion to the East and this was how this statement was perceived by the majority of Russian political and expert community.

In 1997, the limitations on conventional forces were outlined in much the same terms. NATO leadership affirmed that "the Alliance will carry out its collective defense and other missions by ensuring the necessary interoperability, integration, and capability for reinforcement rather than by additional permanent stationing of substantial combat forces".[108]

One of the most grievous episodes in the Russia-NATO relations was the Alliance's military action against Yugoslavia in 1999, which was commenced outside of international law and in straight defiance of the 1997 Founding Act. After the bombing of Yugoslavia, the attitude of the Russian political class towards NATO drastically changed to "totally negative". In contrast to common Western perceptions this had nothing to do with the legacy of the Cold War. Rather

[107] Founding Act on Mutual Relations, Cooperation and Security between NATO and the Russian Federation signed in Paris, France on May 27, 1997, P. 7. (http://www.nato.int/cps/en/natolive/official _texts_25468.htm).

[108] Ibid.

it was the fruit of Russia's experience of post-Cold War relationship with NATO, which was a great disappointment after the wide-spread sympathies, hopes and expectations of the early 1990's.

The last attempt to substantially improve relations was taken in 2002 at the meeting of heads of governments of the Russian Federation and the NATO member-states. The meeting resulted in signing a declaration titled "NATO-Russia Relations: A New Quality". The declaration stated that within the new NATO-Russia Council (NRC) which came to replace the Joint Permanent Council after the latter fell short of the expectations, "NATO member states and Russia will work as equal partners in areas of common interest". However, despite the activities of 16 working groups of NRC it produced, with few exceptions (like joint computer TMD exercises), no more than lengthy talk shops on various issues. This explains the ease with which the bilateral cooperation was yet again suspended during the Caucasus crisis of August 2008 – exactly at the time when allegedly the NRC should have played the key role in crisis management and conflict resolution. Fortunately this role, for lack of anything better, was quite effectively performed on an *ad hock* basis by the then leadership of the European Union, which helped to avoid escalation and end combat actions.

Another issue which entwined itself into the steadily negative context of bilateral relations was the US missile defense program which –according to many Russian military, politicians and academics – could weaken the country's nuclear deterrence capability. The new missile defense architecture proposed by Barack Obama's Administration has diffused the crisis. However, if there is no focused action on the joint development of a missile defense, another "missile defense crisis" in the relations between Russia and the US/NATO may be only a matter of time.

A last straw in the decline of Russia-NATO practical cooperation (apart from airy declarations) was the preparation for the admission of Georgia and Ukraine to NATO. It dealt a final blow to the bilateral relations between Moscow and Brussels during the period of two decades after the end of the Cold War and, according to many experts, eventually provoked the tragic climax – the Georgian conflict of August 2008.

The then Russian Chief of the General Staff, General Yuri Baluevsky voiced the sentiments shared by the major part of the Russian military and political elite. On April 12, 2008 he said that in case of the admission of Ukraine and Georgia to NATO "Russia will take actions to ensure its interests along its borders" including "military measures" and "measures of other kinds".[109] No doubt, the armed clash was directly provoked by the adventurist attempt of Georgian leadership to resolve by force its separatist problems in South Ossetia and ensuing mass slaughter of local civilians and Russian peacekeepers. Still, the immediate background to both the action of Georgian army and Russian readiness to respond by massive use of force – was the preceding policy of NATO expansion plan for the post-Soviet space. In Moscow, there is still a strong conviction that Georgia's

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[109] Соловьев В. Штабы перерабатывают планы применения войск (ОДКБ поддержал Москву против вступления Киева и Тбилиси в Североатлантический союз) // Независимое военное обозрение. 18 февраля, 2008 г.

(Solovyev V. The Headquarters Review Plans of Using Troops (CSTO Supported Moscow Against the Ascention of Kiev and Tbilisi to the North Atlantic Alliance) // Nezavisimoe Voennoe Obozrenie, February 18, 2008).

President Mikhail Saakashvili would have never taken the liberty to unleash military actions without tacit (or perceived) support from the US and NATO.

Currently, there have been signals from Brussels that for the time being the issue of admitting Ukraine (whose current domestic politics clearly discourages such a decision) and Georgia to NATO is dismissed from the agenda. However, many Russian politicians and experts, including pro-Western liberals, would like to obtain more dependable guarantees in this respect, which could visibly add stability to the Russia-NATO relations.

The tragic conflict of August 2008 not only suspended NATO-Russia relations; it actually set them far back towards the times of the Cold War. To this date, Moscow and Brussels have diametrically opposed views on some factual and all legal aspects of the conflict.

In the opinion of John Craddock, NATO's Supreme Allied Commander Europe, the military operation in South Ossetia "overturned a basic assumption made by NATO after the fall of the Soviet Union – that no countries were under threat of invasion in Europe or Eurasia". He expressed the conviction that among other things, Russia was "determined to see Euro-Atlantic security institutions weakened"[110] in pursuit of its anti-NATO policy. The danger of the Georgian conflict also was in the possibility of a direct military conflict between the armed forces of Russia and NATO either by accident or provocation by Georgian authorities or separatists (for example when the US warships demonstratively entered the Black Sea under pretext of delivering humanitarian aid to Georgian harbors).

The outcome of the conflict was the appearance of two new sovereign states – South Ossetia and Abkhazia – which are currently recognized by very few countries. As to the legitimacy of their self-determination, there was no agreement or understanding between Russia and NATO, despite the obvious analogy to the Kosovo precedent.

In Russia there is no doubt that the process of claiming sovereignty by the two ethnic minorities was greatly encouraged by the provision of sovereignty to Kosovo spurred and sponsored by the majority of Western governments in all their institutions (NATO, EU, OSCE). At the bottom of this issue laid a "sincere misapprehension" of the authors of the Kosovo sovereignty, who presumed that it was a unique case and could not be used as a legal precedent. It turned out that truth was on the side of the government and overwhelming majority of Russia's politicians and experts who had warned against the negative political and legal implications of such a step, in particular for post-Soviet separatist problems.

These developments were predicted by Russian experts, who specified the region where the blood-spilling conflict would later unravel, noting that "those who want to see the precedent in Kosovo will see it anyway. And they will interpret its self-determination in the appropriate manner... Those who use this case for their own political ends will not be persuaded by analysts… One should have thought out the implications of such step, ramifications for the Balkans or for the South Caucasus".[111]

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[110] NATO's Supreme Allied Commander: Russia Undermines the Influence of the US (Russian text is available at http://www.infox.ru/authority/foreign/2009/03/25/Glavkom_NATO__Rossiy.phtml).

[111] Маркедонов С., Романенко С. Косово: прецедент или исключение? // Индекс безопасности. 2008. №1 (84) (http://www.pircenter.org/ index.php?id=2297).

Despite repeatedly declared partnership between NATO and Russia, the actual severity of contradictions has not decreased throughout the post-Cold War history of relations in proportion to the political rhetoric. In fact, over the years of the faked pretended partnership, the parties have developed rules of "political correctness" which implied that at a high political level and official meetings of Brussels and Moscow, they shall avoid open criticism of each other. On the contrary, during "in-house" meetings and discussions in Moscow the Alliance has been not only criticized but also defined as constituting a direct threat to Russia's national security.

This is directly evidenced by Russia's recent Military Doctrine (2010), which places "the willingness to provide the NATO's power potential… with global functions in violation of the norms of international law, to move the military infrastructure of NATO member-states closer to the borders of the Russian Federation, including through enlargement of the Organization" at the top (sic) of the list of priority of external military dangers facing Russia. This statement as part of Russia's basic defense document must be a matter of concern for those in charge of Russian policy in NATO Headquarters. This state of affairs can be regarded as an obvious failure of the twenty years effort to establish relations of mutual trust and partnership between the Alliance and Moscow.

In public addresses before top-ranking Western officials, each successive President of Russia has transparently hinted at the possibility of Russia's accession to NATO. In June 2001, at a joint press conference following the first US-Russian summit Vladimir Putin reminded to George Bush that a year before when asked at a meeting: "Is it possible that Russia would some time join the NATO?" he (Putin) said "Why not?". He also remembered that former US Secretary of State Madeleine Albright who was "someplace on a trip to Europe" said about this possibility, "Well, this is not discussed for the time being".[112]

Addressing the Council on Foreign Relations in November 2008 (presided by Madeleine Albright as a moderator), President Dmitry Medvedev noted that while at that point the situation did not speak in favor of Russia's accession to NATO, "there's a good phrase: Never say never".[113]

However, the overwhelming majority of the Western leaders comfortably ignored these rather distinct messages. No doubt, Russian leaders were not so naive as to count on Russia's joining NATO in the nearest future. But for them the willingness of the leadership of the alliance to openly and impartially discuss this issue and sincerely allow for such development has been the key litmus test of NATO genuine attitude towards Russia. Instead of repeating that "the doors of NATO were open to any country", it would suffice for Washington and Brussels

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(Markedonov S., Romanenko S. Kosovo: A Precedent or an Exception? // Indeks Bezopasnosti. 2008. #1 (84) (http://www.pircenter.org/data/ publications/ sieng2-08/Kosovo.pdf).

[112] Joint News Conference June 16, by US President George W. Bush and Russian President Vladimir Putin. 16 June 2001, Ljubljana, Slovenia (http://archives.cnn.com/2001/WORLD/europe/ 06/18/bush.putin.transcript. The Russian transcript is available at http://president.kremlin.ru/text/ appears/ 2001/06/28562 .shtml).

[113] Meeting with representatives of the Council on Foreign Relations. Washington, November 16, 2008.

(The Russian text is available at http://www.president.kremlin.ru/appears/2008/11/16/0526_ type63376type63377type82634_209249.shtml).

just to officially state: there is no generic obstacle for Russia joining NATO, provided that it accepts universal membership standards, and Moscow is welcome to start serious consultations on this subject.

Unfortunately, up to now it has been a wasted historical opportunity to drastically change the nature of relations between NATO and Russia. In the order of priorities the reasons for this mismanagement have been:

- the treatment of Russia by the West as a looser in the Cold War and weak heir of the Soviet empire (which in due course generated anti-Western, pro-Soviet and neo-imperial moods in Russia);
- the desire of NATO to take advantage of Russia's weakness during the 1990's (which provoked revisionist trends in Moscow after 2000);
- the reluctance of NATO establishment to fundamentally restructure its nature as a military alliance against common foe (which channeled its activities to geopolitical expansion and out-of-area offensive use of force with disregard to the UN Charter – and provoked Russian hostile reaction);
- Moscow's course after 2000 on insuring its sovereignty and centralized rule by building an authoritarian political regime on the basis of carbon-export economy (which required a notion of immanent external threat as one of the instruments of consolidation);
- Russia's failures in implementing efficient military reforms under the rule of defense bureaucracy and incompetent state officials (which created a sense of growing inferiority and vulnerability to expanding and modernizing NATO).

The last two years have been marked by attempts of Russian leadership and advanced part of political elite to change national economy form raw material export model to innovative high-tech system. Accordingly, there has emerged a more constructive attitude to cooperation with the West in economic, technological, political and security areas, recently labeled "Partnership for Modernization". The prospects for the new post-post-Cold War relations depend on the ability of both sides to learn the negative lessons of the past twenty years and to persistently strive for genuine resolution of (not papering over) the problems and controversies of NATO-Russia relations in Europe and elsewhere.

IV.2. EUROPEAN SECURITY: SEARCHING FOR A NEW ARCHITECTURE

Despite the abundance of institutions and declarations dedicated to European security, the task of its refurbishment and overhaul certainly remains a relevant one. It is obvious that some elements of the existing European order are extremely fragile and inefficient.

President Medvedev's proposals. In June 2008 President Medvedev appealed for a new European security architecture. At the core of his initiative was the proposal to work out and sign a European Security Treaty (EST). In November 2009 Russia submitted a draft of this document for discussion. So far, the draft has not provoked broad enthusiasm on the part of European political and expert community, yet it will probably draw greater attention over time.

One of its most disputable provisions is the proposed mechanism allowing a state-party to the Treaty to block those steps of multilateral institutions it considers threatening its security. This provision of the draft is perceived as reflecting candidly the intention to provide Russia with a veto power regarding NATO's actions (in particular, its expansion), and is deemed unacceptable by the West.

Other elements of Russia's proposal, such as the idea of establishing a new crisis or conflict prevention consultation pattern, might in principle appear more acceptable. Other provisions of the draft (indivisibility of security, renunciation to prepare an attack against other countries using the state's own territory or the territories of other states, assistance in ensuring security of any OSCE member state provided by any other member state) either are too amorphous and general, and thus non-binding, or can be used against Russia's own interests and activities, for example, in the post-Soviet area.

Probably the added value of suggested draft is not obvious. However, the very fact of engaging in negotiations would not only recognize Russia's good intentions, but also – and more importantly – would respond to the idea of involving Moscow in a more substantive way in European security affairs, instead of isolating and estranging it, as was happening during the last twenty years .

Nonetheless, it would be short-sighted to confine the new European security architecture to signing a new (even a comprehensive) treaty. The tasks in this sphere are so immense, that it would be unreal to address them with a sole instrument. In fact, reforming the European security architecture implies much more than the elaboration and signing of a treaty.

Prerequisites for Russia's obligatory participation in the European security building. The end of the Cold War dismissed only part of European security agenda – the one related to the traditional East-West confrontation. Other items of this agenda persisted or emerged, consecutively or simultaneously, in various contexts, such as the break-up of the Warsaw Pact and the Soviet Union, the reunification of Germany, Moscow's military and political retreat from the centre of the continent, the dramatic disintegration of former Yugoslavia and the destabilisation in the Balkans in general.

Resulting from controversial, sometimes dramatic developments, certain elements of the existing situation in Europe are regarded by Russian and some other

European nations as suspicious or unjust, externally imposed and discriminating, generating security risks and promoting new dividing lines.

Indeed, there are new members in NATO and the EU, new relations between these two structures and non-members, a new political landscape in the former Yugoslav territory, new transnational patterns of energy resources supply, new (and ongoing) re-alignment within the post-Soviet geopolitical space. Besides, there exist new secessionist entities of Kosovo, South Ossetia and Abkhazia, whose international future remains uncertain due to their selective recognition by other states. Many other conflicts are still unresolved and might erupt in violence (Transdnestria, Karabakh, Cyprus, separatism in a number of states). There are new threats and dangers of the XXI century (illegal migration, Islamic extremism etc.). In fact, a totally new international and domestic environment has emerged in Europe, as compared to that of the outset of the post-Cold War era.

Some of these new realities have questionable political or legal genesis and could easily bring about international controversy, as there are appeals to restore the *status quo ante*. The very possibility of such appeals could constitute a security challenge. As a preventive response thereto, political legitimization of the new situation is needed, that is, its *de facto* recognition by all international actors involved.

The principle of legitimization is the core of European security. It could have various sources, including an important multilateral forum which would serve international stability. The legitimization of new realities within a broader package of agreements was tested as far back as in the 1970s. At that time, the Helsinki process "blessed" the European borders that emerged after the Second World War, as well as the new political setting across the continent (East-West-neutral states) in conjunction with the solution of economic and humanitarian problems. That experience could very well be used in the current situation.

Three major tasks. More specifically, engaging in building a "new European security architecture" could be useful for addressing at least three tasks.

The first one is to create a political atmosphere in Europe in general which would be more conducive to bilateral and multilateral cooperation in traditional security-related areas in which, for various reasons, there has been no satisfactory progress.

The second one is to promote cooperation in new areas that are increasingly important as national and international security factors in Europe.

Finally, *the third one* is to address a number of contentious issues (i.e. nations' right to self-determination as opposed to territorial integrity, state sovereignty and humanitarian interventions, the right to choose alliances and the right to have secure neighborhood). They may be a subject of conflicting interpretations and approaches. These, as recent developments have shown, may very easily and quickly escalate from theoretical collisions to political tensions and subsequently to violent confrontations. Europe needs mechanisms that would effectively reduce the possibility of such scenarios.

Strengthening traditional security. Dealing with new security environment would be impossible if traditional military problems ("hard security") are just ignored. Such problems are of particular importance to Russia, which has become vulnerable and inferior to NATO twenty years after the end of the Cold

War. Removing Moscow's "hard security" concerns is necessary for engaging Russia in constructive cooperation on the new security agenda.

It is possible to promote a more stable traditional security regardless of any "grand design" for an overall political architecture. This was proved by the US decision in 2009 to renounce the deployments of the ballistic missile defense sites in Poland and the Czech Republic. Yet this case has also shown once again how fragile the current situation is and how quickly old concerns and behavioral instincts in security sphere can reappear. To remove such concerns, an approach is needed, which would aim at establishing a most deep cooperation in developing a joint missile defense providing protection for the whole Europe, with the tripartite partnership of the US, Russia and NATO (and/or the EU).

Among the items on "traditional" agenda, special attention should be paid to arms control in Europe, in which there has been a stalemate of over a decade. Moreover, this sphere that once gave impetus to strengthening stability on the continent is currently in a state of disintegration. Upgrading the European security architecture is impossible without serious steps towards changing the current situation.

First of all, Western countries' renunciation to ratify the adapted CFE Treaty and its suspension by Russia have created a legal vacuum in Europe by eliminating the key element of the system for prevention of military and political confrontation. It would not be easy to break the deadlock, yet this still appears possible. The key elements should include re-establishing the regime of transparency and control measures provided for by the CFE Treaty, extending the regime (even without setting agreed quotas for military equipment) to countries outside the area of application of the CFE Treaty (including the Baltic states), starting negotiations on a new treaty which would include a wider range of participants and provide for deeper armed forces reductions and greater transparency.

Eventually traditional arms control should be replaced by projects of integration of ballistic missile defense, air defense, and joint rapid deployment contingent for peacekeeping operations, peace-enforcement, counter-proliferation and suppressing terrorism. However it would be unrealistic to try to short-circuit to such endeavors by-passing existing traditional security concerns and mutual suspicions.

Among such traditional areas one deserves special attention. In Europe, there already exists a unique set of comprehensive military restraint, confidence- and security-building measures, which have been agreed upon or unilaterally adopted and implemented for over thirty years. Those include annual exchange of military information, risk reduction measures, military-to-military contacts, prior notification and observation of military exercises and other military activities, constraining provisions, on-site inspections etc. It would be extremely useful to consolidate and upgrade this segment of the European security architecture by further building confidence of states with respect to military security.

Conflict prevention, mitigation and resolution are yet another broad area where joint efforts of the European countries are needed both in Europe and in other regions. Such joint efforts may become a source of controversy among the countries, but their effect in terms of strengthening common security is considerably more important than possible risks.

Dealing with new security challenges. The list of "new" security threats is long and grows over time. Those are usually considered to include illicit drugs trafficking, terrorism, environmental challenges, climate change, bio-security, emergency situations, humanitarian crises; cross-border crime, cyber-terrorism/subversive operations, corruption, illegal migration, sea piracy and others threats are added.

Often, national and international experience in countering these challenges is quite limited as compared to the traditional military threats to security. Yet, it is widely recognized that full mobilization of the resources of international cooperation is required to counter them, in some cases by employing the existing multilateral institutions, in other cases by creating special institutions.

The format of cooperation on the new threats may certainly be affected by disagreements on the issues of traditional policy, military security, economic and energy interdependence, etc. Yet the very urgency of dealing with unconventional security threats requires joint efforts that would not fall hostage to the state of traditional problems, but would proceed in parallel to the removal of "hard security" concerns and capitalize on enhanced mutual trust and confidence. For example, the involvement of the Russian EMERCOM's fleet of amphibious firefighting aircrafts in joint efforts against wildfires in Europe allowed for broader cooperation than those initially envisioned by extending it to a permanent capacity to provide urgent humanitarian relief on a pan-European scale.

Addressing contentious issues. Many security-related controversies – and whether in Europe or beyond – are not a consequence of a lack of good will on the part of the parties involved, but are rather the result of objective complexity of issues. It would be over-ambitious and unrealistic to aim at resolving such issues in one stroke. Hence, it is important to hone the language of various political and legal formulae, but it is also vital to pay special conceptual attention to the issues that generate (or could in the future generate) most tension.

The collision between the right of nations to self-determination and the territorial integrity of states is a good example. The Helsinki security system of the 1970's has dealt with it by setting the rule of changing territorial borders only in peaceful way. But in practice these two equally respectable principles have remained irreconcilable and gave way to ethnic terrorism and ethnic cleansing, savage suppression of human rights and wars of external military interventions, which Europe witnessed more than once during the last two decades.

Another controversy is related to the means and limits of external influence on the internal development of states, as well as their right to resist such influence. The problem was highlighted in the context of the "Orange Revolution" in Ukraine, although similar examples can easily be found both within and outside the post-Soviet geopolitical space.

Differences in the interpretation of mutual responsibility of states regarding the use of natural resources and their transit across borders, threats of international political instability on ethnic and confessional grounds, conflicts provoked by separatism and irredentism and connected with demographic and migration processes are some other potential causes of serious destabilizing trends in Europe. All these issues require serious analytical and conceptual work, rather than mere political talks. A parallel could be drawn with the work on the "Helsinki Decalogue" within the framework of the All-European Conference (1973-75). Yet to-

day the abovementioned problems deserve much more thorough, structured and diversified analysis.

The dilemma of sovereignty and legitimate external intervention was the subject of heated debate in Europe in 1999 against the backdrop of the NATO military operation against Yugoslavia, which had no UN approval. The 2008 conflict in the Caucasus revived the debate. In this context, the re-organization of the Euro-Atlantic security space would require that at least three issues be addressed. First of all, it is necessary to define criteria for and rules of external intervention with the use of military force. Besides, militarily efficient methods of such actions should be developed in practice (interoperability, burden sharing, chain of command etc.). Finally, their application outside the region should be considered as joint trilateral operations (US-Russia-Europe).

Institutional landscape. Most institutions operating in the Euro-Atlantic area could contribute to consolidating security in various spheres and forms. Some of them could certainly do it more efficiently. It is widely acknowledged that the OSCE could serve as the main platform for discussing President Medvedev's initiative. According to this logic, the reform could lead to a more powerful OSCE, with its role and functions reviewed and adapted to the new realities, as its main outcome. Besides, there are ideas to revitalize the OSCE by expanding its powers in preventing and settling conflicts, including carrying out peacekeeping operations.

However, in recent twenty years it has become an established practice for the OSCE to focus on humanitarian issues, development of the democracy, human rights and the rights of national minorities. It will hardly be possible to drastically change this practice and bring the OSCE back to the issues of Euro-Atlantic security (as some kind of UN branch). With respect to this, the European Union could seriously claim a major role; its functions in organizing the Euro-Atlantic security space are very likely to be expanded. The EU role is crucial for forging security cooperation with Russia in Europe for dealing with new threats and for promoting trilateral interaction between the US/NATO and Russia outside the continent.[114]

Russia's serious concern over the central role of NATO in the Euro-Atlantic institutional structure has often pushed it to opt for promoting the role of other institutions. However, there may be an alternative logic, that is, the logic of promoting "special relationship" between NATO and Russia, eventually aimed at their strategic alliance (or even at Russia's joining NATO in the long run).

Restructuring the security space in the Euro-Atlantic area should not be viewed as a plan for brand-new construction to replace the existing multilateral organizations. The discussions on how to make these bodies more efficient are quite logic, yet it would be wrong to eliminate them and build a comprehensive substitute. Europe can boast the highest density of multilateral mechanisms in the world; the continent seems to be overburdened with them, yet the calls to merge them into something larger or to create new ones have little chance of being supported.

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[114] For comprehensive elaboration of this concept see: Арбатова Н. Реконструируя европейскую безопасность. // Дипкурьер, приложение к Независимой Газете , 24 марта 2009 г.

(Arbatova N. Restructuring European Security // Dipcourier, supplement to the Nezavisimaya Gazeta, March 24, 2009).

The prevailing approach in favor of maintaining *status quo* would hardly make any dramatic institutional reform in the Euro-Atlantic security space possible. However, some innovations may be helpful and promising. Thus, the general course towards increasing the efficiency of conflict prevention and conflict settlement may necessitate reforms of the existing mechanisms or establishing new ones within the OSCE, EU, NATO-EU-Russia framework or some other format.

Turning policy to be the dominating factor of European security. Institutions do matter in consolidating the European security, but the role of certain states' policy is more important and more ambiguous as well. Russia's return to the world political arena after many years of "low profile" may be helpful in rebalancing the international system that became excessively US-centric. However, Russia's ambitions and assertiveness, as well as its propensities to similar unilateral behavior, in their turn, are sometimes a matter of concern.

Russia sees a completely different picture: real problems result from the policy aimed to prevent Russia from becoming more independent, defending its own interests and occupying the place it deserves on the international arena. Such policy, both open and concealed cannot but affect Russia's stance on many issues of the European security agenda. The post-Soviet geopolitical space is the focal point of these efforts, opening ways for both the Western countries' alienation or rapprochement with Russia.

By and large, among the challenges facing Europe in organizing its security space, alleviating concerns of Russia and about Russia is the most serious one. The minimum program would include reducing Russian-European mutual claims and misunderstanding in the security area. More ambitious tasks include involving Europe in solving the problems of post-Soviet space and Russia, and vice versa – thus building an integrated Europe on the basis of cooperation of all its nations in economic, political and security areas.

IV.3. NON-STRATEGIC NUCLEAR WEAPONS

The new START Treaty between the US and Russia marked the revival of legal cooperation of the two powers on nuclear arms reduction and cleared the path for further steps towards nuclear disarmament in line with the parties' obligations under Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). In terms of further reductions and limitations of nuclear weapons, an important question will be the extension of this process to non-strategic (or pre-strategic nuclear weapons).

Even during the negotiations on the April 2010 Treaty the US Senate had insisted that tactical nuclear weapons be included in the reductions, but eventually they were not. The new US Nuclear Posture stresses the concern over Russia's non-strategic nuclear weapons and indicates the importance of including these weapons in the agenda for the future negotiations.[115] Therefore, there is every indication that the US and NATO will intensify their efforts in this area. In particular, there are several specific arguments:

- it is assumed that Russia still has a considerable advantage over the US and NATO in this nuclear weapons class; with lower levels of strategic nuclear forces this advantage will be yet more tangible;
- Russia's assumed advantage in this respect is becoming a concern for the NATO allies of the US;
- in time of war TNWs are to be deployed together with general-purpose forces and may be immediately involved in a conflict with high risk of nuclear escalation;
- allegedly, TNW have less robust systems for prevention of unauthorized use ("locks" for "negative control") than strategic nuclear weapons. Therefore, the hazard of an unauthorized nuclear strike is higher;
- it is generally accepted that forward-based TNWs (especially older versions) are more vulnerable to theft, are lighter and have less efficient blocking devices which makes them attractive for terrorists.

Russia's position on this issue has been extremely reserved and vague: it is in fact limited to the demand that the US remove its TNW based in Europe to its national territory, this being the condition for opening any dialogue on the subject. It should also be noted that the discussion of this issue within Russian expert community and in the press has had a relatively low profile, with just a few publications on the subject.

Meanwhile, the interest in the issue will predictably increase in the context of nuclear disarmament as well as in the discussions on European security and on Russia's relations with NATO and other states.

The subject of discussion. Even defining the subject of future negotiations presents certain difficulties. Not touching yet the military and strategic aspects of the issue, it would be logical from the legal point of view to include nuclear weapons that are not covered by the existing treaties, namely the START Treaty and the Intermediate-Range Nuclear Forces (INF) Treaty, in the non-strategic systems category.

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[115] See: Nuclear Posture Review Report. NPR. April 2010. Department of Defense. USA. Wash., DC., 2010. PP. X–XI.

According to this logic, the delivery vehicles of nuclear weapons should include ground-launched ballistic missiles (GLBMs) and ground-launched cruise missiles with ranges of less than 500 km, combat aircraft with ranges of less than 8,000 km not capable of carrying long-range (i.e. with ranges of over 600 km) air-launched cruise missiles (ALCMs) and submarine-launched ballistic missiles (SLBMs) with ranges of less than 600 km.

In addition, in line with parallel commitments of the US and the USSR/Russia on the reduction and elimination of tactical nuclear weapons dating back to the early 1990s, these include artillery shells and nuclear mines (demolition munitions) assigned to the ground forces; land-based and air-launched anti-aircraft missiles; air-to-surface missiles and bombs (including depth charges) assigned to non-strategic strike Air Force and Navy aircraft; various surface-to-air, anti-ship and anti-submarine missiles and torpedoes of surface ships and attack submarines, as well as depth charges and artillery shells of surface ships.

However, even such broad interpretation poses a number of questions. For example how to define long-range (over 600 km) nuclear sea-launched cruise missiles (SLCMs) that may be deployed on ships and attack submarines? In terms of technical characteristics, this system is close or even identical to the ground-launched cruise missile (GLCM) banned and eliminated under the INF Treaty and to the air-launched cruise missile (ALCM) included in the START Treaties, as well as to the conventional GLCM and ALCM widely deployed by the US Air Force and Navy. In relation to such nuclear SLCMs, START I Treaty provided for a separate ceiling of 880 for each of the parties, whereas the new START Treaty makes no mention of this category.

Further, some nuclear gravity bombs (such as the US B-61 and B-83) may be the armament of US heavy bombers as well as of tactical strike aviation.

Finally, alongside with the US and Russia, other nuclear states (France, the People's Republic of China, India, Pakistan, Israel, the Democratic People's Republic of Korea) also have short- and medium-range aircraft and missiles in their inventory. In some of the mentioned states, these systems comprise the entire nuclear capability or its major part. However, the above states do not regard these weapons as pre-strategic. In particular (talking of NATO) the French Strike Force includes 60 Mirage 2000N aircraft and 24 Super-Etendard carrier-based fighter-bombers that are capable of delivering a total of 60 Air-Sol Moyenne Portee (ASMP) air-to-surface missiles to the target. By their range these systems may be attributed to tactical nuclear weapons, though France regards them as a part of its strategic forces.

Still more important is the fact that TNW employ dual-use platforms, launchers and delivery vehicles (medium bombers, fighter-bombers, ships and attack submarines, short-range offensive missiles and surface-to-air missiles, naval weapons, heavy artillery). Therefore, unlike strategic nuclear forces, it is impossible to implement or control the limitation, reduction or elimination of TNW through the elimination of launchers, delivery vehicles or platforms (such as nuclear-powered ballistic missile submarines – SSBNs), since they all fall in the category of general-purpose forces inventory. They are designed mainly for conventional military operations and are partially covered by other agreements (such as the CFE Treaty, which limits non-strategic combat aircraft and artillery in Europe). Thus, any substantial reduction of TNW by their launchers and delivery

vehicles would lead to drastic cuts in combat equipment and arms of air forces, the navies, ground forces and air/missile defense of the nuclear powers, including those assigned missions in local conflicts.

Non-strategic nuclear weapons of the US and Russia. Neither of the two powers provides official information on its non-strategic nuclear weapons.

The United States of America. According to different expert estimates, by the end of the 1990s the US had over 11,500 such weapons (over 7,000 units in Europe and 1,000 units in Asia; 2,500 units in the Navy and 200 to 300 units as part of Air Defense system in the US territory). Another 4,000 nuclear weapons allegedly were maintained as strategic and tactical reserve. In line with the unilateral presidential initiative of 1991, the US withdrew from foreign bases to its territory and eliminated all tactical nuclear weapons of ground forces, removed all TNW from surface ships and attack submarines, excluding long-range SLCMs, and destroyed 50% of them.[116]

According to unofficial estimates, the US currently has around 500 TNW units. These include 100 Tomahawk SLCMs (TLAM/N) for attack nuclear-powered submarines at Kings Bay and Bangor naval bases in the US territory. Further 190 SLCM warheads (W80-0) are reserved in storage. In addition, there are 400 gravity bombs (B-61-3 and B-61-4), with 200 bombs at six US Air Forces special storages in five NATO member-states (Belgium, Italy, the Netherlands, Turkey and Germany). These bombs are to be delivered by F-16 fighter-bombers of the US Air Force, as well as by Belgian and British airplanes of the same type and by German-Italian Tornado strike aircraft.[117]

According to the new US Nuclear Posture, all Tomahawk nuclear SLCMs will be retired. However the B-61 gravity bombs will undergo life extension program to enhance safety, security and prevention of unauthorized use. The new tactical F-35 fighter aircraft will be certified to deliver these bombs. They are addressed in the context of nuclear guarantees to the allies and their future deployment in Europe will be subject to consultation among the allies.[118]

There is no reasonably reliable information on nuclear warheads stored in central sites on the US territory. These warheads are known to be stored in several storage facilities on the air and naval bases, in separate central locations and in depots at nuclear explosive devices manufacturing Pantex Plant near Amarillo, Texas. They are subdivided into various reserve categories; part of the warheads may be quickly made operational, other warheads are to be used for spare parts. Still other portion consists of warheads awaiting dismantling and removal of nuclear material for long-term storage for peaceful or military purposes (for the assembly of new warheads).

According to the recent official data, the US strategic nuclear forces, TNW force and the active stockpiled reserve consist of 5,113 nuclear warheads. Ac-

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[116] See: Пикаев А. Нестратегические ядерные вооружения / Ядерное распространение. Новые технологии, вооружения и договоры. Под ред. А. Арбатова, В. Дворкина. Московский Центр Карнеги. РОССПЭН. М., 2009. С. 129−159. (Pikayev A. Non-strategic Nuclear Weapons / Nuclear Proliferation. New Technology, Weapons and Treaties. Edited by A. Arbatov and V. Dvorkin. Carnegie Moscow Center. ROSSPEN. Moscow, 2009. PP. 129-159).

[117] See: SIPRI Yearbook 2008. Armaments, Disarmament and International Security. Oxford University Press, 2008. PP. 367−369.

[118] See: Nuclear Posture Review Report. PP. XII-XIV.

cording to independent experts' estimates, another 4200 weapons are de-activated and intended for disposal.[119] This number may increase due to the strategic nuclear forces reduction under the new START Treaty which permits a major part of the reductions to be implemented by removing some of warheads from multiple-warhead missiles and sending them to storage as well as extracting part of SLBMs from submarine launchers and placing the warheads in storage facilities.

The Russian Federation. Unlike its strategic nuclear forces, Russia's non-strategic nuclear assets are hidden behind a veil of even greater secrecy than those of the US. According to some estimates, Russia had up to 22,000 units of non-strategic nuclear weapons late in the 1980s.[120] In line with unilateral presidential initiatives of the USSR and Russia of 1991−1992, announced in response to the US decision and in the context of the break-up of the Warsaw Pact (and later of the USSR), a number of large-scale measures were outlined. In particular all TNW of the ground forces were to be moved to storages of nuclear weapons manufacturing plants and to central storage locations for subsequent total elimination. In addition, 30% of TNW of the Navy, 50% of warheads of surface-to-air Air Defense missiles, and 50% of the aircraft weapons were to be eliminated. It was also proposed that the two countries move all TNW of their Air Forces to central storage locations, however this motion did not win Washington's support (since it would have removed the TNW of the Air Force from foreign bases perceived as an attribute of nuclear guarantees to the allies).

According to available official data, by the year 2000 all TNW of the Navy and the Air Forces were moved to central storages, with 30% of them eliminated. Also, 50% of the Air Force TNW and 50% of the warheads of surface-to-air missiles were eliminated. In addition, a large part (although for financial reasons not all) of nuclear weapons of the artillery, tactical missiles and mines of the ground forces were eliminated as well.[121]

Currently, by the unofficial estimates of the majority of experts and foreign sources, Russia has an active stockpile of about 2,000 tactical nuclear weapons.[122] These include about 500 tactical nuclear air-to-surface missiles and gravity bombs for 120 TU-22M medium range bombers and 400 SU-24 tactical bombers. In addition, there are about 300 air-to-surface missiles, gravity bombs and depth charges of the naval aviation comprised of 180 TU-22M, SU-24, BE-12 and IL-38 aircraft. Over 500 tactical nuclear weapons are anti-ship, anti-submarine and anti-aircraft missiles and torpedoes of surface ships and submarines, including up to 400 nuclear long-range SLCMs of attack submarines. Allegedly, around 100 nuclear warheads are assigned to missile interceptors of the Moscow A-135 anti-ballistic missile system; another 630 pieces are assigned to C-300/400 surface-to-air and other air defense missile systems.[123] It is generally accepted that in time of peace all these nuclear weapons are stored at designated depots at air, naval and air defense bases.

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[119] See: Eliminating Nuclear Threat. A Practical Agenda for Global Policymakers. Report of the International Commission on Nuclear Non-Proliferation and Disarmament. G. Evans and Y. Kawaguchi co-chairs. Canberra, 2009. P. 20.

[120] See: Пикаев А. Указ. соч. С. 129−159. (Pikaev A., Index of collected works, PP.129-159).

[121] Ibid.

[122] See: SIPRI Yearbook 2008. PP. 373−375.

[123] Ibid.

As noted above, in the 1990s all TNW of ground forces and air defense, as well as most of the TNW of the Air Force and the Navy, were redeployed to the centralized storages of the 12th Main Directorate of the Ministry of Defense (12th GUMO) where they are kept in reserve or are awaiting disassembly and disposal. According to the declarations of the representatives of the military and political authorities, all non-strategic nuclear weapons are stored at centralized facilities.[124]

However, it is unclear whether that refers to storage facilities of air and naval bases placed under the management of the 12th GUMO, or to the previously built special centralized large storage facilities of the 12th GUMO. The latter also store warheads and other weapons of strategic nuclear forces. Although their total amount is kept in secret, foreign experts estimate it at around 8,000.[125] Equally questionable is the calculation method used by some independent experts, in particular, the fact that they include 630 warheads of air defense missiles in the total number of TNW, while Moscow insists that these warheads have been removed to central locations.

Russian tactical nuclear weapon systems are modernized through the deployment of Iskander tactical ground-mobile missiles that may apparently be equipped with either a nuclear or a conventional warhead. In addition, the new SU-34 tactical strike bomber will probably be a dual-use aircraft.

Other nuclear powers keep the information on their non-strategic nuclear assets in total secrecy. According to expert estimates, the People's Republic of China has around 100 to 200 such weapons, Israel has 60 to 200 pieces, Pakistan and India have around 60 and 50 pieces, respectively, while the Democratic People's Republic of Korea has 6 to 10 weapons.[126] These include medium and short-range ballistic and cruise missiles, as well as air bombs of strike aircraft. For some of the above countries, such weapons comprise their entire nuclear capability or its major part and are therefore regarded as strategic nuclear deterrent being within range of their principal opponents or of opponents' foreign military bases.

Strategic priorities of the parties. With the Cold War over, Germany united, the Warsaw Pact dissolved, the USSR collapsed and the Soviet troops withdrawn from Central and Eastern Europe, the threat of an attack by general purpose forces was lifted for the NATO member-states. It had been perceived as the principal threat for forty years since 1945, and it was this threat that the US nuclear deterrence and nuclear guarantees had addressed, including the deployment of TNW in Europe and the concept of first-use of these weapons in case of an attack of conventional armed forces and weapons.

Nevertheless, today the US alone has nuclear weapons in foreign territories (in five NATO member-states) in the amount of around 200 tactical air bombs. In the recent years, the US TNW have been withdrawn from Greece and the United

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[124] See: Литовкин В. Безопасность бывает только равной // Независимое военное обозрение. 19 декабря 2008 г. С.3. (Litovkin V. Security May Only Be Equal // Nezavisimoe Voennoe Obozrenie, December 19, 2008. P. 3);

Иванов С. Ядерное разоружение: возможен ли «глобальный ноль»? // Военно-промышленный курьер. № 6, 17–23 февраля 2010, С. 3. (Ivanov S. Nuclear Disarmament: Is "Global Zero" Possible? // Voenno-Promyshlenny Kurier. #6. February 17-23, 2010, P. 3).

[125] See: Eliminating Nuclear Threat. P. 20.

[126] See: Пикаев А. Указ. соч. С. 129–159 (Pikaev A., Index of collected works, PP. 129-159).

Kingdom. After the tactical nuclear weapons were dismantled from the US ships and submarines, Japan – where the US Seventh Fleet was anchored – was also dismissed from the list. There has been serious discussion among NATO member-countries on the issue of withdrawal of US TNW from the Europe.

Apparently, these weapons are regarded by the US as a sort of a "political rein" for the NATO allies, despite the fact that the new Nuclear Posture gives these weapons a much lower priority, while stating that with the consent of the allies, the US would be ready to withdraw TNW to its national territory.

With NATO expanding to the East, the past supremacy of the USSR and the Warsaw Pact in general-purpose forces was replaced by a similar supremacy of NATO over Russia and the countries of CSTO.

In this light, it is evident that Russia perceives tactical nuclear weapons primarily as an instrument to neutralize NATO superiority in general-purpose forces, especially in the context of the eastward expansion of the Alliance. This is why Moscow has not been enthusiastic about negotiations on this subject. In the past, the US also tried to avoid the issue, as it strived to maintain its forward-based nuclear forces in Europe.

Secondly, Russia apparently regards its advantage in non-strategic nuclear arms as a compensation for the fact that it is falling behind the US in terms of strategic weapons – a gap that the new START Treaty will narrow, but will not bridge.[127]

Thirdly, Russia regards TNW as a counterbalance to the nuclear forces of third nuclear states, Russia's territory being within the range of nuclear weapons of all of these states. The reduction of strategic nuclear forces in line with US-Russia agreements relatively increases the role of Russia's non-strategic weapons as a deterrent against the nuclear powers in Eurasia.

Fourthly, there is still the issue of TNW used in response to an attack by US long-range precision-guided conventional weapons supported by advanced space information systems (reconnaissance, targeting, navigation and communications). This TNW purpose has not yet been discussed in the publicly available media, although there is a certain strategic logic behind that. If strategic nuclear forces are used in a retaliatory strike in response to non-nuclear aggression ("aerospace attack"), it would mean instant escalation of the conflict to the level of a total nuclear war. However, using TNW against air and naval bases as well as against surface ships and submarines carrying non-nuclear SLCMs could look more like an adequate response and a more credible deterrent against an "aerospace attack".

Meanwhile, China with its increasing military power and the 5,000 km of the border it shares with Russia cannot be disregarded either. However, this issue has been sidestepped in Russia's official papers for the reasons of political correctness.

Conditions for negotiating TNW. It appears that the top priority given in Russia's Military Doctrine of 2010 to the threat of the expansion of NATO and its basic infrastructure toward the Russian borders is considerably overstated, at least in terms of the threat of an actual armed attack against Russia and its allies.

In fact, the Allied Forces have been reduced: since the 1990s, the ground forces have been reduced by 35%, while the Navy and the Air Forces have de-

[127] In particular under the new START due to its counting rules and dismantling provisions the US will maintain a huge nuclear warheads up-load capacity (up to 2000 additional warheads), which Russia will be lacking.

creased by 30% and 40%, respectively. The US troops have been reduced by a third within the same period (from 300,000 to 112,000). In total, the NATO forces are below the initial CFE limits – by 42% in personnel, by 25% in armor and artillery and by 45% in combat helicopters and aircraft.

Thus, the increase in the number of NATO member-states does not automatically involve a build-up in the total amount of the Alliance's potential due to outscoring reduction of the armies by several states, in particular of the US continental troops, as well as of German, French, Italian, Spanish and Polish armies. Currently, the 28 NATO member-states have a lower overall amount of troops and weapons than the 16 NATO member-states of the early 1990s. This would hardly be the case if the Alliance was planning for a large-scale aggression against Russia.

The development of the US long-range precision-guided weapons relying on space information systems truly complicates Russia's defense planning. However, this threat should not be exaggerated either, since the risk of an attack by advanced conventional weapons against Russia with its huge nuclear arsenal would be disproportional to any imaginable gains of such an aggression in terms of its probable consequences.

It is equally important that after the end of the Cold War, in the context of increased economic, social and politic interdependence of the countries throughout the World resulting from the ongoing globalization, one can hardly see any realistic reason of an attack against Russia by the US and its allies.

Nevertheless, Russia cannot disregard the adverse trends in the balance between conventional and nuclear forces both globally and on the regional scale (even if these trends are to a large extent the result of the failures of its own military reform in the last 15 years). These military and security issues are prioritized in the country's new Military Doctrine, and this fact must be accepted as a military and political reality. Persuading Russia that its official perception of these issues is wrong will not relieve Russia's concerns. To do so, every possible step must be taken to remove these impediments by negotiations and by adjusting NATO military policy.

In the first place, it means that given the changes in Ukraine's domestic situation and Georgia's territory-related problems, the issue of NATO membership for these countries should be indefinitely postponed. The development of NATO-Russia and NATO-CSTO cooperation – primarily as regards stabilization in Afghanistan – must render impossible any future eastward expansion of NATO without Russia's consent. Along with ensuring territorial integrity and sovereignty of former Soviet republics, it would be best to include these guarantees in the new European security system proposed by Russia.

The military component of such a system may be the revival of the system and process of reducing and limiting conventional forces and weapons in Europe to serve as the framework for resolving issues related to non-expansion of NATO military infrastructure to the East. Creating a large CSTO-NATO rapid reaction corps for peacekeeping operations outside Europe (including Afghanistan) and a similar EU-Russia corps (in the framework of European Security and Defense Policy) for operations on the European continent would be of utmost importance to remove traditional fears of each other once and for all (like those of France and Germany).

Cooperative assessment of missile threats and cooperation in the development and deployment of US-EU-Russian missile defense systems to address these threats must replace unilateral efforts of the US and its allies in this sphere.

The limitation of long-range high-precision weapons is to a certain extent addressed by the new START Treaty with respect of ballistic delivery vehicles. Regarding cruise missiles this issue should be discussed in the course of further START negotiations. In other respects, this issue could be addressed in the context of a special new area of treaties on the reduction of weapons, confidence-building measures and military cooperation between the US and Russia.

The above "package" of negotiations and arrangements would provide proper political and strategic framework for Russia to agree to substantive discussion with the US and NATO of the issue of non-strategic nuclear forces.

With respect to China as an obscure threat on Russia's eastern frontiers, the multilateral agreement on the limitation of conventional armed forces and weapons in the 100-kilometer zone on either side of the Russian-Chinese border may become a sort of a foothold. Given the progress in strengthening mutual security in Europe as well as in NATO-CSTO-SCO cooperation on Afghanistan, additional steps must be made to reduce the forces of Russia and the People's Republic of China along their shared border and to deepen this area (up to 200-300 km) into the territories of the two friendly powers. In this case, the negotiations on TNW would be also linked to a package of agreements on the security of Russia's eastern frontiers.

Possible solutions. The current revival of the idea of nuclear disarmament as well as the progress in the strategic nuclear forces reduction will inevitably draw out the TNW issue. In addition, Russia links this issue to the termination of NATO eastward expansion and the progress on the CFE Treaty. Such a position is quite reasonable; it may become an additional means of achieving these objectives.

Incredible as it may seem, the new START Treaty has already had an indirect effect on the issue of non-strategic nuclear forces. However, this effect was quite different from either what the US Senate would welcome or what many Western policy-makers and experts currently see.

During the negotiations on the START Treaty the US – pursuing its own interests – insisted that only operationally deployed nuclear weapons be counted, while "operationally deployed" are the warheads that are actually deployed on SLBMs and ICBMs. The armaments of heavy bombers (ALCMs and bombs) are not counted as separate warheads, since in peace time they are not loaded to airplanes, but located at airfield depots.

Under the same principle and following this precedent, all TNW are currently not "operationally deployed", since they are not deployed on delivery vehicles in peace time. Instead, they are stored at the facilities of the air and naval bases or at centralized storages in Russia and the US.

Of course START precedent should not necessarily apply to future TNW negotiations, and the 2010 Prague Treaty is valuable on its own terms. But technical and operational characteristics of TNW will nevertheless demand elaboration of specific counting rules, reduction and limitation provisions and verification regimes.

As mentioned above, it is not possible to associate the reduction and elimination of TNW with the reduction of strategic nuclear forces, since TNW employ

dual-use delivery vehicles. In fact, the limitation, reduction and elimination of TNW means the dismantlement of nuclear warheads mounted onto dual-use missiles, torpedoes and bombs carried by multipurpose aircraft, surface ships and submarines. Therefore, the reduction of TNWs (unlike the reduction of strategic nuclear forces), can not be implemented and controlled through the elimination of delivery vehicles, launchers and platforms.

For the same reason, it is exceptionally difficult to agree on the reduction of TNW to certain levels and to verify such measures, since it would mean inspecting the containers with bombs and warheads at storage facilities instead of inspecting the deployed (as well as non-deployed) launchers and delivery vehicles. This would be a much more difficult task, since the TNW munitions are often stored together with strategic warheads and bombs removed from missiles and bombers under the START Treaties and together with munitions intended for elimination and utilization. Meanwhile, there are dozens of such storage locations and many thousands of munitions in containers.

Maintaining large numbers of delivery vehicles (of dual use) would make the physical elimination of TNW warheads a pure formality (as well as a complicated and a costly one), since it would be impossible to either strictly control the number of the remaining nuclear weapons in storages – or to guarantee that new weapons of the same class are not manufactured and put to storage in order to replace the eliminated pieces (waiting to be returned to the military forces as the need arises).

Similarly, elimination of the outer cones of nuclear warheads (as is stipulated by the INF Treaty) would be an inefficient measure. The warheads of medium- and short-range missiles could not be returned to delivery vehicles since the latter were all dismantled, whereas the situation with TNW is completely different: their delivery systems would stay in service as conventional weapons.

While it might be possible to control the physical elimination of nuclear warheads without compromising military technical secrets, the control over the weapons at storage locations and in depots of manufacturing plants (or in assembly shops) would involve an unprecedented level of openness in one of the most delicate areas of military technologies of the parties – the designs of nuclear warheads and explosive devices.

The same applies to a simple exchange of information on the numbers and types of tactical weapons in storage, if it is to be reliably verified. Therefore, mutual elimination of a part of TNW (say, 50% or 80%) or a specified amount of TNW is hardly acceptable for the party that has a much lower number of such weapons, since it would be difficult to estimate exactly how many TNW the parties now have.

Therefore, in dealing with TNW the parties will have to deal much more with storages than with actual weapons. The first step may be the relocation of all tactical nuclear weapons from forward bases to central storage locations in more remote areas of the national territories (in point of fact, to the reserve). Prior to that, the parties would have to exchange information on the existing weapons of such class at their air and naval bases. As an option, the parties may initially agree on such measures with respect to TNW attributed to the Air Forces of the US and Russia, and then proceed with the Navy.

In this context, the US would initially withdraw its 200 air bombs from six storages in five European countries, while Russia would send a total of about 500 bombs and air-launched missiles from the air bases in its territory to central storage locations. The principle of equality will require not only a relocation of the US TNW to its national territory, but a ban on their presence at the air bases (and, subsequently, at the naval bases) or in any areas other than central storage locations to be designated specifically.

Complete withdrawal of TNW from forward bases is easier to verify – the storage facilities of known location and characteristics would simply be empty. There will also need to be an agreement on inspections upon request at short notice (similar to those agreed for strategic offensive weapons for the bases of ICBMs, SLBMs and heavy bombers) at air and naval bases in the territories of Russia and the US (probably also in the national territories of their allies, where such weapons had been located in the past). Therefore, in practical terms, the potential agreement may be a more complicated and delicate issue for the US than for Russia, and may require greater effort on US side.

Relocation to central storage locations would remove TNW from the forward positions and ensure greater security against their acquisition by terrorists, as well as against their unauthorized relocation or use. At the same time, such an arrangement would mean that Russia will be capable of returning the TNW to the armed forces if there is a security threat on the country's western or eastern borders. Likewise, NATO would theoretically be capable of a similar response. Provided reliable verification of storage facilities such a step would take a long time and would be highly visible for both sides and would not take any of them by surprise. Moreover, according to the Pentagon and to Russia's senior military officers, this will not imply serious expenditures, since the major part of TNW has already been moved to central storage locations in Russia and to storage facilities in the US.

At centralized storages TNW would be actually safely kept in reserve waiting till the time disarmament extends to eliminating nuclear warheads and utilizing nuclear materials for peaceful purposes. From the technical perspective and in terms of verification of compliance, the dismantlement and elimination (or destruction) of TNW would be identical to the elimination of strategic bombs and warheads, which is not on the agenda of START as yet. In the future, if the scope of nuclear disarmament is extended to include the elimination of nuclear warheads, it would probably involve both strategic and non-strategic warheads in parallel.

IV.4. RUSSIA, NATO AND BMD PROGRAMS

It is quite probable that the position of Obama Administration presupposes, in line with the negotiations on new strategic nuclear arms reductions and uniting efforts in the sphere of BMD between USA-Russia-NATO – to have in parallel consultations on TNW and conventional arms, on the problems of Iran and North Korea. But from Russia's angle it is the future of ballistic missile defense in US-NATO-Russia format which is of utmost importance.

Defining of priorities in such a way is quite justified hence the crisis in the US-Russian relations, provoked by the past plans of deployment of the US missile defense in Europe, which receded after the decision of President Obama's to go for a new missile defense architecture, may return in even more acute form after acquiring of the naval missile system with Standart-3 anti-missiles and their ground analogy by 2020.

Plans and perspectives for US missile defense in Europe. In accordance with the plans to deploy missile defense announced in 2009 by the US Administration and Pentagon, further buildup of strategic Ground-Based Interceptors (GBI) in Alaska (Fort Greely, 26 interceptors) and in California (Vandenberg, 4 interceptors) is suspended. A reserve of 14 GBI silos is to be constructed in California. The interceptors are to be loaded in them in case of necessity. It is assumed that thus the protection of the US territory against single ICBM launches is ensured, but GBI test launches will continue.

The plans of deployment of theater missile defense (TMD) in Europe and other regions in order to ensure protection against Iran's ballistic missiles include four stages.

The first stage will be completed in 2011 and involve the deployment of ships equipped with SM-3 interceptors (Block IA) in the Mediterranean for protection of European territory and allied power projection forces from Iranian short- and medium-range ballistic missiles.

At the second stage by 2015, improved SM-3 interceptors (Block IB) and additional radars will be deployed, which will enhance the efficiency of strategic interceptors in Alaska and California, as well as missile defense in Europe. Ground-based analogs of sea-launched SM-3S interceptors are to be deployed in Southern Europe.

At the third stage (2018), an upgraded SM-3 interceptor (Block IIA) and its ground-based version, both of which will have improved efficiency in intercepting medium-range ballistic missiles, are to be deployed in Northern Europe. With this purpose SM-3 interceptors are developed which will have an extended range due to increased weight of solid fuel (diameter of the second and third stages will increase about 1.5 times, that is, from 0.343 to 0.533 m).

Finally, at the fourth stage, by 2020, the SM-3 interceptor (Block IIB) is to be further upgraded in order to enable it to engage ICBMs.

Alongside with that, throughout all four stages combat command and targeting systems will be improved. It is expected that the increased velocity of interceptors will enable them (if Aegis ships are deployed in the Mediterranean) to intercept Iranian medium-range and intercontinental missiles at the boost phase.

At this moment some technical characteristics of TMD will cross the "gray area" between theater and strategic missile defense systems.

TMD effectiveness and the threat to Russia's nuclear deterrence. By the present time, it is has not been finally decided whether ground-based version of SM-3 interceptors (in Romania, Bulgaria), or X-band (centimeter) radars will be deployed in Europe. It is not excluded that these radars may be deployed in Turkey, Georgia, and Eastern European countries. In any case, these radars will be an integral part of a common missile defense for the territories of the US and Europe, which will also include the radars of the missile launch early warning system. In this capacity, the system in general will be viewed by Russia as a threat to its nuclear deterrence capacity.

One assessment of the capability of US missile defense in Europe to intercept Iranian missiles was presented in May 2009 in joint papers by US and Russian experts published by the East-West Institute. These papers show, in particular, that X-band radars, due to their relatively high resolution (up to 15 cm), can detect some of decoys, as well as warheads, at the exoatmospheric part of trajectory, although they are incapable of guaranteed distinguishing between them. Besides, even relatively simple countermeasures available to Iranian missile forces can reduce the warhead cross section from 0.03 cm^2 to 0.01 cm^2, which would considerably reduce warhead acquisition range. At best, an increase of the X-band radar modules by 80,000 units will bring acquisition range to about 1,300 km. with the minimum necessary range being about 2,000 km. On an average, the destruction of one warhead of Iranian missile would require a total of five interceptors.

It is beyond any doubt that Russian intercontinental ballistic missiles (ICBMs) and SLBMs are equipped with much more efficient missile defense penetration aids, which have been continuously advanced for several decades and are further upgraded and adapted to prospective missile defense systems. For this particular reason, the new US missile defense to be deployed in and around Europe would have no practical effect on Russia's nuclear deterrence capacity.

A danger for the Russian Federation may only appear if there is a major deployment of land, sea, air and space echelons of interception of missiles and warheads at every phase of their trajectories, which is connected with the revival of nuclear standoff and new arms race. However, the possibility of such radical increase in tensions between the US and Russia is very small.

At the same time, in case the US unilaterally deploys its missile defense in Europe, even as envisaged by the new architecture announced by Obama's Administration, there *may be a new missile defense crisis in the two states' relations*, similar to the one that happened around the previous plans to deploy missile defense sites in Poland and the Czech Republic. This is even more so after the declarations on strategic cooperation were adopted, which also provide for such cooperation on missile defense. The linkage of strategic offensive and defensive arms was recognized in the new START Treaty in 2010. It is only possible to prevent such a crisis if steps are made to start real cooperation of the US/NATO and Russia on European and global missile defenses.

Advantages and possibilities for creation of cooperative US-Russian TMD. President Obama and the Pentagon leadership have already repeatedly announced their readiness to cooperate with Russia on missile defense. During President Obama's visit to Moscow he said: "In fact, I want to work together with

Russia on a missile defense architecture that makes us all safer. But if the threat from Iran's nuclear and ballistic missile program is eliminated, the driving force for missile defense in Europe will be eliminated, and that is in our mutual interests".[128] Statements by Russian leadership on this subject are more cautious.

So far, the announced US and Russia's intentions to cooperate on missile defense have materialized only in assessing and searching for agreement upon possible missile threats. It is far from inconceivable that this process may turn out to be quite lengthy. Russian experts will continuously postpone Iran's and North Korea's developing extended-range missiles, as these countries use old technologies originating from the Soviet Union. American assessments will be based on the data showing that these countries use more up-to-date technologies obtained from other states.

Probably little if any consideration will be given to the recent assessments by competent US and Russian specialists in the framework of the project of the International Institute of Strategic Studies, describing in detail the status and prospects of Iranian and North Korean efforts to develop ballistic missiles and space launch vehicles.

Meanwhile, Russia's ability to cooperate fully at best does not increase over the years. Before, it could be said that Russia was more advanced in developing high-velocity interceptor missiles due to advanced solid fuel formulae, while now this is hardly true, as the US has been working intensively to develop interceptors to engage missiles at the boost phase.

Yet, there are still considerable possibilities related to missile defense information systems. According to US independent experts, the integration of the US and Russian missile launches early warning systems would render the detection of missile launches 30-70 percent more efficient. Deeper cooperation may be established through the deployment of low Earth orbit space information support systems of global missile defense. The spacecraft for this purpose may be placed in orbits with the required altitude and inclination with the help of the converted "heavy" rockets in the framework of Russian-Ukrainian Dnepr project.

In order to protect various sites in Russian and partly European territories, the joint missile defense could use Russian missile interception systems of the S-400 or prospective S-500 types.

It is advisable to overcome existing obstacles, primarily by restoring those elements of cooperation that have been lost in recent years. First and foremost, it is necessary to immediately revive the project of establishing a Center for the Exchange of Data from Early Warning Systems and Notifications of Missile Launches (Joint Data Exchange Center – JDEC) the decision on which was made 12 years ago by the presidents of the US and Russia. The current presidents reiterated this intention at their meeting in Moscow in 2009. Alongside with that, the interrupted series of joint US-NATO-Russian computer TMD exercises should be renewed and expanded beyond the theater defense scale and from computers to test ranges. As the experience of joint exercises has shown, there should be no considerable difficulties in the division of zones of responsibilities in interception coverage.

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[128] See: Remarks by the President at the New Economic School Graduation. (http://www.whitehouse.gov/the_press_office).

Combining the detection, tracking and interception systems of NATO and CSTO air defense (primarily Russia and Belarus joint system) could be another key sphere of politico-military cooperation beyond the scope of traditional arms limitation. The threat of air terrorism makes it urgent that such combined system be created, although the urgency has not yet been perceived by the two sides' political and military community.

The tragedy of September 11, 2001 showed the scale of damage inflicted by this type of terrorism even when no WMD are used. Air terrorism with the use of nuclear explosive devices (or other WMD) poses an even greater threat, taking in consideration that aircraft are much more available and convenient means of delivering such weapon as compared to ballistic missiles against which the missile defense is assigned.

Joint air defense can also protect Russia and other European countries against long-range cruise missiles and unmanned aerial vehicles carrying WMD and targeted with the help of widely available space navigation means, which can be acquired by terrorists. Finally, honed joint actions of air defense can be helpful in combating hijackers of civil aircraft which may cross the borders of several European states on their way, which would require trans-border coordination of air defense tracking and interception systems.

At the same time, the integration of air defense systems would eventually exclude the threat of NATO and Russia's air strikes against each other and their military clash in general, from the military doctrines and armed forces training and exercises. Due to the key role of air force in contemporary warfare, the countries with common air defense system would be technically unable to fight with each other (unless they previously withdraw from common air defense structures). The cooperation in this sphere would prevent any future tensions with regard to such steps as the development of joint Russian-Belarusian air defense or the deployment of the US Patriot systems in Poland.

By the summer of 2010, the tests of an element of a joint Air Traffic Control Coordination System[129] have commenced. Yet this is just the first step involving only operational exchange of information on possible aircraft hijacking. The system should be consistently expanded with the view to deep integration of information and interception systems of territorial air defense.

In addition to preventing a very likely new missile defense crisis in the US-Russian relations, the mentioned steps can have a decisive impact on positive transformation of the two nuclear superpowers' relations of mutual nuclear deterrence towards more constructive strategic cooperation relationship.

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[129] See: Независимое военное обозрение. № 17, 14−20 мая 2010 г. С. 2. (Nezavisimoe voennoe obozrenie. # 17, May 14-20, 2010. P. 2).

IV.5. NATO AND THE PROSPECTS OF THE CFE TREATY

Strategic offensive arms reduction in line with the limitation and reduction of armaments in other spheres, under favorable political conditions may become a permanent factor of bilateral and multilateral relations. From one side, this by itself will create a new political reality and more favorable environment for the US and Russia to develop partnership and close cooperation. From the other side – revitalization of nuclear arms reduction process, engaging new types of weapons in it will create conditions for advances in other fields of arms control.

As the number of nuclear weapons – this "universal equalizer" of military potentials – reduces, the significance of conventional weapons will grow. The role of this factor is highlighted by Russian scientists who stress that "with lower nuclear weapons thresholds the absence of balance in general purpose forces and conventional arms, which at the moment is considerable and not in favor of Russia, becomes increasingly important".[130] Moreover, in the emerging realities, conventional arms are becoming an element of relations, which earlier characterized interaction in strategic sphere. As a result, "without taking these violations of balances in the current environment in consideration, one cannot develop adequate formulae of strategic stability in its integrity, both in the field of strategic nuclear weapons and in the field of general purpose forces and conventional arms".[131]

Problems of conventional armed forces reductions in Europe. In the context of the Treaty on Conventional Armed Forces in Europe, currently there is a notable asymmetry in the number of weapons of NATO and Russia, which will increasingly affect strategic stability and undermine political cooperation between the sides. Rapid changes in geopolitical realities led the countries of Central and Eastern Europe that originally belonged to other group of states (former members of the Warsaw Pact) and which were counted together with Russia in a mathematically accurate balance of forces vis-à-vis NATO, to join the NATO block.

An extended stalemate in this sphere, a prolonged reluctance of the western partners to ratify the agreement on further reduction of conventional armed forces in Europe (the 1999 Agreement on Adaptation of the CFE Treaty) fuelled tensions in this field, which, together with general deterioration in relations between Russia and the Western countries, lead Moscow to announcing moratorium on the implementation of the CFE Treaty in 2007. By that time, Russia's official representatives had made special emphasis on the superiority of NATO forces over Russia, which, as some of them believed, was estimated as 11:1 in the southern and northern zones.[132]

This unbalanced force ratio is widely used by Russian political opposition to cooperation with the West, to corroborate their theses that the West strives to obtain military advantage over Russia. Thus, in order to improve NATO relations

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[130] Кокошин А. Обеспечение стратегической стабильности в прошлом и настоящем (теоретические и прикладные вопросы). М., 2009. С. 161.

(Kokoshin A. Ensuring Strategic Stability in the Past and in Present (Theory and Application). Moscow, 2009, P. 161.

[131] Ibid.

[132] See: Interview of M.A. Konarovsky, Russian Ambassador in Croatia // Jutarnji list, December 21, 2007. (Text in Russian: http://www. zagreb.mid.ru/interview/int2007-12-21.html).

with Moscow and to support the process of democratic transition in Russia (which is closely enough linked to Russia's relations with the West), it would be necessary to make decisive steps in order to revive the regime and process of reduction and limitation of conventional arms in Europe.

Agreement on Adaptation of the Treaty on Conventional Armed Forces in Europe signed in 1999 in Istanbul (which is often referred to as the CFE-II Treaty, which was to replace the first one, the CFE-I Treaty signed in 1990) is a "new type" of agreement based on non-alliance counting principles. This instrument provides for ceilings for conventional armaments in Europe, the territory of which, for the purposes of implementation of the Treaty limitations, is divided into zones. The transfers of armaments between the zones (in the form of temporary deployment or emergency deployment) are admitted only in small numbers and must be notified to the state-parties. The instrument provides for relatively complicated procedure to justify such activities (which are, moreover, of short duration) and requires the consent of other state-parties to such activities.

As a result, despite some Russian politicians' and experts' fears of NATO military capability, this alliance would be physically unable at the same time to comply with the Treaty and to create a capability for a surprise and wide-scale offensive. Preventing this possibility had been the aim of the CFE Treaty according to the 1989 negotiating mandate.

Therefore, the Agreement on Adaptation, or the CFE-II Treaty is a qualitatively new level of confidence-building and ensuring security in Europe, primarily for Russia. However, this important document up till now has not been ratified by the overwhelming majority of the parties. Only four states' legislatures (Belarus, Ukraine, Kazakhstan and Russia) out of 30 have ratified the Agreement.

As a pretext for non-ratification the Western countries have used two documents – Russian-Georgian and Russian-Moldovan agreements. Those appeared accidentally during the 1999 Istanbul Summit and were consequently mentioned in the final document of the Summit.

The Russian-Georgian document set forth the terms of withdrawal of Russian Treaty-limited equipment (TLE) from the territory of Georgia and the Russian military bases, as well as the completion of talks on the terms and conditions of the functioning of these bases. Russia had fulfilled its obligations vis-à-vis Georgia before the 2008 conflict burst out.

As for Russian-Moldovan arrangements, Russia undertook to consider the issues of weapons remaining in Moldova since the Soviet period and stockpiled in the territory of self-proclaimed Moldavian Republic of Transdniestria. The removal of these arms, the amount of which was almost 42,000 tons, proved a major technical and financial challenge. Still, wth regard to Moldova, Russia fulfilled all procedures directly related to the CFE limitations.

No doubt, both bilateral documents have certain legal weight and political significance. However, as compared to a truly immense task of strengthening European security, which had been the purpose of the CFE-II Treaty, two short documents containing unspecified obligations and adopted, as diplomats say, "on the margins" of the Summit, should not have been considered as a serious obstacle. Yet, the Western partners have taken a legal and formal position and used this as a pretext for the non-ratification of the CFE-II Treaty.

As the Western countries delayed the ratification, the claims of the Russian side were increasing. They were based on the fact that initially, the Treaty on Conventional Armed Forces in Europe (CFE-I Treaty) had been concluded between two groups of states, but as a result of the radical changes in the late 1990's one of these groups (NATO and Warsaw Pact were not explicitly mentioned in the text of the Treaty) broke up, and its former members joined the opposing group of states, that is, NATO.

Russia's had an extremely negative attitude to the policy of NATO expansion and the alliance itself, which has been viewed in Russia as a Cold War military legacy retaining anti-Russian capability. Neither mutual assurances of intentions "to develop, on the basis of common interest, reciprocity and transparency a strong, stable and enduring partnership" (NATO-Russia Founding Act, 1997), nor the obligation to "work as equal partners" (the Rome Declaration, 2002) managed to considerably change the situation.

In all the relevant Russian documents, the Alliance expansion has been long considered as posing a direct threat to Russia's national security. "The expansion of military blocs and alliances prejudicing the military security of the Russian Federation" occupied the fourth place in the Major External Threats section of the 2000 Military Doctrine. The recent Russian Military Doctrine (2010) regards the intention to "move the military infrastructure of NATO member states closer to the borders of the Russian Federation, including by expanding the bloc" as a pre-eminent external military danger. All this clearly demonstrates that despite all declarations of "partnership", NATO-Russia relations are far from the level at which the sides would be ready to unconditionally trust each other's assurances of peaceful intentions unless those are supported by practical measures of verifiable armed forces and arms limitations.

Russian side was increasingly concerned, in the context of the CFE Treaty process, over the buildup of NATO's military capability due to accession of new members. Before Vladimir Putin announced the course towards "moratorium" on the implementation of Russia's obligations under the CFE Treaty on April 24, 2007, Russia officially had presented "accumulating concerns" which were regularly expressed in one form or another at the CFE Treaty review conferences.

After the President of the Russian Federation announced the moratorium, Russia's list of concerns increased. Reluctant to completely reject its obligations, the Russian side tried to soften the impact of the moratorium. It stressed that it was not a final and irreversible measure, and would remain in force "until all the States Parties had ratified the Agreement on Adaptation and begun to implement it rigorously".[133]

Due to the fact that exceptional circumstances relating to the Treaty have arisen,[134] Russia insisted on convening extraordinary conference of the states par-

[133] Statement by A.I. Antonov, Head of the Delegation of the Russian Federation, Director of the Department for Security Affairs and Disarmament of the Ministry of Foreign Affairs of Russia, at the Extraordinary Conference of States Parties to the Treaty on Conventional Armed Forces in Europe. Vienna, June 12, 2007. (Text in Russian: http://www.mid.ru/ns-dvbr.nsf/6786f16f9aa1fc72432569ea0036120e/8192ad478355579ec32572f90028c9ef?OpenDocument).

[134] According to Russia, the exceptional circumstances included, in particular, serious problems in the implementation of the Treaty by NATO members as a result of the expansion of the

ties, which took place on June 12-15, 2007. At the Conference, Russia's concerns were grouped in six, instead of four, clusters which developed the concerns expressed before.

Firstly, Hungary, Poland, Slovakia and the Czech Republic were added to Bulgaria and Romania previously listed as violators, as they failed to formalize changes in the composition of the groups of states parties in connection with their accession to NATO.

Secondly, the partners in negotiations were accused of exceeding CFE "group" limitations by state-parties which signed or acceded to the Treaty of Washington of 1949 (as a result of the expansion of the alliance). The attention was drawn to the pertinent provision, implying that in case of the alliance expansion, NATO members should comply with initial CFE "group" levels.

As Russia's representatives reminded, this provision was included at the insistence of Russia in the 1997 NATO-Russia Founding Act.[135] (It should be noted that in this document such provisions are only implicit. It says that "the States Parties will take into account all the levels of Treaty-Limited Equipment established for the Atlantic-to-the-Urals area by the original CFE Treaty",[136] while the word "expansion" in connection with NATO was not mentioned at all.).

Thirdly, Russia stressed once again the "negative effect" of the planned deployment of the US conventional armaments in Bulgaria and Romania on compliance with the CFE "group" limitations.

Fourthly, (which was a new, "generalized" point) Russia's representatives drew attention to some states parties' failure to implement the political commitment adopted in Istanbul regarding the expeditious ratification of the Agreement on Adaptation.

Fifthly, Russia noted the failure of the Czech Republic, Hungary, Poland and Slovakia to implement the commitments adopted in Istanbul regarding the downward adjustment of their territorial ceilings (TCs).

Sixthly, Russia highlighted the already mentioned negative effect of the failure of Latvia, Lithuania and Estonia to participate in the Treaty, which could lead to large deployments of NATO forces in the Baltic states without formal violation of the Treaty.

Based on the obligations under the CFE-I Treaty in the absence of a new ratified instrument, as Russia proposed, the so called "Western" group both formally and actually exceeded the levels for the holdings of armaments. According to Russian estimates, in the zone specified in Article V of the CFE Treaty, that is, in the flank area, NATO countries had the following actual holdings of TLE as of January 1, 2007: 5,954 battle tanks, 8,591 armored combat vehicles (ACVs), 7,590 artillery pieces. That is 1,254 tanks, 2,691 ACVs and 1,590 pieces of artillery above the levels set forth in Article V, para. 1 of the CFE Treaty.[137]

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alliance, and their delaying the ratification of the Agreement on Adaptation of the CFE Treaty, signed in 1999.

[135] See the statement by A.I. Antonov.

[136] Founding Act on Mutual Relations, Cooperation and Security between the North Atlantic Treaty Organization and the Russian Federation. Paris, May 27, 1997. (http://www.nato.int/cps/en/natolive/official_texts_25468.htm).

[137] See: Анализ исключительных обстоятельств, относящихся к Договору об обычных вооруженных силах в Европе. (Прил. I). 25 июня 2007 г.

The painful issue of flank ceilings was also touched upon. As Russia is the only country observing such ceilings (besides small quotas of Ukraine, Kazakhstan and Turkey), the Russian side called for a political decision to abolish them.

Certainly, the situation could appear less dramatic, if analyzed in the context of partnership. For instance, one could take into account official statements of the Baltic States on their readiness to accede to the CFE Treaty as soon as it was ratified. The military capabilities of Bulgaria, Romania and other smaller European countries which joined NATO are small and pose no military threat, although the mentioned alliance flank ceilings were really exceeded.

As the situation worsened, the negotiating concerns turned into political ones, when Russian senior military officials started to publicly accuse NATO of having hidden agendas and claim that Western countries refusal to ratify the adapted CFE Treaty implied intending to massively redeploy their military units in the European continent towards Russian borders.

The moratorium on the implementation of the CFE Treaty announced by Russia demonstrated that the compromise in settling these negotiating problems was not reached. The steps taken by Moscow in order to resolve the crisis by withdrawing troops from Georgia and Moldova had not satisfied the Western countries. NATO representatives have exercised no due political wisdom. The "window of opportunity" which was open for a long time, was not used, and the Georgian conflict that followed in 2008 brought the sides to a deep political deadlock.

NATO and the search for a compromise on the CFE Treaty. The role of NATO in searching for solution has increased recently, as well as the efforts of the US. Active participation of the latter in resolving issues of the CFE Treaty can only be welcomed.

Yet, constructive discussion of this package in recent years has been virtually pointless due to steadily deteriorating US-Russian relations. To date, especially after the new START Treaty was concluded, the situation is much more favorable.

The obstacles to the implementation of the CFE Treaty-related arrangements include, *firstly*, the uncertainties of the future process of expansion of NATO.

Secondly, the sovereignty of Abkhazia and South Ossetia is not recognized by the West, and the newly emerging Russian military bases in these countries are regarded as bases in the territory of Georgia.

The situation now has become more complicated than before. The Western state-parties to the CFE Treaty may believe that Russian military bases have never been removed from Georgian territory, while Russia has legal grounds to claim it has no military bases in Georgia.

No political decision to this complicated issue, which would satisfy both sides, can be expected in the near future. Yet, with regard to the CFE Treaty, a technical solution is theoretically possible. The issue of Russian military bases in the territories of the two republics might be "factored out", and a separate docu-

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(Analysis of exceptional circumstances relating to the Treaty on Conventional Armed Forces in Europe (Annex I), June 25, 2007).

(http://www.mid.ru/ns-dvbr.nsf/6786f16f9aa1fc72432569ea0036120e/e3c9929f66b06259c325730500216aad? OpenDocument (in Russian).

ment might be adopted on this matter to govern the status of these bases. In future a "technical compromise" on this issue can be reached within a wider "package deal" on CFE, for instance, in linkage to agreements on TNW.

Before the 2008 crisis the North Atlantic Alliance had become a forum where possible solutions to the problem were proposed. NATO proposals on revitalizing the CFE Treaty regime deserve attention and can serve as a basis for future practical solutions.

In August 2007, the US on behalf of NATO countries, proposed the so-called "parallel actions package". According to it, NATO countries should commence ratification of the Agreement on Adaptation, while Russia was to renew the implementation of the CFE-I Treaty, complete the withdrawal of ammunition from Transdniestria, consent to the involvement of international forces in peacekeeping operation in Moldova, and resolve the issue of former Russian military base in Gudauta, Georgia. It was suggested that if Russia completed its steps in Autumn 2007, NATO countries could ratify the Agreement on Adaptation by Spring 2008.

Certainly, NATO's plan to put the Agreement on Adaptation in force by Summer 2008 was complicated by Russia's moratorium on the implementation of the CFE Treaty, which was announced by President Vladimir Putin in his annual address to the Federal Assembly in April 2007. NATO suggested to return to that plan on March 28, 2008, yet its further implementation was prevented by a serious crisis in relations, provoked by the conflict in Georgia.

However, this plan remains on the agenda. It provides for two stages: firstly, the Agreement on Adaptation should be put into force; secondly, further steps are to be taken to consider the parties' concerns. That has not satisfied Russia. It believed that in order to revive the CFE Treaty, the adapted Treaty should be amended before its ratification, and not the other way round.

Yet, the West will hardly consent to this approach, as it believes that due to NATO expansion and military superiority it is Russia who should be more interested in the revitalization of the Treaty after its demarche with moratorium failed to make the expected impression on Washington and Brussels. The Western countries insist that now the priority task is to return to the 1999 basic version of the Treaty and its 1999 adaptation – rather than to overload it with Russia's new proposals. The latter might be discussed in the context of subsequent agreements, for which NATO may very well prepare its own proposals.

Another noteworthy point is the plan for provisional application of the adapted CFE Treaty as a step towards its ratification by all parties. Russia proposes a two-staged scheme of such application. At the first stage (about six months) states parties are to observe political commitments to act in accordance with the object and the purposes of the adapted CFE Treaty, and comply with its ceilings. Then, the provisional application of the Agreement on Adaptation is to commence unless the Agreement enters into force.

Russia has raised the flank issue at different levels for a long time. Beside complete abolition of flank sub-ceilings, raising such sub-ceilings accompanied by enhanced transparency on the part of Russia appears a promising option.

It should be reminded that in 1996, with Washington's active assistance the question of raising flank ceilings for Russia was resolved. It appears that today

the US could also play a decisive role in resolving the flank issue. The signing of the new START Treaty has created favorable conditions for that.

More than a decade which elapsed since 1999 has seen notable changes in the situation around two issues which the Western side regarded as obstacles to the ratification of the Agreement on Adaptation. All the procedures with respect to Moldova, relating to the limitations set forth by the Treaty itself have long been completed. The remaining limited Russian military presence is explained by the needs of peacekeeping in the region.

Up to a point this has found understanding on the part of the leadership of Moldova and Transdniestria. Joint statement adopted after the meeting of President Dmitry Medvedev of Russia with former President Vladimir Voronin of Moldova and Igor Smirnov, Head of Transnistria, noted the stabilizing role of "peacekeeping mission currently underway in the region", and stressed the expediency of transforming it "into a new peacekeeping operation under the aegis of the OSCE after settlement of the Transdniester conflict".[138] If there are certain formal obligations and guarantees by the sides concerned and the OSCE, the state-parties to the CFE Treaty could agree that there were no obstacles to the ratification of the Agreement on Adaptation.

Legal arrangements, such as agreed statements, and in some cases, unilateral understandings, could facilitate resolution of issues pertaining to Georgia. The Western countries could, for instance, declare in the form of a unilateral statement that recognition of Abkhazia and South Ossetia is unacceptable. In return, Russia could declare its position on the status of these two republics.

In addition to search for a settlement under the Agreement, additional measures could be taken to break the deadlock. First of all, certain CFE Treaty elements could be restored, for instance, an agreed set of verification activities and data exchanges (transparency measures) set forth in the Treaty could be renewed. The Joint Consultative Group established by the Treaty and functioning in Vienna could be tasked with specifying the procedures and arrangements in question.

South Caucasus could be singled out as a "special region" the talks on which would be held in the framework of resolving regional issues, and, possibly, in the context of the new European security architecture. Linking the CFE Treaty revival to the resolution of the South Caucasus conflict would bring both problems to a more serious deadlock. On the contrary, the restoration of the CFE Treaty would facilitate the settlement in Abkhazia, South Ossetia and Karabakh.

The ratification of the adapted CFE Treaty, even with regional "reservations" (which include Baltic states, as well as the South Caucasus), would in itself be a great achievement in strengthening European security and alleviating Russia's concerns over NATO superiority in conventional arms, possible expansion of the alliance and bringing its infrastructure in proximity to Russian borders. It would hardly be advisable to overload this process with additional conditions, if aiming at overcoming the stalemate, rather than justifying its exacerbation. This is even more so in view of the fact that according to Russia's official

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[138] See: Dmitry Medvedev held talks with President of Moldova Vladimir Voronin, and Igor Smirnov, head of Transdniester. March 18, 2009. (http://archive.kremlin.ru/eng/sdocs/news.shtml?month=03&day=18&year=2009&prefix=&value_from=&value_to=&date=&stype=&dayRequired=no&day_enable=true&Submit.x=9&Submit.y=6).

statements, it has most interest in resolving the issues arising from NATO expansion.

It would be preferable to resolve all additional issues in the framework of negotiations on the follow-on CFE Treaty. This concerns, in particular, considerable reductions of national and territorial quotas (by about 50 percent), which would harmonize them with real and planned levels of the armed forces of the parties and fundamentally new approaches to European security, recently expressed by Moscow. Such profound reduction of armaments and armed forces should logically be accompanied by abolition of flank ceilings and taking into account other Russia's concerns.

In response to commitments on reducing collective ceilings of NATO countries' TLE Russia could agree to start talks on TNW limitations. Providing guarantees of suspending NATO expansion (on certain conditions) and substantive dialogue on Russia's proposals on new European security architecture would also be extremely helpful for shifting from traditional conventional arms control to integration of the armed forces of Russia, other post-Soviet states, NATO and the EU for common tasks and joint operations.

IV.6. THIRD NUCLEAR STATES

Presently, there are nine states that possess nuclear weapons, in the world. Those include five nuclear powers whose status is acknowledged under the NPT (Russia, the US, the United Kingdom, France and China). Besides, there are four states that possess nuclear capability and remain outside the NPT (India, Pakistan, Israel and DPRK). In accordance with the criteria applied in the US-Russian nuclear disarmament process, the nuclear forces of all the four non-NPT states are considered to be non-strategic. However, these countries are involved in regional confrontation, and except for India, have no global ambitions. Indeed, in the regional context, medium- and shorter-range delivery means perform strategic functions.

Dialectic of third states' nuclear capabilities. As for "official" nuclear powers, all the nuclear weapons of the United Kingdom, most of those of France, and some of the China's nuclear weapons can be referred to as strategic nuclear weapons. Yet China itself considers all its nuclear arsenal as strategic. The United Kingdom assigns part of its Trident-2 SLBMs (being bought from the US where they are referred to as exclusively strategic) to non-strategic tasks.

The situation of the US and Russia in relation to the third nuclear states is asymmetrical. Russia's territory lies within range of all the seven other countries' delivery means. The US, on the contrary, is separated by the oceans and to date remains inaccessible for the nuclear forces of the four non-NPT states. The United Kingdom and France are bound by alliance with the US. Although technically they can engage targets in the US territory, no doubt, such targets are not included in the flight programs of British and French nuclear forces. Besides Russia, China is the only country which is able to reach targets in the US territory. However, presently this potential is small enough and limited to about forty ICBMs. This is just over 15-20% of all China's nuclear capability.

Of all the non-NPT states, only DPRK is actively testing long-range missiles capable of reaching the US territory. Israel, on the contrary, seems to have voluntarily renounced developing intercontinental systems. Such systems are not necessary for ensuring its national security limited to the region of the Near and Middle East. Besides, the US and Israel maintain close relations, so there can be no scenarios of their nuclear strikes against each other.

India and Pakistan might eventually acquire intercontinental missile capability in the future, although at present there is hardly any strategic rationale for such systems.

It can become a common concern of the US and Russia that China may buildup its nuclear forces. After the Cold War ended, Beijing has not increased its nuclear arsenals, confining itself to their qualitative modernization. China states that it has the smallest nuclear arsenal among the five nuclear-weapon states-parties to the NPT. However, during this decade, China apparently plans to increase the number of its mobile DF-31 ICBMs, is developing a new DF-41 MIRVed ICBM system and ha commissioned a new Jin-class submarines. Each of them will be equipped with 12 SLBMs, possibly with multiple reentry vehicles. It is most likely that China expects to build at least four or five submarines of the new class.

This can be a qualitative leap for China's nuclear forces. Before, China had one strategic nuclear submarine, which due to continuous technical failures spent most time in base. In this decade, Beijing may build a full-fledged sea leg of its nuclear forces. Moreover, such modernization may bring about considerable – at least two-fold – quantitative buildup of China's nuclear assets.

This buildup would considerably increase the number of warheads able to engage targets in the US territory. Besides, this may bring about a qualitative change in the Chinese-Russian nuclear balance.

Asymmetries of US and Russian strategic planning. In comparison to Russia, the US has a wider range of measures to counter threats posed by the existing and future third nuclear powers. The remoteness from Eurasia gives Washington more opportunities to rely on missile defense in intercepting a limited nuclear strike of a third nuclear state. Russia, having long land frontiers , would have to create a missile defense of a much larger scale in order to protect its major economic centers even from a single missile strike. For the US, the task becomes easier, as it would have to intercept only intercontinental missiles, while Russia's territory is vulnerable to much greater number and range of types of nuclear weapons delivery vehicles.

The US has a global network of military bases and facilities providing their armed forces with reliable access to most of the world's regions posing nuclear or missile threat. Together with the overwhelming superiority in conventional arms and armed forces over any potential adversary, this enables the US to make extensive use of military force to prevent certain regimes from creating a nuclear arsenal posing threat to the US. Russia's possibilities to perform similar counter-proliferation actions are extremely limited.

This means that in order to counter threats emanating from the third nuclear states, Russia has to rely on nuclear deterrence much more than the US. Besides, as was already mentioned, Russia's territory itself is more vulnerable than the American, which is a serious reason to keep tactical nuclear weapons rather than implement its reduction in bilateral US-Russian context.

The prospects of multilateral nuclear arms reduction and limitation. Involving third nuclear states in possible further US-Russian talks on nuclear forces reduction appears quite problematic.

Firstly, for India, Pakistan and Israel nuclear arsenals are to ensure security in the regional context. The scale of and the balance of the US and Russian nuclear arsenals has no considerable meaning for India’s and Pakistan’s nuclear policy. Hence, it is not US-Russian relations in the nuclear sphere, but the changing situation in the region, that affects changes in this policy.

Secondly, the nuclear arsenals of the United Kingdom, France and China, although correlate with the US-Russian nuclear balance, are relatively small. A considerable reduction of these arsenals can pose risk to their survivability. Besides, the British forces are entirely submarine-based, and the French ones are almost entirely submarine-based. It is possible to reduce the number of submarines to three or two, but this would seriously affect their operational mode (sustaining at least one SSBN of each state at sea at any given time). Hence, if any reduction or limitation is contemplated by Paris and London – the removal of part of SLBMs from launchers would be a more likely option. Theoretically integra-

tion of the two nuclear forces into common EU nuclear deterrent force might make such reductions easier.

Third states' nuclear capabilities should not be exaggerated. The nuclear forces of the United Kingdom and France are the arsenal of minimum deterrence. That is, they can only be used for deterrence of nuclear attack providing limited retaliation capability. Therefore, from the purely strategic point of view, although these states maintain allied relations with the US, it appears highly unlikely that British and French nuclear forces might take part in coordinated counterforce strikes against Russia. Due to this they can, at least formally, be excluded from the US-Russian nuclear balance.

Although nuclear weapons delivery means of India, Israel and DPRK can engage targets in the territory of Russia, the nature of political relations between these countries and Russia virtually excludes the possibility of nuclear war between them. In the 1990's, some of Russian publications expressed fear with regard to possible military clash between Russia and Pakistan. However, today there are much more fears of unauthorized use of Pakistan's nuclear weapons as a result of radical coup, breakup of the country, diversion of weapons to illicit trafficking, or its falling into the hands of terrorists. Besides, Pakistan's sharp confrontation with India and absence of global ambitions (accompanied by the absence of vital interests of Russia in South Asia) makes the clash between Pakistan and Russia improbable.

In the short run, unilateral disarmament of any of the third countries is hardly possible. Yet, it should not be completely excluded in the longer run. There is a historical precedent of such voluntary unilateral disarmament: in the early 1990's South Africa renounced its nuclear capability. In the middle of that decade, Ukraine, Belarus and Kazakhstan returned to Russia nuclear warheads and their delivery means remaining after the collapse of the Soviet Union.

Israel and DPRK do not in principle deny that they can unilaterally disarm under certain conditions. Israel declares its readiness to such step if a reliable security system is established in the region, and does not exclude its accession to the zone free from weapons of mass destruction in the Middle East. As for DPRK, it had assumed an obligation to support denuclearization of the Korean Peninsula in the framework of the six-party talks involving the US, China, Russia, Japan and South Korea. Despite the current tensions in the Korean Peninsula, Pyongyang still hints that it may return to the talks. The denuclearization appears quite possible in the context of eventual reunification of the two Koreas.

Finally, the third countries' nuclear capabilities are quite small. According to the estimates, their aggregate number is less than 1000 warheads, that is, their levels are still more than ten times lower than the aggregate US and Russian stockpiles (in deployed mode and in storages). This enables the US and Russia to make another round of reductions regardless of other nuclear powers' capability.

Russia's security interests require that the issue of the third nuclear states be taken in consideration. However, this does not prevent it from adopting new international legal limitations with regard to tactical weapons. Such limitations could be of a nature that would make it possible to take the arsenals of these countries in consideration.

Certainly, the third nuclear states could make a significant contribution to nuclear disarmament, taking voluntary measures to reduce or limit their nuclear

forces in accordance with their declarations. After the end of the Cold War, the United Kingdom and France have made considerable unilateral reductions in their nuclear arsenals. The UK has fully given up nuclear warheads on tactical delivery vehicles. It has also considerably limited the number of warheads deployed at Trident-II SLBMs. Although this force can carry over 500 warheads, the United Kingdom states that only about 160 warheads are actually loaded on missiles. France has completely renounced ground-based shorter- and medium-range ballistic missiles.

The United Kingdom has made it clear that it does not exclude further voluntary reductions. Apparently, it means the reductions of the number of new submarines to replace the existing Vanguard class missile submarines. London could manage with three new submarines. Yet it is quite possible that the reductions can be made through further downloading warheads from Trident-II missiles or reducing the number of SLBMs per boat.

In late 2000s France started to reequip its military aircraft with new air-to-surface missiles that are able to carry nuclear weapons. This would impede political decision on renouncing aviation component as a further voluntary reductions measure. So far, Paris has confined itself to promising not to buildup its nuclear forces over the level of 300 warheads.

As for China, it could take voluntary measures to increase the transparency of its nuclear forces. It could also adopt, like France, the threshold of 300 warheads.

Such limitations and transparency measures would be brought about by further US and Russia's nuclear disarmament steps. The START I Treaty and the new START Treaty provide for a wide range of transparency measures, notifications and cooperative measures, based on which the third nuclear powers could elaborate their own packages.

IV.7. MIDDLE AND FAR EAST, SOUTH ASIA

India, Pakistan, North Korea and Iran illustrate fact that after the end of the Cold War there still remain strong factors stimulating horizontal and vertical proliferation.

India. After India gained independence, country leaders declared that they had no intention of developing nuclear weapons. They were calling for non-proliferation of nuclear weapons, prohibition of its use and ending nuclear tests. At the same time, as nuclear technology advanced, there appeared a basis for a military programme relying mainly on the country's domestic resources.

The following factors determined the development of nuclear programme in India during the Cold War. First of all, India was in a state of direct confrontation with Pakistan, the two countries repeatedly (in 1947–1948, 1965, 1971, 1999) engaged in armed conflicts with each other. India and Pakistan considered each other as main military adversaries. Second, relations with China were growing increasingly strained, which was manifested in aggravation of Indian-Chinese relations following the Tibetan events of 1959, India's defeat in the armed conflict with China in 1962, and China's joining the "nuclear club" in 1964. The third factor consisted in the high level of international tension during the confrontation of two superpowers and the arms race between them.

Under the impact of these factors, in early 1960s India started production of nuclear materials for military use at the 40-megawatt CIRUS nuclear reactor built with assistance of Canada. In 1965 the government of India approved the idea of an underground nuclear test (India had previously joined the Treaty banning nuclear tests in the atmosphere, outer space and under water). In 1974 India performed a 12-15 kiloton underground nuclear explosion, for peaceful purposes as was officially declared.

After India defeated Pakistan in the war of 1971, Pakistan was left far behind as far as conventional weapons were concerned. Military cooperation between the United States and Pakistan was temporarily frozen. China was also not much willing to provide military support to its ally. This reduced the threat from Pakistan as the main military adversary of India, however relations between India and Pakistan remained noticeably confrontational. The two countries were on the verge of war several times. The problem of Kashmir continued to be the stumbling block in their relationships.

Since late 1980s confrontation in Indian-Chinese relations started to give room to the processes of normalization and expansion of cooperation. In 1996 the sides reached an agreement on planned reduction of troops and arms near the border, confirmed their mutual intention to refrain from making any steps to achieve a unilateral advantage in the border regions.[139] Nevertheless, India viewed military engineering cooperation between Pakistan and China as a serious threat to its security.

After the Cold War was ended, Pakistan was weakened and relations between Delhi and Beijing were somewhat normalized, the threat to India's security reduced both on regional and global levels. Notwithstanding this, India acceler-

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[139] Singh S. Sino-Indian CBMs: Problems and Prospects // Strategic Analysis. New Delhi, July.1997.

ated the development of military nuclear programme under the pressure of a set of factors, the first among them being the political interest of India which was driven by India's ambition to become a world power. In Delhi's opinion, such a status could be reached only by passing the "nuclear threshold" or by depriving the nuclear states of their exclusive potency through nuclear disarmament. Other important factor consisted in threats posed by China and Pakistan as was highlighted by different political forces.[140] Deterioration in relations with Pakistan in late 1990s became the third factor. The Indian-Chinese political dialogue was interrupted, the sides accused each other of nuclear ambitions and of deployment of ballistic missiles along their mutual border. Armed collisions in the border areas were continuing, tensions escalated, and terrorist activity was increasing in Kashmir. The situation further aggravated after Pakistan became in possession of nuclear-capable intermediate-range ballistic missiles.

Finally, immediately before the nuclear tests, Delhi named the "Chinese threat" as the main reason which compelled India to pass the "nuclear threshold". Nuclear weapon was considered by Indian analytics as an effective counterbalance to the military superiority of China both in conventional and nuclear weapons.

Nuclear tests were held in two stages at Pokhran test range in province of Rajasthan, where the 1974 nuclear explosion had taken place. Three nuclear devices were detonated on May 11, 1998: the yield of the first was 45 kilotons (this one is believed to have been a thermonuclear device), the yield of the second was 15 kilotons, and of the third – less than 1 kiloton. Two more devices each less than 1 kiloton were tested on May 13. This was followed by nuclear tests in Pakistan.

According to expert estimations, India has 30-35 alert ready weapons and a certain quantity of ready components which could be assembled within several days to augment the total number of weapons to approximately 100. It is also estimated that India has a stockpile of some 504 kilograms of weapon grade plutonium. Besides, India has a certain amount of weapon grade uranium.[141]

Pakistan. In development of its military nuclear programme Pakistan followed India's path. Pakistan started the nuclear programme in the mid 1970s, that is only after making sure that India had decided to create nuclear weapons (defeat in the Indo-Pakistani war in 1971 which led to the creation of Bangladesh, and "peaceful" nuclear tests of 1974 in India became two major events that acted as a trigger).

By that time Pakistan had reached a certain level of development of atomic power which was conditioned by the deficit of energy resources. Pakistan started its nuclear power programme in the mid 1950s. In 1965 a 10-megawatt American fueled research reactor was put into operation in Pakistan. The first nuclear power plant (known as KANUPP), operating on one 125-megawatt Canadian-made reactor was put into operation in 1972 in Karachi, the capital of Sindh province. The Chashma nuclear power plant, a 300-megawatt unit, was constructed with assistance of China near Islamabad, the capital of Pakistan. It was commissioned in 2000. All mentioned nuclear power plants have been placed under IAEA safeguards.

Pakistan was also mining uranium ore which has been processed at Dera Ghazi Khan and Issa Khel (Punjab province) since 1978 and 1990 respectively.

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[140] Kanthan P. India's Nuclear Tests Reflect National Consensus / Nuclear Developments in South Asia and the Future of Global Arms Control. Edited by R. Azizian. New Zealand, 2001. PP. 81-90.

[141] Cirincione J., Wolfsthal J.B., Rajkumar M. Deadly Arsenals: Tracking Weapons of Mass Destruction. Carnegie Endowment for International Peace. Washington, 2002. P. 191.

Uranium enrichment is performed in Kahuta (Punjab, since 1984), conversion – in Islamabad (since 1986), uranium fuel fabrication – in Chashma (Punjab, since 1986). A plutonium breeding facility was built in Chashma (Punjab) in 1970. France, who had helped to build the facility, stopped cooperation with Pakistan in 1978 because by that time it had become obvious that Pakistan had chosen to develop nuclear weapons. These facilities are not placed under IAEA safeguards.

As Pakistan developed its civilian nuclear programme, it accumulated scientific and engineering capabilities and created other necessary conditions to make the transition to a military programme possible. This transition was made not only under the influence of the Indian factor. Pakistan looked for ways to strengthen its position among Muslim countries. The "Islamic bomb" thesis which later would be abandoned by Pakistani leaders, was used by country's Prime Minister Zulficar Ali Bhutto in order to obtain help from wealthy Arabic counties. The 'Islamic bomb' was sponsored by Saudi Arabia, Libya, and the United Arab Emirates.

Pakistan was assisted by China and North Korea in developing its nuclear energy industry and delivery systems. As far as cooperation with North Korea is concerned, it may have helped to develop delivery systems of Pakistan, on the one hand, and of military nuclear programme of North Korea, on the other. The relation between the development of delivery systems of Pakistan and the military nuclear programme of North Korea is altogether rejected by the official Islamabad. The transfer of North Korean nuclear technologies to Pakistan is associated with the activities of Abdul Qadeer Khan.

After working in URENCO in 1972-1975, Abdul Qadeer Khan returned to Pakistan and started to play an important role in the development of the military nuclear programme of his country. He headed "Project-706" in Kahuta (near Islamabad), a commercial uranium enrichment project (in 1984 the project was given the name of Khan Research Laboratory). By 1987 an amount of highly enriched uranium had been obtained sufficient for assembling a nuclear weapon. Everything was ready to perform nuclear tests by the end of the 1980s (in 1983-1984 China may have passed on to Pakistan the design drawings of a nuclear explosive device).

Successful development of nuclear technologies in Pakistan gave rise to concerns in the United States, Pakistan's main strategic partner. The Foreign Assistance Act was amended in 1976 (the Glenn Amendment), in 1977 (the Symington Amendment), and in 1985 (the Pressler Amendment) (in 1994 these amendments were added into the Arms Export Control Act). Pakistan suffered significantly from these amendments, because, unlike India, Pakistan did not have sufficient production capabilities for development of nuclear programme. As a way out from the situation, necessary components and nuclear materials were smuggled into Pakistan. Later the network created by Khan was used to import components and materials to Libya, Iran and North Korea. Unpierceable veil of secrecy and total lack of control on the side of the civil society let Khan engage in smuggling for many years making enormous profits. Gross violation of the non-proliferation regime by the citizens of Pakistan discredited Pakistan and helped India, who had never committed such violations, enter into cooperation with the United States in the nuclear field.

In May 1998 India and Pakistan consecutively performed nuclear tests. The response of Pakistan to India's tests was absolutely symmetrical: Pakistan detonated six devices in two days (in 1998 India detonated five devices, but having in mind the "peaceful" test of 1974 during which one more device was detonated, the total sum for India was six devices).

Nuclear weapons tests made the situation more complicated for Pakistan. Based on UN Security Council Resolution 1172 of June 6, 1998, the United States imposed sanctions against Pakistan limiting the scope of many bilateral cooperation programmes. The resolution cut off funding of military engineering cooperation, banned sale of dual-use systems to Pakistan, and cancelled programmes aimed at promoting trade and economic relations. The purpose of the sanctions was to compel Pakistan to sign the Comprehensive Nuclear-Ban-Tests Treaty (CTBT), declare a moratorium on production of fissile materials, limit the programmes of development of nuclear weapons delivery systems, ban export of military-purpose nuclear materials and technologies.

However, Pakistan went on increasing the amount of military-purpose nuclear materials and the quality of delivery systems, and continued developing nuclear weapons control and management systems. The main objective of the nuclear plans of Pakistan is to achieve a qualitative and quantitative development of nuclear weapons in order to create an arsenal which would be enough to guarantee that "any nuclear attack on Pakistan and its armed forces would results in an adequate nuclear retaliation capable of causing irreplaceable damage to the aggressor".

Because the information on nuclear weapons of Pakistan is classified, data on quantity of warheads is scattered and differs significantly. The estimations are based on the assumed stock of military uranium and plutonium. Some American specialists believe that Pakistan has and can assemble within several hours or days 30-50 uranium and 3-5 plutonium weapons. According to other sources, nuclear arsenal of Pakistan consists of some 50 to 110 and more weapons. Pakistan has approved a 15-year programme to equip the three branches of armed forces with nuclear armaments. Having proclaimed the right of first use, Islamabad declared that it could no longer join the NPT as a non-nuclear-weapon state and took up an evasive position on CTBT. At the same time Islamabad announced a unilateral moratorium on nuclear tests, declared readiness to stop the production of fissile materials for military purposes, and expressed wish to participate in the elaboration of a treaty banning production of such materials for military purposes. Besides, probably for propaganda purposes, Pakistan made two nuclear facilities available for IAEA inspections.

North Korea.[142] Looking back at the history of North Korean nuclear programme and of North Korea's relations with international community in the context of this programme, one makes at least two conclusions: First, Pyongyang

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[142] The section on the development of North Korean nuclear program is based on the following publication:

Воронцов А.В., Толорая Г.Д. Прецедент Северной Кореи // Ядерная перезагрузка: сокращение и нераспространение. Под ред. А. Арбатова, В. Дворкина. М., РОССПЭН. 2011. С. 104-116.

(Vorontsov A., Toloraya G. North Korean Precedent // Nuclear Reset: Arms Reduction and Non-Proliferation. Edited by A. Arbatov, V. Dvorkin. Moscow, ROSSPEN. 2011. PP. 104-116).

is struggling for survival sparing no expense. Such logic makes understandable North Korea's efforts to build up its nuclear capability as a means of resisting the pressure brought upon the country. Second, no progress will be made without fundamentally reconsidering the paradigm of relations with North Korea currently used by the United States and their allies.

Starting from the early 1990s Washington, contrary to the opinion of specialists (including Russian specialists), was expecting the forthcoming collapse of North Korea and folding of its military nuclear programme, which had grown to industrial scale by that time since mid 1980s. For that reason Washington was delaying fulfillment of the agreements reached with Pyongyang in 1994 within the context of the "Framework Agreement", which had given North Korea a "bad lesson" by freezing nuclear activities in the country. This fact has been pointed out by competent American specialists, including Siegfried S. Hecker, who wrote: "Congress failed to appropriate funds for key provisions of the pact, causing the United States to fall behind in its commitments".[143]

As the parties failed to find a compromise, a new crisis broke out in 2002, when Bush administration switched to rigid policy on the pretext of contradictory indications on North Korean uranium programme. Again contrary to advice of many specialists the United States tried to use pressure, isolation and sanctions in order to obtain concessions and "make North Korea behave". It seemed, however, that even the advocates of this approach did not believe in success of these measures, the true purpose of the policy being a "soft" change of regime. However, this only urged North Korea forward in its race for the nuclear bomb.

During another (2003-2008) round of "bargaining" over the nuclear programme of North Korea the opponents of the programme, notwithstanding the shift towards conciliatory policy with respect to Pyongyang in the period of the "late" Bush, were delaying fulfillment of their obligations in the spirit of the agreement in principal reached after the first stage of the Six-Party Talks known as "denuclearization in exchange for peace and aid". The compromise agreement was fixed during the fourth round of six-sided negotiations in the Joint Statement of September 19, 2005. Immediately after reaching the mentioned agreements the United States introduced financial sanctions against North Korean accounts in the Delta Asia Bank in Macao, which actually resulted in isolation of North Korea from world financial system.

North Korea responded by performing a nuclear test on October 9, 2006. Following the test (and as a result of it) the negotiations were resumed in February 2007. During negotiations an agreement was reached on initial steps for denuclearization: North Korea assumed an obligation to decommission the Yongbyong reactor. However, failure of the US to keep the promise and unfreeze accounts in Macao impeded the fulfillment of the obligations by North Korea. Only after this problem had been solved (with assistance of Russia who took the responsibility for transfer of funds to North Korea), the action programme for the "second stage" of denuclearization could be adopted (on October 3, 2007) during the meeting of the 'six'.

However, the opponents of North Korea were not able to develop a common approach. Japan refused to participate in providing economic aid to North Korea.

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[143] Hecker S.S. Lessons Learned From the North Korean Nuclear Crises // Daedalus, Winter 2010. P. 49.

Mainly for internal political reasons Japan put in the forefront the "issue of the abducted", starting to play a non-constructive role in the multilateral peace process.

After the conservative government of Lee Myung-bak came to power at the end of 2007, Seoul completely reconsidered its coexistence and cooperation agreements with Pyongyang reached during the presidencies of Kim Dae-jung and Roh Moo-hyun. There is an opinion shared by many, that using the "mutual benefit principle" rhetoric Lee Myung-bak's government from the very start aspired to "soften" the North Korean regime and peacefully take over the North. Pyongyang was particularly discontented with Seoul putting in the forefront the nuclear issue, which was considered by North Korea as a matter for negotiation between itself and the United States.

By the end of the presidency of George Bush the prospects of reaching a real compromise between the United States and North Korea became vaguer. Under the pressure of the conservative wing of the Republican administration the United States insisted on a "complete and precise declaration of nuclear activity" by North Korea. A compromise on this requirement was reached only by the middle of 2008. The US (partially because of the opposition of Japan) delayed the fulfillment of the obligation to withdraw North Korea from the list of the states sponsors of terrorism; this was done only in October of 2008. After that, the practically unsolvable problem of verification originated. The United States imposed on North Korea exceedingly rigid and clearly premature requirements demanding the disclosure of all facilities for inspectors' access, the right to take samples and have access to any documents, etc. (these requirements had never been discussed in the previous documents of the Six-Party Talks).

Obama's administration had chances to reverse the dangerous trends and find a compromise with North Korea. But the Korean issue was not a priority for President Obama in the beginning of his presidency. Meanwhile Pyongyang taking into account Obama's electoral rhetoric which expressed readiness to negotiations and compromises, may have expected more.

The situation aggravated in 2008-2009; this time unlike the crises of 1993 and 2002 (which were mainly provoked by actions of the US) the aggravation was primarily conditioned by deliberate actions taken by North Korea which Pyongyang considered as a response to the hostile policy of its opponents. At the end of the summer of 2008 voices were heard in North Korea saying that Pyongyang had lost interest in discussion of the denuclearization issue. The Six-Party Talks held in December 2008 failed. Pyongyang politicians made a predictable and logical conclusion that the "nuclear trump" should never be dropped.

As a key element of the new tactic North Korea refused to search for compromises with the US and pursued a policy of confrontation with Washington as a means of strengthening its position among its opponents, achieving internal consolidation, and restoring Kim Il-sung era order with renewal of struggle against "deviations from socialism".

The beginning of 2009 was marked by belligerent statements heard from Pyongyang. On January 13, the spokesperson of the Ministry of Foreign Affairs of North Korea stated that the verification required by the US in the framework of the Six-Party Talks implies that inspections should also be carried out in South Korea, and that North Korea would not give up its nuclear weapons unless US abandoned its hostile policy and the US nuclear threat was eliminated. The

military authorities made a statement on non-recognition of the demarcation line in the Yellow Sea and threatened to use force against South Korea. Later, in the beginning of 2010, North Korea escalated tension in the region by opening gun fire in the Yellow Sea.

At the end of January 2009 it became known that North Korea prepared to launch a carrier rocket. Despite pressure, mainly exerted by Japan but also by the US and the West as a whole, North Korea performed an unsuccessful launch in the beginning of April. This was followed by a rather harsh international reaction (within the framework of the statement by the President of the United Nations Security Council), with China taking an unexpectedly principled stand. Pyongyang used that as a pretext to tighten its foreign policy, a move which, as was shown above, had been planned long before.

North Korea's decision to leave the Six-Party Talks became a landmark event. The decision was announced in a harsh statement made by the Ministry of Foreign Affairs of North Korea on April 14. IAEA inspectors were expelled from the country. Pyongyang declared that it had reconsidered the decision to dismantle its nuclear programme and was determined to restart it. On April 25 a representative of the Ministry of Foreign Affairs reported that conversion of uranium fuel rods was started.

On May 25, 2009 North Korea performed a nuclear test which could hardly be prepared on such a tight schedule. Relation with the South deteriorated: North Korea abandoned the armistice agreement of 1953 and de jure put itself in a state of war with the UN military coalition. In reply to the UN Security Council Resolution 1874 of June 12, 2009, imposing new sanctions against North Korea provoked by nuclear tests, North Korea announced its intention to implement the programme of uranium enrichment, produce weapon-grade plutonium and perform new missile tests. On July 4 North Korea launched missiles clearly demonstrating its "inexorability" to the US and the international community. After the US refused to renew the negotiations on North Korean terms (the main condition set by North Korea was that denuclearization should be discussed only after the issues of political normalization were addressed) Pyongyang switched to tactics of provocations.

According to Alexey Borodavkin, Deputy Foreign Minister of Russia, at this point the situation on the Korean Peninsula remains very unstable, and a lot of international effort is being invested to prevent the military and political confrontation from turning into an armed conflict. As for the prospects of resuming the Six-Party Talks, the Russian diplomat believes that the "ball" is on Pyongyang, Washington and Seoul's side.[144] Apparently, the death of Kim Jong-il in December 2011 opens new possibilities for solving the Korean issue.

Analyzing the underlying motives of these turns in North Korean policy one cannot help considering the relation between internal and external factors which forced North Korean leaders to opt for a harder strategy. It has to be assumed that such "turn" is to a great extent explained by internal factors although external factors have an influence too. After coming to power of Kim Jong-un, the younger son of the former North Korean leader, external factors may start playing a

[144] АТР превратился в локомотив развития всего мира // Коммерсант. 29 ноября 2011 г. (Asia-Pacific region has become the engine of world development // Kommersant. November 29, 2011). (http://www.kommersant.ru/docsearch/1826725).

more important role, because the change of power provoked no visible signs of crisis within the country.

Iran.[145] The official Tehran denies that it has intentions to obtain nuclear weapons. However, an assumption can be made that pressure applied by George W. Bush administration, the fate of Saddam Hussein regime in Iraq, and the development of the strategic capability of the neighbouring India and Pakistan, – all of this could have stimulated Iran to secretly start activities to develop nuclear weapons. This is especially likely considering the fact that the development of atomic energy has already laid a solid scientific and technical foundation for the start of military programme. It should also be noted that Iran views the development of atomic energy as a very important task in the context of further national development.

Iran started nuclear research approximately 50 years ago by signing an agreement with the US on cooperation in peaceful uses of nuclear energy within the framework of the American programme "Atoms for Peace". Under the programme, the US were to assist Iran in the development of atomic energy by supplying nuclear installations and equipment, as well as training nuclear specialists, in exchange for the right to monitor and inspect facilities to verify that they were used solely for peaceful purposes. In 1958 Iran ratified IAEA Charter founding next year in the Tehran University the Nuclear Research Center, where the construction of the first nuclear reactor started in 1967. At that stage the US backed the Shah Iran and American specialists were actively participating in the construction of the reactor. In 1967 within the framework of the above mentioned agreement and with financial and technical aid of the IAEA the US supplied to the Tehran Nuclear Research Center a 5-megawatt research reactor which was fueled by more than 5.5 kilograms of highly enriched uranium. In the 1970s on the initiative of Mohammad Reza Shah Pahlevi the programme for creation of closed nuclear cycle and construction of 23 nuclear reactors was established. Under the programme 6-8 reactors were to be supplied by the US, 12 reactors by Western Germany and France. In 1974 Iran signed the Safeguards Agreement with IAEA and started the implementation of the programme. In 1974 Iran bought for one billion dollars a 10-percent share package of the uranium enrichment gaseous diffusion plant which was under construction in France. Besides, Iran held negotiations with the US on purchase of a 25-percent share of one of the US enrichment facilities.

One fact which clearly illustrates the position of the European states on the issue of the nuclear development of Iran, is that many Iranian experts were educated and trained in the field of nuclear physics in the US and Western European countries, namely, Belgium, United Kingdom, West Germany, Italy, Switzerland, and France. One of the leading US technical schools, the Massachusetts Institute of Technology, had a special programme to train Iranian specialists in the field of nuclear power.

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[145] For details see: Топычканов П.В., Устинова Ю.В. К вопросу о перспективах создания второй «исламской бомбы»: сравнение внешних факторов развития ядерных программ Пакистана и Ирана // Вестник Московского университета. 2010. № 3. С. 65-79.

(Topychkanov P., Ustinova Y. On prospects of development of the second "Islamic bomb": comparison of external factors of development of nuclear programmes in Pakistan and Iran // Vestnik Moskovskogo Universiteta. Series 25. Mezhdunarodnye otnosheniya i mirovaya politika. 2010. # 3. PP. 65-79).

The situation changed after India held its "peaceful" nuclear test in May 1974. The test was followed by consultations with participation of the major nuclear suppliers, including France and West Germany; based on the results of the consultations the Guidelines for nuclear export were drawn up. One of the keystones of the document was the requirement that spent fuel must be returned to the supplier in order to exclude the possibility of plutonium separation in the recipient country.

At the same time, due to tightening control over nuclear export on the part of the nuclear club states, the transfer of sensitive installations and technologies virtually came under embargo. These changes in nuclear export controls significantly complicated the implementation of Iranian national nuclear energy programme. Besides, the new measures were considered by Shah regime as discriminatory and violating the sovereign rights of Iran and running counter to the NPT.

The Islamic revolution of 1979 resulted in suspension of all nuclear projects and cancellation of all nuclear power plant construction contracts with foreign companies. The Bushehr nuclear power plant which had been constructed and almost completely equipped (80 percent) suffered significant damage during the Iran-Iraq war in 1980-1989.

Initially the new leaders of Iran did not show much interest in nuclear technologies. However, as Iran-Iraq war progressed, Iran gradually reconsidered its attitude towards the need of investing into high-tech enterprises, including the atomic industry, mainly due to the following two factors: Baghdad was being supported by both superpowers (USSR and USA), who constantly supplied modern arms to Iraq thus stimulating Iran to achieve self-sufficiency in key fields of national security, especially in the light of the effective and "unpunished" use of chemical weapons by Baghdad. It should be noted that European states and the international community did not condemn Iraq for the use of chemical weapons, which undoubtedly sent a clear message to Tehran. In such circumstances the Iranian regime not only got enough grounds to boost the development of nuclear technologies but was able to secure the support of its population for the programme. Thus, Iran's case may serve as a vivid example of how external factors may influence a state's "nuclear choice".

Review of further chain of events only provides more justification to this argument. Iran's attempts to renew cooperation with European partners in the field of construction of nuclear power plants and equipment supply were fruitless, in particular due to pressure from the US. As a result of that Iran was compelled to look for contacts with less developed nuclear states who were not following strict rules in nuclear export controls and remained outside the non-proliferation regime. This is how cooperation of Iran with China and Pakistan, and later with India, started. It was exactly at that time that Iran joined the illegal A.Q. Khan network. In the beginning of the 1990s Iran started to actively cooperate with Russia in the field of peaceful uses of nuclear energy. In 1992 Iran and Russia signed an intergovernmental agreement on construction of the Bushehr nuclear power plant. In 1995 and 1998 contracts were made for construction completion of the nuclear reactor in Bushehr and a "turnkey construction" project.

In 2003-2004 the IAEA started an investigation into the undeclared activities of Iran which became known in 2002 mainly due to the discovery of the "Khan's black market". It became clear that Iran's nuclear programme was more

developed than assumed earlier, above all in the field of nuclear fuel cycle. IAEA found a number of violations, including the concealment of new nuclear facilities. Leaping ahead it should be noted that concealment of these facilities by Iran was not an isolated case but a matter of deliberate policy. In 2009 Iran disclosed information on another facility, an enrichment facility in Qom.

Development of the Iranian nuclear programme was further complicated by the policy of George W. Bush administration. Including Iran into the "axis of evil", calling for military pressure, refusing the policy of "involvement", and declaring "maximalistic goals", Bush's administration did not contribute to stabilization of US-Iranian relations, although it must be admitted that the negative input on the part of Iran was no less than that of the United States.

Change of power in Tehran, in particular coming to power of the radical President Mahmoud Ahmadinejad in 2005, created the biggest problem for the prospects of detaining Iran's nuclear ambitions. The new Iranian president pursued a course towards tightening the approach of Tehran in relation to all points of disagreement with the US, particularly, the issue of nuclear programme, the fate of Israel, assistance to Hezbollah and Hamas, etc.

Naturally, US grew increasingly concerned over the probability of Iranian nuclear threat together with the fact that Iran was connected with such radical organizations as Hamas and Hezbollah, who, in particular, took an implacable stand in relation to Israel. At the same time the members of the UN Security Council could not agree upon a common policy on Iran, especially taking into account the fact that each of them had its own economic relations with Tehran which could be lost in case of imposing strict economic sanctions against Iran the way US were insisting on. However, after another refusal of Iran to compromise with the EU and the US on elaboration of a common solution of this issue, the Council of European Union de facto admitted at the end of 2006 that the negotiations had failed and announced that it was ready to discuss with the UN Security Council the issue of imposing international sanctions against Iran. No surprise this statement provoked a negative reaction of Iran, who named this decision unreasonable and short-sighted.

Iranian official authorities have stated many times that they are ready in principle to sign the IAEA Additional Protocol on the condition of lifting economic sanctions which do not permit Iran to import new nuclear technologies from states parties to the NPT.[146] This would allay suspicions on Iranian nuclear ambitions and help to prevent a military solution of the Iranian nuclear issue. Notwithstanding a set of agreements between Iran and the IAEA reached in 2003-2004, Iran failed to ratify the Protocol due to deterioration of relations with the world powers and the Agency. One can better understand the motives of Iranian policy on this issue if one takes into consideration the fact that Iran regards the development of nuclear technologies not only as a means of deterrence, but also as an element of national prestige and a sign of regional leadership in the Middle East.

Finally, Iran could also continue the development of its nuclear programme due to the fact that two main nuclear-weapon states, Russia and the US, failed to

[146] The Additional Protocol is signed by states parties to the NPT on a voluntary basis. By the middle of 2003 80 out of 155 states parties to the NPT signed the Additional Protocol, but only 35 states had enact it.

cooperate on the non-proliferation issue. The cooperation could have been established if not for one circumstance: the possibility of cooperation with Russia in nuclear energy was directly connected for the United States with the issue of nuclear cooperation between Russia and Iran. Washington is concerned over the fact that Moscow is taking a soft line towards Iran unwilling to admit that strict measures suggested by the UN Security Council are necessary in order to stop Iran on its way to nuclear weapons. Contrary to this, from Russian point of view, the US are possessed with the idea of punishing Iran at any cost and do not see clearly the consequences of such steps. It seems that Russia is mostly concerned about the possibility that the US could make a rash decision to start military action against Iran without considering how this could influence the stability in the region. Typical of this situation is the fact that despite the emerging coordination of activities on this issue between Moscow and Washington and Russia's consent to support strict sanctions against Iran suggested by the UN Security Council, Russia and the US were still not able to work out a common position. US resorted to unilateral sanctions and Russia declared that it is going to continue its nuclear energy cooperation with Iran (construction of the Bushehr nuclear power plant and supply of nuclear fuel and oil products).

Analyzing the external factors of the nuclear choices already made by India, Pakistan, North Korea and likely to be made by Iran, a number of lessons for the non-proliferation regime can be learned.

First of all, putting consideration of political relations with a given regime above the interests of non-proliferation is a short-sighted policy. The US had strategic relations with Iran before the Islamic revolution of 1979. It was exactly at this time that the foundations of the Iranian nuclear programme were laid. The same process took place in the case of Pakistan. The United States started to cut down the cooperation with this state in the field of peaceful nuclear energy when a number of sensitive technologies had already been transferred to Pakistan. These technologies were later used by Pakistan for the development of nuclear weapons.

Second, external threat to a given regime is one of the key factors contributing to the commencement of the national nuclear weapon programme. This threat compels counties to mobilize all available resources, to breach non-proliferation regime and involve other countries in smuggling networks.

Third, as a rule, application of excessive military, political and economical pressure in order to prevent a country from acquiring nuclear weapons, is not productive. Such methods would be more effective as a final warning which could be followed by use of military force. On the contrary, states foregoing the development of nuclear weapons should be given both political and economic incentives.

Finally, the world powers' failure to agree on the issues of nuclear non-proliferation complicates elaboration of an effective policy in relation to threshold states. Strengthening unity would promote the growth of authority of international organizations whose work is aimed at addressing the challenges posed to the nuclear non-proliferation regime (UN Security Council, IAEA) and would prevent threshold states from making a nuclear choice.

PART V
NUCLEAR DISARMAMENT AND NON-PROLIFERATION

V.1. DIALECTICS OF DISARMAMENT AND NON-PROLIFERATION

The Republican administration of the US virtually made the topic of nuclear disarmament anathema. They considered obligations of nuclear-weapon states under Article VI of the NPT (to negotiate for nuclear disarmament) as a mere formality, the possession of nuclear weapons as an 'inalienable right' of the great powers and expected to prevent further proliferation of nuclear weapons through the use of force (the concept of counter-proliferation).

Unfortunately, after several timid and inarticulate objections Russia virtually accepted this course, the more so as it suited the military establishment, the conservatives and l nationalists within the country.

In practice the long-lasting standstill in nuclear disarmament resulted in the failure of the efforts to strengthen the NPT and non-proliferation regimes. This was vividly manifested in the breakdown of the NPT Review Conference in 2005. Although the power method of resolving the issue brought about a tactical gain (Israel's strike against Syria's nuclear facility in 2008), it only resulted in the strategic defeat during the US military operation in Iraq and in the attempts to put pressure on Iran and North Korea regarding their nuclear programmes.

Eventually, the US policy on this matter came to evolve after the country realized its failure and evident absence of prospects. A well-known article by the four authoritative US statesmen Henry Kissinger, Sam Nunn, William Perry and George Schultz advocating the rehabilitation of complete nuclear disarmament as a final goal of negotiations among nuclear powers and international efforts to prevent the proliferation of nuclear weapons, was a sign of that.[147] As the policy of President Bush's administration failed, this idea quickly became popular in the US and the rest of the world and brought about a true renaissance of the nuclear disarmament issues in the minds of international community and expert studies.

In Russia, this issue caused a confrontation between a pro-nuclear-weapons majority and a minority of supporters of nuclear disarmament from academic community and mass media, despite the fact that formally the goal of nuclear disarmament was reaffirmed as far back as at the first meeting of presidents Medvedev and Obama.[148]

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[147] See: Shultz G.P., Perry W.J., Kissinger H.A., Nunn S. A World Free of Nuclear Weapons // The Wall Street Journal. 2007. January 4. P. A15.

[148] See: Joint Statement by Dmitry Medvedev, President of the Russian Federation, and Barack Obama, President of the United States of America, Regarding Negotiations on Further Reductions in Strategic Offensive Arm. 1 April 2009. London (http://www.whitehouse.gov/the_press_office/Joint-Statement-by-Dmitriy-A-Medvedev-and-Barack-Obama).

Needless to say that today one can hardly imagine a world free of nuclear weapons even in the long-term. Nuclear arms are an integral element of politico-military relations of the great powers and security assurances to allies. It is a habitude that is not easy to change due to enormous military, strategic, political and psychological inertia reinforced by a widespread opinion that the fear of nuclear catastrophe has saved the world from the world war III during the five decades after 1945.

What is more, since early 1990's in Russia nuclear weapons have been almost generally viewed as the sole means of ensuring the country's security due to Russia's inferiority in general-purpose forces and cutting-edge military technical systems, as well as in view of its vulnerable geostrategic position. The interconnection between nuclear disarmament and non-proliferation is refuted by the argument that the new members of and candidates to the nuclear club are guided by their own interests and do not care about nuclear disarmament of the great powers, or, rather feel encouraged to acquire nuclear weapons, viewing nuclear weapons as a shortcut to equality with the 'big five'.

Meanwhile, several important considerations make the universal character of these conventional truths seem quite dubious.

New security threats. Now that the Cold War is over, with the current globalization and increasing global interdependency (to which the current economy crisis has been yet another illustration), nuclear deterrence among great powers seems to become an anachronism. It prevents threats that no longer exist: intended massive attack of major powers or their alliances against each other.

At the same time, nuclear deterrence does not address the real threats of modern times, such as international terrorism, proliferation of WMD and their delivery systems, ethnic and religious conflicts, clashes for energy supply and fresh water sources, to say nothing of the new issues of climate, environment, illegal migration, epidemics, cross-border crime, etc.

The 'rehabilitation' of nuclear disarmament as a final, although a very distant end of the leading powers' policy renders directed and consistent such rational and useful measures as the new START Treaty and further nuclear arms reduction. This opens the way to implementing the CTBT and FMCT, agreements of utmost importance at the intersection of nuclear disarmament and non-proliferation. Besides, this enables the involvement of the third nuclear-weapon states and non-NPT nuclear-weapons states (India, Pakistan and Israel) in this process. Furthermore, this gives a powerful impetus to enhancing the NPT and its regimes, the political settlement of North Korean and Iranian nuclear issues, the internationalization of nuclear fuel cycle and ensuring high international standards of nuclear materials security.

It is equally important that only in the context of such policy and in no other way Russia and other countries would be able to achieve an acceptable resolution of other politico-military problems, such as halting NATO eastward expansion, limiting strategic missile defense systems, preventing space arms race, etc.

It is on this path where one can achieve minimum levels of nuclear capabilities – comprising only hundreds or even tens of nuclear warheads – while strengthening international security. As the states are advancing along this path, the cooperation and mutual trust among the states may come to the point when they will be able to make a final step and completely withdraw nuclear weapons

from operational service of their armed forces, then eliminate the reserves and stockpiles of nuclear weapons, and eventually convert nuclear materials and technologies for exclusively peaceful purposes.

As for the dependence of Russia's security on nuclear weapons, this concept also appears to be superficial at closer consideration. Besides, it is quite banal and turns out to be a Russian version of arguments offered by Western conservatives 20 or 30 years ago. Today, the immense Russian nuclear capability can play a political role either in case of increasing military tension between Russia and the West, or in the context of Russian-American arms control talks securing Moscow's exceptional position in the world politics.

The tension, even if benefiting certain communities within the US and Russia, run counter to their national interests, and would undermine their national and international security, especially in the face of new threats requiring partnership and cooperation. Even in case of consistent reductions the talks on nuclear disarmament (taking in consideration the quantity and the programmes of modernization of such weapons) will not affect Russia's minimum nuclear deterrent for decades. The challenge facing Russia is rather of a different nature: due to the ageing of its nuclear arsenal and its reduction (as much more weapons are withdrawn from service than are made operational), Russia should timely and regularly lower the thresholds provided by the treaties in order to maintain an approximate parity with the United States.

The resulting capability, if highly survivable during the launch and flight, may comprise several dozens of warheads, taking in consideration that even the loss of several large cities would constitute an unacceptable damage for modern advanced countries.

Nuclear weapons as a token of status. The role of nuclear weapons for ensuring Russia's status and security is overemphasized. Save for hypothetical and low-probability threat of massive attack of NATO and China, nuclear weapons do not protect Russia from many smaller-scale yet more real dangers. Neither does it address its immense economic and internal policy problems. One should not forget that the Soviet Union collapsed despite the fact it possessed a 5-7-times larger nuclear arsenal as compared to today's Russia. Besides, the preservation of nuclear weapons and its subsequent inevitable proliferation will devalue of Russia's nuclear capability and undermine its status, unless it rests on some new economic, political and military basis.

In fact, although the proponents of nuclear weapons usually portray themselves as patriots, one should have absolutely no faith in Russian people to believe that the nuclear weapons inherited from the Soviet Union is the only possible and attainable token of Russia's status as a great world power.

At the same time, it comes naturally that renunciation of nuclear weapons should not give 'green light' to large-scale, regional, or local wars involving the use of conventional arms or weapons based on new physical principles (laser, particle beam, seismic, etc.). In other words, the world without nuclear weapons is not “the existing world minus nuclear weapons”, but an international community based on different principles ensuring security of all countries irrespective of their size, economy and military strength.

Progress towards a world order based on cooperation has now become a necessity not only due to nuclear threat. It has been made imperative by the lessons

learnt from the recent economic crisis, the need to jointly address climate, food, demographic and other global issues of the 21st century.

The issues of nuclear arms reductions. Nuclear deterrence persisting in the great powers' relations most probably encourages the proliferation of nuclear weapons and increases the probability of its falling into the hands of terrorists although this may be debatable. Yet it is certain that the relations of mutual nuclear deterrence hamper cooperation of the great powers in addressing this danger.

Logically, nuclear deterrence in a multi-polar and globalized world inevitably causes further nuclear proliferation and at certain point will lead to deliberate or accidental use of nuclear weapons (or a nuclear explosive device) by a state or as an act of terrorism. Any such use will be catastrophic for modern civilization and will change it in a fundamental and unpredictable way.

Almost 40 years' experience of negotiations on nuclear arms reductions makes it possible to impartially assess the extent of the nuclear-weapon states' compliance with their obligations under part one of Article VI of the NPT. On the one hand negotiations on controlled limitation and reduction of nuclear weapons among the major nuclear actors seem to be in keeping with their obligations under Article VI of the NPT, despite periodic ups and downs in their intensity. On the other hand, the rationale behind these talks and agreements had little in common with the parties' obligations under the NPT Article VI, although they were cited by the parties as proof of their commitment to the Treaty. Besides, the rest of the nuclear-weapon states have never been involved in nuclear arms reduction and limitation.

On the whole, during the two decades that elapsed since 1991 (the conclusion of the START 1 Treaty), the great powers, mainly the US and Russia, reduced the number of their operationally deployed strategic and operational-tactical nuclear warheads by more than 80 percent, both under the treaties, and unilaterally.

The scale of these reductions are truly impressive, but the rest of the nuclear weapons continues to be absurdly large (about 10,000 warheads in operational service of all the nine nuclear-weapon states, or about 150,000 Hiroshima-sized bombs[149]). Further prospects of negotiations on deeper nuclear arms reductions in the follow-up to the new START Treaty today is in doubt.

In the first decade of the 21st century, the explicit refusal by the great powers to continue the negotiations on nuclear disarmament was an unprecedented violation of Article VI of the NPT. The increased reliance on nuclear weapons in ensuring one’s own security and the withdrawal from a number of previous agreements violated the spirit of the Treaty.

Nuclear proliferation and its drivers. This raises a perennial issue of principle: if the US and the USSR/Russia, involving also three other nuclear-weapon states (under the NPT) had consistently engaged in negotiations to limit and reduce nuclear arms since 1968 to this day and if such reductions achieved in the previous decades had been much deeper, would that stop Israel, South Africa, India, Pakistan and DPRK from developing and making operational nuclear weapons? Would that eliminate the nuclear programmes of Iraq, Libya, Syria and reported military plans of Iran and DPRK?

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[149] See: Eliminating Nuclear Weapons…

As there are no what-ifs in history, one can only offer a hypothetic answer to this question. The skeptics and opponents of nuclear disarmament from Moscow, Washington and a number of other capitals categorically deny such connection. Furthermore, they claim that the reduction of nuclear arms by the US, USSR/Russia, UK, France and China to several hundreds or dozens of nuclear warheads would only have promoted proliferation as it would enable 'threshold countries' to easily attain the levels of nuclear arsenals of the 'big five'.

The advocates of nuclear arms reduction and limitation, on the contrary, argue that this would have a significant effect on nuclear non-proliferation. In particular, at all NPT Review Conferences the majority of non-nuclear-weapon states parties to the Treaty invariably offer this argument and accuse nuclear-weapon states of failure to comply with their obligations under Article VI of the Treaty.

Real life is as usual much more complicated than linear logic construction based on yes-or-no principle, not to mention political positions of states at the international fora.

No doubt, the incentives for the states to acquire nuclear weapons are much more varied and contradictory than a mere imitation of the great powers. On the whole, the rationale behind a government’s decision to develop nuclear weapons may be to ensure national security and the international prestige, maintain the public image across the nation or obtain political concessions from other countries in exchange for renouncing or partially limiting one’s own nuclear programme. The NPT addresses neither of these reasons in a direct and effective manner, that is, it does not provide for more attractive benefits in the mentioned spheres for those who forego nuclear weapons. The same is true with regard to the treaties on nuclear disarmament between the great powers, which do not necessarily directly affect all of the above incentives.

One can be certain enough that after the NPT entered into force, Israel and South Africa made their choice as regards nuclear weapons irrespective of the concept set forth in Article VI of the Treaty. In case of India this interconnection is more tangible, although this country's decision to acquire nuclear weapons, in addition to reasons related to the status and domestic policy, was prompted by the fear of an unlimited increase in the military and nuclear missile capability of China, while India could no longer rely on the support of the USSR/Russia for ensuring its security.

Pakistan's decision to follow that example was primarily driven by its intention to counter India, and only then explained by ideological reasons ('Islamic bomb'), and, therefore, had little to do with Article VI.

As for the lessons of 'nuclear history' of North Korea and Iran, one can assume that Pyongyang's main incentive to develop nuclear weapons was its fear for the survival of its political regime. North Korea faced losing economic and social and political competition with the South, made even worse by the Western economic sanctions. Besides, DPRK feared a US military attack involving conventional arms. Furthermore, there was political isolation of a rogue state scorned by the international community. The loss of formal and practical security safeguards from the USSR and China and information on nuclear weapon experiments of South Korea apparently clinched the matter in favor of acquiring nuclear weapons for DPRK.

In these circumstances, the nuclear weapons programme became the last security guarantee against external threat, a bargaining chip to be exchanged for economic and political concessions from the West and a means of raising the regime's prestige both across the world and among its citizens. It is also probable that after his father's death Kim Jong-Il has regarded nuclear bomb as a means of strengthening his reliance on military, party, and industrial and scientific elite. Nuclear disarmament of the US and USSR/Russia would obviously have no positive effect in terms of non-proliferation on any of these motives of DPRK's policy.

As for Iran after the fall of the Shah, the rationale for the development of its nuclear programme (or, rather, of its military component) was, most probably, the fear of Iraq that developed nuclear weapons and used chemical weapons and tactical missiles in its war against Iran in 1980s. After that war was over, another threat came to the fore, that is, the threat of the use of force by the US (especially as a new Republican administration came to power in 2000) and Israel (an undeclared nuclear-weapon state). Besides, there were considerations of the country's status and prestige in the region and in the world. The latter were linked to the acquisition of nuclear weapons by the neighboring India and Pakistan, as well as to Tehran's growing ambition to leadership in the Islamic world after the fall of Taliban in Afghanistan, Saddam Hussein in Iraq and the increasing instability of the ruling regimes in Pakistan and Saudi Arabia.

At first sight, this is yet another example in which nuclear disarmament of the US, Russia and other great powers under Article VI of the NPT would hardly have any effect on suspicious aspects of Iranian nuclear programme.

Dialectic interconnection. However, a closer consideration makes us admit that there has been and there still is a positive link between nuclear disarmament and non-proliferation. It is not a direct one, but is rather of a much more complicated and subtle nature.

First, this is a matter of a general perception of international security determining the states' attitude towards nuclear weapons irrespective of specific individual factors influencing such attitude in any given moment.

One can hardly view it as a coincidence that between 1987 and 1999 active negotiations on nuclear arms reductions (INF Treaty, START I, START II, framework START III, agreements on ABM-TMD demarcation, CTBT, unilateral reduction of tactical nuclear arms by the US and the USSR/Russia) went hand in hand with the strengthening of the NPT. About 40 new members acceded to the Treaty in 1990s, including two nuclear-weapons states – France and China. 1995 saw the indefinite extension of the Treaty, while in 1997 the Additional Protocol to the IAEA Safeguards Agreement was developed. Five states renounced their nuclear weapons programmes voluntarily or were made to renounce them by the use of force (Brazil, Argentina, South Africa, PDRK in 1994 and Iraq). Three states that had nuclear weapons in their territories after the collapse of the Soviet Union acceded to the Treaty after two years' negotiations as non-nuclear-weapon states (Ukraine, Belarus and Kazakhstan).

Most probably, if the great powers had consistently pursued a policy of reducing their nuclear arsenals and the reliance on nuclear weapons in ensuring national security, as well as of enhancing a global 'taboo' on any use of nuclear weapons either directly or as a threat, the nuclear weapons would gradually loose their attractiveness as a token of status, power and prestige. Alongside with that,

the role of nuclear weapons in internal policy of many countries would diminish (as is the case with the attraction of biological and chemical weapons).

It is equally evident that the exact reverse of this policy pursued since late 1990s by the great powers and the three non-NPT states has increased the attraction of nuclear weapons for the governments and the public of an increasing number of countries.

Second, the maintenance of high levels of nuclear forces, their improvement and even their buildup by some of the major powers is still explained to a great extent by the strategy of mutual nuclear deterrence. This strategy continues to be the guiding principle of military policy. At the same time these strategic relations of hostile confrontation (with thousands of nuclear warheads having targets in other major powers' territories, and the missiles kept in a state of one-minute readiness to launch) creates rigid limitations for deeper constructive cooperation of the great powers. Difficulties in negotiations on nuclear disarmament exacerbate mutual mistrust and suspiciousness of political elites of the great powers and accentuates the difference of their positions as to global issues.

This has a more direct bearing on non-proliferation, in particular such aspects as sanctions against the third countries, elaboration of a consolidated position in negotiations with such countries (five parties in the talks with DPRK and six parties in negotiations with Iran). This is even more true as regards cooperative military operations within PSI, as well as operations against countries non-complying with their safeguards agreements with IAEA or intending to withdraw form the NPT with no sufficient grounds for that. This also puts equally serious obstacles to the cooperative development of missile defense systems.

However, there are a number of areas in which there is a more direct link between nuclear disarmament and non-proliferation. First and foremost, this refers to the CTBT that was signed in 1996 and has never entered into force, and FMCT, the negotiations on which at the Conference on Disarmament in Geneva have reached an impasse. The implementation of the mentioned essential nuclear disarmament measures and the involvement of all the states parties to the NPT and the three non-NPT nuclear-weapon states under the influence of the great powers, would automatically place additional barriers to nuclear proliferation. Had not the US withdrawn from the ABM Treaty in 2002 and had they unblocked the CTBT and FMCT, North Korea (and Iran in the longer term) would have to surmount three, and not one, obstacles (NPT, CTBT and FMCT) on their way to acquire nuclear weapons. That would be much more difficult and would cause a much more consolidated and rigid response of the great powers, the UN Security Council and international community in general.

The non-compliance with obligations under Article VI has divided the great powers and many compliant non-nuclear-weapon states parties to the NPT. The latter view this as a breach of understanding reached during the indefinite extension of the NPT in 1995 and the agreement of the 13 steps of nuclear disarmament at the 2000 NPT Review Conference. This profound divergence led to the failure of the 2005 NPT Review Conference. In this situation, the great powers find themselves in want of strong political position to promote a whole set of measures aimed at strengthening non-proliferation regime.

This refers to the universalizing the 1997 Additional Protocol, introducing more rigid procedures and conditions for withdrawal from the NPT provided for

in Article X paragraph 1 of the Treaty, strengthening the norms and terms of export controls through the NSG, switching to international NFC centers, incorporation of PSI in the international law, etc. One can hardly expect to impose all these measures on non-nuclear-weapon states parties to the NPT who bear the main burden of restrictions and control under the Treaty, in a situation when the nuclear-weapon states retain complete freedom of military nuclear activities, both in terms of limitations provided for by the treaties, and in terms of accountability and transparency.

Recent years have seen another example of dialectic interconnection between nuclear disarmament and non-proliferation. The conclusion of the new START Treaty in 2010 has enabled a success of the Washington Nuclear Security Summit and the NPT Review Conference that took place the same year. At the same time, a marginal nature of the new START is quite in keeping with the controversial nature of the Final Document of the Conference and the increasing difficulty of the dialogue of the leading powers with Iran and DPRK in 2011.

One can confidently say that there is another obvious consequence of the great powers' nuclear policy, which nourishes proliferation. This refers to the continued absence of agreed and approved negative security assurances to non-nuclear-weapon states parties to the NPT on the part of official nuclear-weapon states. Such assurances have only been provided in a number of highly ambiguous individual statements of representatives of permanent members of the UNSC in 1995, made first by Russia and then by the US, the UK, France and China.

In these statements the nuclear-weapon states declare that they shall not use their nuclear weapons against any state party to the NPT except in case such a state being allied to a nuclear-weapon state perpetrates an attack against them, their territory, the armed forces or against its allies, such a state, jointly with a nuclear-weapon state, perpetrates or supports an invasion or an armed attack against them.

The UN Security Council, summing up such statements, adopted in 1995 a corresponding Resolution 984 that nothing but duplicated a similar yet less detailed Resolution 255 of 1968 and contained no explicit security assurances even as set forth in the P5 statements. The proposals put forward before the Conference on Disarmament in Geneva of 1995 to conclude a convention on full-scale assurances to non-nuclear-weapon states parties to the NPT had never been worked on.

It is absolutely certain that unconditional obligation on no-first-use of nuclear weapons against states parties to the NPT would lower the political, and possibly military and strategic role of nuclear weapons in the foreign policy of the great powers. This expressly runs counter to their current course and military programmes.

In this situation non-nuclear-weapon states that have no full-fledged security treaties with nuclear-weapons states and are located in the regions of instability, obtain reasonable incentives for developing nuclear capability to enable them to be self-reliant in ensuring their national security. This is completely true of Israel, South Africa, India, Pakistan, DPRK. In the future, similar considerations may induce Iran and other threshold countries to acquire nuclear weapons.

In other words, one can define the interconnection between nuclear disarmament and non-proliferation, particularly based on the Iranian and North Korean case studies, as follows.

First, the compliance with the nuclear disarmament obligations under Article VI of the NPT cannot in and of itself guarantee from nuclear proliferation as the rationale of the latter is of a diverse and complicated nature.

Second, this calls for numerous additional measures to strengthen and develop the NPT, its norms and mechanisms.

Third, the nuclear-weapon states' failure to comply with their obligations under Article VI guarantees further nuclear proliferation and puts serious obstacles to strengthening of the non-proliferation regime and system.

Fourth, then the only remaining option would be the use of force, often in defiance of the international law. As the 2003 war in Iraq showed, such 'remedy' may be worse than the 'disease' itself, and may lead to the contrary result, including in terms of nuclear non-proliferation.

Disarmament as a goal and a process. Nuclear disarmament as a goal and a final state is hardly imaginable in today's world. This refers not only to military and strategic, and economic aspects of this issue. This vast issue is rather of a political nature. Indeed, the elimination of nuclear weapons and the renunciation of nuclear doctrines based on principles of nuclear deterrence should not provide states with freedom to develop and use conventional weapons and other types of WMD and arms based on new physical principles.

Therefore, final nuclear disarmament implies almost general and complete disarmament. That, in its turn, implies a fundamental overhaul of the system of international relations and the resolution of disputes and conflicts as compared to the one that has existed throughout the recorded human history .

This overhaul is obviously a matter of many decades. Yet, among other things, there are processes of globalization and growing interdependence of the world, the issues of climate, energy, demographic challenges and many other trends and threats of the 21st century that provide a powerful impetus for this reform. Nuclear disarmament is but an aspect of this most complicated historical process which is a prerequisite rather than a goal.

Nevertheless, although nuclear disarmament is very distant as a final goal, it is already possible as a process leading to a more secure world and gradually introducing constructive changes in the pillars of the existing world order. Moreover, there is a pressing and urgent need for a whole set of steps in this sphere aimed at enhancing current security of both nuclear-weapon and non-nuclear-weapon states and strengthening the global nuclear non-proliferation regime and system.

V.2. ISSUES OF STRENGTHENING THE NPT

The growing tendencies of destabilization of the non-proliferation regime make it evident, that the NPT itself needs to be seriously strengthened. Quite unexpectedly Article X paragraph 1 of this document turned to be a serious problem in terms of maintaining the NPT and all the non-proliferation regimes. After the Treaty came into force in 1970, the main objective as regards the strengthening of the non-proliferation regime was to expand its membership in every possible way, to increase the effectiveness of the IAEA safeguards and the export controls on nuclear materials and technology. However, with mass accession to the NPT by new states, the Treaty became almost universal, and it was the issue of withdrawal from the NPT that rose to the top of the agenda. All the four countries that currently stand outside the Treaty (Israel, India, Pakistan and the DPRK) are nuclear-weapon states. Therefore, the danger of further proliferation of nuclear weapons among states may only be possible through clandestine development of nuclear weapons in violation of the NPT or/and if a current non-nuclear-weapon state party decides to withdraw from the Treaty and openly pursue nuclear weapons.[150]

True, it appears that before announcing its withdrawal from the NPT, the DPRK was involved in clandestine activities in violation of the NPT, and Iran's past activities allegedly violated the IAEA safeguards.[151] However, pursuant to Article X paragraph 1, without even violating the Treaty, a state theoretically has the right to withdraw from the Treaty with three months' notice after having legally used the NPT to acquire nuclear materials, technology and experts.

This threat is exacerbated by the non-nuclear-weapon states' developing the components of the nuclear fuel cycle, primarily the capacities for natural uranium enrichment (the more so if there are natural uranium deposits in the said states) and spent nuclear fuel (SNF) reprocessing to recover plutonium.[152] Such technologies make it possible to significantly shorten the interval between withdrawing from the Treaty and accumulating a sufficient amount of weapon-grade nuclear materials to produce a certain number of nuclear devices.

Withdrawing from treaties. The right to withdraw from the NPT, as well as from any other treaty, particularly in the sphere of non-proliferation, is an indispensable attribute of the sovereignty of the state that is party to the treaty in question. On the other hand, withdrawal from the NPT may not be regarded as a routine, formal or an entirely arbitrary action. Article X paragraph 1 implies that the decision to withdraw from the Treaty should rest on strong reasons. Justifying such reasons should not be a legal formality; however, it does logically imply certain procedures. In terms of the irresistible logic of the NPT spirit, the entire

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[150] The threat may also come from young nations, if they decide to acquire nuclear weapons. However, this category will not be reviewed in this study.

[151] See: Nuclear Proliferation in Northeast Asia (in Russian). Edited by A. Arbatov and V. Mikheev. Carnegie Moscow Center, 2005; Threats to the Nuclear Weapons Non-proliferation Regime in the Greater Middle East (in Russian). Edited by A. Arbatov and V. Naumkin. Carnegie Moscow Center, 2005.

[152] See: Nuclear Weapons After the Cold War. Edited by A. Arbatov and V. Dvorkin / Russian Political Encyclopedia (ROSSPEN), 2006. PP. 37−362.

expert community currently shares the opinion that there are several essential prerequisites.[153]

First, it is unacceptable that by virtue of the Treaty a state can make use of the advantages of international cooperation in peaceful nuclear energy and then withdraw from the NPT to use these benefits for military purposes. Such an opportunity would turn the treaty against its own goals.

Second, a state's withdrawal from the NPT to cover up the violations of the Treaty that took place when the state in question was an NPT state party is also unacceptable.

Third, the motivation for the withdrawal may on no account be regarded as a formality; it should fully comply with the letter and intent of the NPT and be a criterion to estimate the actual reasons of a state's withdrawal from the NPT and the state's further intentions, as well as to decide on the adequate response of the international community.

Fourth, the motivation for the withdrawal shall be reviewed for compliance with the provisions of Article X paragraph 1. This should be done by all the NPT states and the United Nations Security Council, not by one or several nations at their own discretion.

Sixth, it is the United Nations Security Council that has the exclusive power to recognize the justifiability of a state's reasons for the withdrawal from the NPT, to decide on imposing sanctions or using force (if the withdrawal is ill-founded or if the IAEA reveals previous secret violations of the Treaty). Indeed, in 1992 the UNSC member states recognized that the spread of weapons of mass destruction constituted a "threat to international peace and security, within the meaning of Chapter VII of the UN Charter",[154] i.e. it falls within the scope of Articles 41 and 42 of the Charter. The history of the crises over North Korea's and Iran's nuclear programmes showcases the violation of almost all of the fundamental considerations outlined above.

The motives for withdrawal and the notice period. It is known that the DPRK acceded to the NPT in 1985 at the suit of the USSR with a view to open the door to cooperation between the two countries in the peaceful uses of nuclear energy in accordance with Article IV of the NPT. However, it took Pyongyang 5 years (till 1992) to sign the safeguards agreement with the IAEA that is supposed to be signed within 18 months. This fact alone was a major violation of Article III paragraph 4 of the NPT that was supposed to be thoroughly examined by the IAEA or the UNSC.

When the safeguards agreement was finally signed, the first IAEA inspections revealed serious discrepancies between the information provided by Pyongyang and the facts discovered by the Agency. The IAEA's inspectors were authorized to carry out a special inspection beyond the facilities declared by North Korea (at the nuclear waste storage facilities at Yongbyong) to fix the discrepancies, but Pyongyang refused to let them inspect the said facilities. Then in 1993 the DPRK announced its decision to withdraw from the NPT. In support of

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[153] Some of these principles are reviewed in an article by G. Bunn and R. Timerbaev, two of the world's most renowned experts in this field (See: Bunn G., Timerbaev R. The Right to Withdraw from the Nuclear Non-Proliferation Treaty (NPT): The Views of Two NPT Negotiators // Yaderny Kontrol. PIR Center. 2005. #3).

[154] Ibid. P. 41.

this decision, Pyongyang produced two reasons: the Team Spirit military exercise carried out by the US and South Korea and the "lack of impartiality" on the part of the IAEA inspectors who requested the permission for a special inspection.[155]

The declared motives for the withdrawal did not in the least comply with the provisions of Article X paragraph 1, since neither the military exercises (which had been the regular practice), nor the 'partiality' of the IAEA inspectors could be qualified as 'extraordinary events' that had 'jeopardized the supreme interests' of the country – the only possible ground for withdrawal from the Treaty.

Therefore, the DPRK needed to denounce the Treaty to conceal the previous violations that took place during the country's membership in the NPT, which was unacceptable and had to be followed by an adequate response from the UNSC. However, this supreme international institution stood still despite the fact that early 1990s saw an unprecedented unanimity among most of its members brought about by the end of the Cold War. China was on the point of putting a veto on the sanctions proposed by the United States. This was why the Security Council only adopted an appeal to the DPRK calling on it to allow the IAEA to carry out the special inspection, which Pyongyang refused.

Instead of discussing the possible sanctions, including military measures, within the UNSC, the issue was considered in the Democratic Administration in Washington. However, the proposed measures were never adopted, since in the course of his visit to the DPRK former US President Jimmy Carter agreed with the DPRK leader Kim Il Sung that North Korea would reverse its decision to withdraw from the NPT. In return, the US, Japan and South Korea put forward a package of proposals that later was crystallized as the Agreed Framework and a project of the KEDO (Korean Peninsula Energy Development Organization) of 1994. Pyongyang revoked its decision to withdraw from the NPT one day before the expiration of the three-months' notice period stipulated by Article X paragraph 1. The North Korean nuclear facilities were placed under the IAEA safeguards and their operations were frozen.

Given the overall elation over the newly negotiated agreement, no investigation of alleged NPT violations in 1985-1992 was carried out. The insufficiency of the motivation for the withdrawal of the Treaty announced in 1993 did not have any legal or political consequences.

Another withdrawal from the NPT by the DPRK took place when George W. Bush Republican Administration was in power. The Bush administration got tough with its policy on North Korea, including the DPRK within the "axis of evil" category and strongly criticizing the previous administration for flirting with the 'rogue states'.

It is well-known that the occasion for the withdrawal presented itself in October 2002, when the US accused North Korea of carrying out a clandestine uranium enrichment programme that had not been placed under the IAEA safeguards. According the US, the existence of such a programme was acknowledged (though according to Pyongyang it was not) by North Korean authorities. Following this statement, the US stopped its oil supplies to the North Korean power plants that were stipulated by the package of agreements of 1994. When the talks in January 2003 ended in a deadlock, Pyongyang sent a notice to the UNSC an-

[155] See: Cirincione J., Wolfsthal J. B., Rajkumar M. Deadly Arsenals: Tracking Weapons of Mass Destruction. Carnegie Endowment for International Peace, Washington, 2002. PP. 241−254.

nouncing its withdrawal from the NPT "under the grave situation where our state's supreme interests are most seriously threatened".[156] Notably, referring to its withdrawal notice of 1993 that was withdrawn one day before the expiration of the three-months' notice period, the DPRK declared that its current withdrawal was to be effective in one day, i.e. immediately.[157]

No doubt, this was an outrage on the NPT, since the motivation for the withdrawal in 1993 was ill-founded and therefore could neither be regarded as justifiable ten years afterwards. Both the motivation for the withdrawal and the notice period contradicted the letter of the NPT and could potentially justify the UNSC decisions on imposing sanctions on the DPRK. However, neither Russia nor China supported the sanctions, insisting on further negotiations. Indeed, the negotiations were soon opened in a six-party format, but only to end in a deadlock. On 9 October 2006 the DPRK carried out a nuclear test and became the world's ninth nuclear-weapon state.

Apparently, the US power politics since 2000 and its violation of the 1993 agreement strengthened Pyongyang's incentive to develop nuclear weapons and provided a pretext for withdrawing from the NPT. Moreover, the fact that the US itself withdrew from the ABM Treaty in 2002 and refused to ratify the CTBT was in fact a political indulgence for North Korea's withdrawal from the NPT and the subsequent nuclear test.[158] In addition, both the lack of unanimity within the Security Council and the disregard by the NPT and UNSC states of a blatant violation of the provisions on withdrawal contained in Article X paragraph 1 had a particularly negative effect.

Unlike the North Korean nuclear epic, Iran's nuclear programme and the policy around it is at an earlier stage of development. Tehran has insisted that its nuclear programme is exclusively peaceful and pledged its commitment to the NPT. However, there are omens of future cataclysms. For example, in 2005-2006 Iran followed North Korea's lead and more than once warned that if the IAEA referred the Iranian case to the UNSC, Iran would stop observing the 1997 Additional Protocol that it had signed but never ratified. This was exactly what Iran did. Further, Iran threatened to discontinue its cooperation with the IAEA and as much as withdraw from the NPT, if the UNSC decided to impose sanctions on the country.

Meanwhile, examining the issue by the UNSC and even imposing sanctions due to violations of the IAEA safeguards may not be recognized as a justifiable motive for the withdrawal under its Article X paragraph 1 ("extraordinary events, related to the subject matter of this Treaty" that have "jeopardized the supreme interests" of the country). Otherwise a vicious circle can be created: a violation must not be punished for fear that there would be an even greater violation. Nevertheless, the great powers failed to deliver a strong response to Iran's provocative course of action.

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[156] Bunn G., Timerbaev R. The Right to Withdraw from the Nuclear Non-Proliferation Treaty (NPT): The Views of Two NPT Negotiators // Yaderny Kontrol. PIR Center. 2005. #3. P. 35.

[157] Ibid.

[158] It should be specified that in the legal sense the US withdrawal from the ABM Treaty was not equal to the DPRK withdrawal from the NPT, since the US has not been accused of previous violations of the ABM Treaty. The US met the six-months' notice period and provided a legitimate (though strategically disputable) motivation. Besides, Article XV paragraph 2 of the ABM Treaty does not require notifying the UNSC and does not imply that this issue has to be examined.

Due to the disunity of the great powers in the UNSC, Iran has used the observance of the IAEA safeguards under the NPT and its membership in the Treaty itself as a means of blackmail to gain political concessions from other countries. Instead of having a restrictive effect on the nuclear policies of the states, some NPT mechanisms are turning into backchannel pressure instrument by the countries that violate or would potentially violate the NPT. This pressure may use against the IAEA and the United Nations Security Council who strive to preserve the Treaty.

The issue of motivating the withdrawal from the NPT was discussed at the NPT Review Conference in 2005. Many participants in the Review Conference, including Russia and the Western states advocated a more rigorous approach to assessing the validity of the declared motivation for compliance with the letter and intent of Article X paragraph 1 of the Treaty. Notably, the US, by contrast, vigorously defended the 'sovereign right' to withdraw for any reason[159]. It seems that in doing so the US was trying to avoid criticism for its own denunciation of the ABM Treaty in 2002.

Withdrawal from the NPT as a means of concealing violations. There is every likelihood that Pyongyang's step towards withdrawing from the Treaty in 1993 that was suspended a day before the expiration of the three-months' notice period was directly linked to an attempt to conceal the violations of the IAEA safeguards. However, both the states parties and the UNSC failed to properly gauge this situation. It is more difficult to find an obvious link between the second and final withdrawal of North Korea from the NPT in 2003 and its alleged attempts to conceal the violations, despite the fact that there were suspicions as to its clandestine uranium enrichment programme.

The fact that in 2005 Tehran discontinued the observance of the Additional Protocol of 1997 because Iran's dossier was referred to the UNSC, and threatened to withdraw from the NPT if sanctions were imposed, arouses serious suspicion as to whether it was an attempt to conceal the previous violations of the Treaty. Meanwhile, the non-observance of the Additional Protocol appears to be a more dangerous step than resuming a uranium enrichment programme despite the fact that the Protocol has not been ratified. In theory, Iran's threats could give ground for the IAEA and the UNSC to take a harder position, if it was not for the fact that the two organizations were focused on stopping the uranium enrichment (which is technically allowed under the NPT) rather than on ensuring the observance of the Additional Protocol.

In 2004 in the report by the High-level Panel on Threats, Challenges and Change, appointed by the UN Secretary General and comprising 12 reputable former state officials from across the world, it was proposed that the UNSC make the states withdrawing from the NPT liable for violations that took place when the state in question was party to the NPT, with the approval of the UNSC, if required. One year later, at the NPT Review Conference in 2005, the same proposals were put forward by the US, the EU, Japan, Australia and New Zealand.[160] Russia was more vague in its statements – the country called for increasing the responsibility of the states deciding to withdraw from the NPT as provided for in

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[159] Bunn G., Timerbaev R. The Right to Withdraw from the Nuclear Non-Proliferation Treaty (NPT): The Views of Two NPT Negotiators // Yaderny Kontrol. PIR Center. 2005. #3. P. 42.

[160] Ibid. P. 44.

its Article X and agreeing a number of political measures and procedures while opposing the revision of the Treaty's provisions.[161]

Using the 'peaceful atom' for military purposes. A variety of measures have been proposed with the aim to prevent this scenario. For example, at the NPT Review Conference in 2005 the European Union and a number of other states proposed that a rule be adopted according to which all the materials developed for peaceful purposes, of a state party to the NPT would remain, in case of withdrawal from the Treaty, restricted to peaceful uses only and as a consequence would have to remain subject to the IAEA safeguards. It was proposed that an even harsher approach be applied to all materials and technology obtained from a third party due to the state's participation in the Treaty prior to withdrawal: a State withdrawing from the Treaty should, under UNSC sanctions threat, freeze such materials and technology with a view to having them dismantled or returned to the supplier state, under IAEA control.[162] However, these, as well as other proposals were never implemented due to the failure of the 2005 Review Conference.

The practical implementation of the above measures present severe difficulties, even as regards retaining the materials and technology under the IAEA safeguards. The DPRK experience has shown that the IAEA inspectors may at any moment be driven out together with their equipment, provided that the inspected state is indifferent to sanctions, even if military sanctions are implied. Such behavior will be even more likely, if the state in question had succeeded in the development of nuclear weapons, an explosive device or at least in creating a convincing impression of possessing them. From this perspective, the measures related to the dismantling and returning the materials and technology, primarily those that have dual use (uranium enrichment, plutonium separation) are still harder to apply. It appears that these measures should be implemented without delay as soon as a state withdraws from the NPT, without waiting for it to develop nuclear weapons. Expanding the IAEA safeguards in the non-nuclear-weapon states parties of the NPT is aimed at ensuring the longest possible interval between a state's withdrawal from the Treaty and the creation of nuclear weapons – by making sure no nuclear weapons have been secretly developed before the date of withdrawal.[163]

However, the most stringent measure – the elimination and return of technology and material creates the biggest problems legally, financially and technically: i.e. the reimbursement for the materials and technology acquired and obtained under contracts, practically removing the fuel and dismantling the reactors or other facilities.[164] It is even more important that if the state in question objects to such measures, this option can only be realized by military occupation. However, a military occupation (which is very likely to be preceded by an armed attack) most likely implies a regime change. When that objective is accomplished, it will be easy to ensure the return of the country to the NPT and elimination of

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[161] Ibid.

[162] Ibid. P. 44.

[163] For detailed information, see Chapter 2.

[164] See: Universal Compliance: A Strategy for Nuclear Security. Carnegie Endowment for International Peace. Washington, 2004. (http://wmd.ceip.matrixgroup.net/UniversalCompliance.pdf of 14 January 2005).

its nuclear programme which would remove the issue of dismantling and return of materials and technology from the agenda.

A possible approach to the issue of withdrawing from the NPT. It appears that the resolution of these issues requires a comprehensive approach and coordinated policy of the great powers and all states committed to the NPT, the United Nations Security Council, the IAEA and other institutions and organizations. The analysis of the historical experience of the North Korean and Iranian issues makes it possible to formulate the following key proposals.

Improving the IAEA safeguards and universalizing the Additional Protocol of 1997 will ensure that there are no secret violations of the NPT and take the issue of withdrawing from the Treaty to conceal previous violations off the table.

The announcement by a state of its withdrawal from the NPT should be followed by (1) intensive inspections by the IAEA to reveal possible past violations of the Treaty or the safeguards agreement; (2) an Extraordinary Conference of the parties to the Treaty on the Non-Proliferation of Nuclear Weapon to examine the motivation for the withdrawal; (3) if the motivation is recognized as contradicting Article X paragraph 1 of the NPT the issue should be immediately referred to the UNSC for consideration pursuant to Article 41 of the Charter of the United Nations.

Resisting the IAEA inspections or non-observance of the pre-notification period clause should immediately bring about a decision by the UNSC to impose sanctions.

All materials and technology existing in the state on the date of its withdrawal from the NPT, regardless of their origin, should be used exclusively for peaceful purposes and should remain under the IAEA safeguards.

All dual-use technologies and materials (uranium enrichment, plutonium separation) obtained from third parties or created by the state when it was party to the NPT should be frozen and subsequently dismantled or returned to the supplier states under the IAEA control. This particularly applies to materials and technology acquired in the above period from non-NPT parties, i.e. in violation of the NPT and the IAEA safeguards.

The refusal to comply with the two last-mentioned requirements should result in a UNSC decision to impose sanctions, including the use of military force in line with the Article 42 of the UN Charter.

Clearly, even the radical measures outlined above do not entirely guarantee that there will be no withdrawals from the NPT. However, these measures may serve as a powerful deterrent against such a step and a means to reduce the damage to international security in case there is a withdrawal. It is also evident that these conditions should be legalized by the relevant decisions of the states parties to the NPT and the UN international legal acts.

For example, the NSG could include a mandatory provision on return or dismantling in every future contract for the supply of the relevant technology under Article IV of the Treaty.

V.3. PROHIBITION OF NUCLEAR TESTS

The Comprehensive Nuclear Test-Ban Treaty (CTBT) serves as a major obstacle to the proliferation of nuclear weapons, and an effective disincentive of nuclear arms race. Although the treaty has not yet entered into force, its implementing mechanisms have stood ready.

CTBT and the challenges facing nuclear-weapon states. In the context of the CTBT nuclear-weapon states will face a special challenge of maintaining reliability and safety of their nuclear weapons. By way of example one may cite approaches implemented by the US and Russia discussed below.

In parallel to the elaboration of the Treaty, the US developed the so-called Science Based Stockpile Stewardship programme. Russia adopted a similar programme in accordance with Presidential Decree. On April 19, 1996 a statement by the Press Secretary of the President of the Russian Federation on CTBT was published, which set forth the terms of Russia's accession to the Treaty. It stated in particular that Russia, like other nuclear-weapon states has special responsibility to ensure security of its nuclear arsenal until a general complete disarmament is achieved, which remained Russia's final goal. At the same time it stated that under the Treaty Russia intended to work on maintaining its nuclear stockpile, which would not contradict the prohibition envisaged by the future Treaty.

The challenges to the entry into force of the CTBT. The P-5 states were among the first signatories of the Treaty. Although India opposed the referral of the Treaty to the General Assembly at the final stage of negotiations at the Conference on Disarmament, Australia, despite the lack of consensus at the Conference, distributed the text in New York, opening it for signature. By January 1997 the Treaty was signed by as many as 140 states.

However, later developments turned out to be far less optimistic. First and foremost, neither India, nor Pakistan seemed willing to sign the CTBT. Furthermore, in May 1998 India, followed by Pakistan straight away, held a series of nuclear tests, thus expanding the 'nuclear club'. The Treaty was neither signed by DPRK, whose nuclear ambitions became obvious as far back as in 1993 when the country first announced its intention to withdraw from the NPT. Later on, in 1999 President Clinton's administration made an attempt to take the Treaty through the US Senate, which was not properly prepared and thus failed.

All that, accompanied by a number of other negative factors could not but naturally affect the work of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO PrepCom) to establish verification regime that took much more time than the originally planned three years. Those negative factors also included further aggravation of the situation around DPRK that finally withdrew from the NPT in 2003 and held its first nuclear test explosion in 2006. In this context, despite regularly held Conferences on Facilitating the Entry into Force of the CTBT, the ratification of the treaty by the Annex II states slowed down and consequently came to a stop.

CTBT today. To date the Treaty has been signed by 182 states (and ratified by 156), including by 36 out of 44 states whose ratification is required for the entry of the Treaty into force. Only the 'young' nuclear-weapon states, India, Pakistan and DPRK, failed to sigh the CTBT. Furthermore, the Treaty was not

ratified by such nuclear-weapon states as the US and China, and Israel, who has never officially acknowledged its nuclear status. Iran suspected of pursuing nuclear weapons and Egypt have also failed to ratify the CTBT. Russia ratified the Treaty as far back as in 2000 and has repeatedly stated that its earliest entry into force would be in Russia's interest.

The ratification of the CTBT by the US is a matter of paramount importance. The failed attempt to take the Treaty through the Senate has, no doubt, delayed the relevant decisions in other key countries, such as China, India, Pakistan, DPRK, Israel, Iran and Egypt.

As far as China is concerned, having completed all the preparations for the ratification of the Treaty, it has suspended the process. Its further progress will depend on the whole set of factors, including the ratification of the Treaty by the US, the situation in nuclear non-proliferation and disarmament in general, which, according to China, has considerably deteriorated as a result of the US efforts to build global and regional missile defense. However, one can expect that after the US has ratified the Treaty, China will follow the example.

Another major challenge facing the CTBT is the involvement of India and Pakistan. After series of nuclear test explosions in May 1998 they announced moratorium on further nuclear explosions and announced at the 53rd session of the UN General Assembly that they intended to work towards accession to the CTBT.[165] Their decision on the matter may to a great extent be influenced by the ratification of the Treaty by the US. However, this will not be the only factor they take into account. On the whole, India and Pakistan view the signing of the CTBT as tightly linked to other issues pertaining to their nuclear choice and certainly related to the supreme national interests. Both Indian and Pakistani leadership will hardly sign the CTBT unless it is completely certain that this step would reflect the national consensus.

The positions of Egypt, Israel and Iran with regard to ratification of the Treaty are interlinked and are to a great extent influenced by the situation in the Middle East in general. So far, much has remained uncertain in this regard.

No doubt, Egypt will make its decision on ratification of the CTBT taking into account the position of the majority of the Arab states that stress the importance of universalizing both the CTBT and the NPT, and highlight in this context that Israel's signing only the CTBT will not suffice and insist on its accession to the NPT.

Israel has made it clear that it would ratify the Treaty on the following conditions. First, the situation in the Middle East should improve, and all the countries of the region should accede to the CTBT (that so far has not been signed by Syria). Second, the international compliance verification mechanism established under the CTBT should reach a state of high readiness and efficiency. Third, Israel should have a right of equal participation in the regional group within the

[165] It is possible that while making a decision on holding their nuclear tests, India, and possibly Pakistan, took in consideration the possibility to expediently accede to the Treaty later on and thus minimize the harmful consequences to its letter and spirit. The tests were held before the expiration of the mentioned three years' term during which the Treaty could not enter into force in accordance with Article XIV. Thus, at that time no state could be formally bound by obligations under the Treaty. To certain extent, this reminds the situation around the last tests held by France after the CTBT negotiations at the CD commenced but before they completed.

CTBTO PrepCom. It is most likely that none of these conditions will be met in the following year or two, hence, the prospects of ratification of the CTBT by Israel remain very distant.

In Iran, the ratification process is greatly affected by internal policy factors, in addition to the situation in the Middle East. Besides, the aggravating crisis around Iran's nuclear programme is far from contributing to the resolution of this issue.

Having analyzed the available information on the situation around the CTBT in Indonesia one can conclude that there are no fundamental political obstacles to the ratification of the Treaty.

Therefore, if the current US administration succeeds in ratifying the CTBT, one can expect considerable advances in the ratification of the Treaty by other 'delaying' nations from among the list of 44.

Ways to solve the challenges facing verification under the CTBT. The CTBT could hardly be fully appreciated without the international regime envisaged by the Treaty to verify the compliance with it, the CTBT verification regime. This is the first time a global verification system has been established by a multilateral international arms control treaty and operated by an international treaty organization.

The CTBT verification mechanism consists of the International Monitoring System (IMS) which comprises 321 seismic, radionuclide, infrasound and hydroacoustic monitoring stations and 16 certified laboratories for in-depth analysis (if necessary) of the radionuclide samples obtained from radionuclide stations; the International Data Center (IDC) designed to collect, process, archive and provide to the states parties the data obtained from the IMS facilities; a political and diplomatic mechanism for consultation and clarification in case of possible suspicions of breaches of the CTBT; confidence-building measures envisaging voluntary provision of data on high-yield conventional explosions (which refers mostly to industrial explosions, in particular, in mining) and on-site inspections to areas of ambiguous events, which cannot be denied.

According to the Treaty, the verification mechanism should be ready by the time the Treaty enters into force.

The IMS seismic component is primarily intended for detection and spotting of underground nuclear explosions. The IMS radionuclide monitoring network consists of 80 stations with atmospheric samplers and equipment for sample analysis. The infrasound component of the IMS includes 60 stations around the world that are capable of detecting low-frequency atmospheric vibrations.

The verification regime also includes a most effective, yet intrusive element, on-site inspections to the area where the ambiguous event has taken place that can cause reasonable doubts as to whether a nuclear explosion has been held. The only purpose of an on-site inspection under the Treaty is to clarify whether in violation of the CTBT a test explosion of nuclear weapons or any other nuclear explosion has been held, and to collect as much data as possible to help identify any possible non-complying party. A request for an on-site inspection may be based both on the IMS data and the technical data obtained through national technical means of verification.

The CTBT verification mechanism also includes an optional yet important element – measures to build confidence as to high-yield conventional explosions. To avoid uncertainties and possible unjustified requests for inspections states par-

ties are called to voluntarily provide in advance the data (yield, location, aim) on high-yield (over 300 tonnes of TNT equivalent) chemical explosions.

As the prospects of the entry into force of the CTBT remain unclear, each year the issue becomes increasingly pressing of what will be the status and functions of the CTBT verification mechanism and, hence, what funding will all states parties deem acceptable during the preparatory period before the Treaty enters into force. As soon as the CTBT opened for signature, it became clear that it is quite possible that this mechanism could be ready before the Treaty entered into force. The Treaty itself makes no mention of this, and the document establishing the CTBTO PrepCom only envisages that the Commission is authorized to carry out the provisional operation of the verification mechanism.

These are the circumstances of uncertainty in which the Preparatory Commission and its Provisional Technical Secretariat (PTS) work on developing technical components of the CTBT international verification regime (IMS, IDC, OSI).

The work to develop IMS is still underway, while the task of establishing IDC was initially easier.

A prototype IDC was created before the CTBT negotiations were completed, as a result of the third experiment. That PIDC enabled states parties to finalize the solutions subsequently used for the IDC. For this particular reason the IDC was relative quickly provided with computer equipment and software which makes it possible to automatically process and integrate the data obtained through all the four monitoring technologies. In 2000, the IDC started issuing and distributing bulletins and raw data among the members of the Commission. Today, the IDC is further developed in order to enhance its ability to expediently process data from the IMS and provide states parties with the output.

Almost as soon as work on IMS and IDC commenced, it became clear that states parties should separately address the issue of communications system. A global nature of the IMS called for a reliable Global Communications Infrastructure (GCI) for expedient transfer of data from each IMS facility to IDC, and the feedback from the IDC to monitor the functional status of the stations and the distribution of the IDC's output among the states parties' national data centers. Between 1998 and 2007, the first variant of the system was developed and operated. At the moment, a new version of it is active, that uses state-of-the-art technologies and has expanded capabilities.

Before the CTBTO was established, the following tasks related to OSI had been formulated for it for the period before the Treaty enters into force.

- The elaboration of Operational Manual for OSI, as well as other documents embracing all legal, technical and administrative procedures pertaining to preparation and conduct of inspections.
- Development of the list of inspection equipment, agreement of its specifications, its acquisition and testing.
- Development of inspectors training programme.

However, as soon as the CTBTO PrepCom started to work, it became clear that it had to address a wider range of issues. In addition to the above, those included the development of OSI methodology and over ten OSI technologies, drilling them during various exercises and experiments, training of national experts designated by states parties to be involved in these activities, development of inspection infrastructure, including inspection equipment storage and mainte-

nance facilities and operations support center that should be activated after a request for an OSI had been received and conduct all preparatory work and support the work of the inspection team in the course of inspection.

Operational Manual for OSI is probably one of the main documents that must be prepared by the time the Treaty enters into force, as OSI is the most complex and intrusive element of the CTBT verification mechanism. The states attach great importance to this document, which is vividly illustrated by the fact that Israel named the successful elaboration of the Operational Manual as the condition for the ratification of the Treaty.

OSI field tests and simulation exercises conducted by the PTS contribute greatly to understanding OSI process and developing specific OSI procedures to be included in the Operational Manual.

States parties have reached preliminary agreement on the list of inspection equipment and specifications of equipment for passive seismometry, gamma radiation measurements and visual observation. Trial passive seismometry equipment has already been purchased. A principle agreement has been reached on conceptual issues pertaining to infrastructure for inspection equipment storage, maintenance and transportation to inspection areas.

Russia makes considerable contribution to the development of the CTBT verification mechanism. This contribution goes beyond paying regularly and fully contributions to the budget of the CTBTO PrepCom. Russian segment of the IMS consists of 31 stations (including 6 primary seismic stations, 13 auxiliary seismic stations, 8 radionuclide and 4 infrasound stations), Central Radiation Control Laboratory of the Ministry of Defense, National Data Center (NDC) in Dubna, as well as independent Russian GCI subsystem (equipment, communication channels) intended for communication among Russian IMS facilities and NDC and ensuring the transfer of data to and from the IDC. Presently, these facilities are nearing completion and certification. Russia also takes active part in creating an inspection component of the verification mechanism, including the development of equipment, the elaboration of the Operational Manual, and providing expertise for the conduct of inspections.

Uncertainty as to the entry into force of the Treaty and hence as to the deadline for the completion of the verification mechanism, has determined, almost from the start, the discussion among the members of the CTBTO PrepCom on the issue of pace and level of funding of the relevant work, that accounts for the major part of the PrepCom annual budget.

Western countries, primarily the EU members have initially insisted on completing verification mechanism on expedited basis and expressed readiness to support a considerable increase in annual budget for these purposes. Guided by the principle of the ‘program-driven budget’, they announced that a de-facto functioning verification mechanism would be a strong argument proving the readiness of the Treaty to implementation and demonstrating the effectiveness of the verification regime (naturally, without resorting to OSI) and thus, serve as an additional incentive for the countries that had so far abstained from signing or ratifying the Treaty.

The majority of developing countries took a different stand. They advocated a more considered and pragmatic approach taking into account the real prospects of the entry into force of the CTBT and financial challenges facing the develop-

ing countries. Based on that they strived to minimize the rate of the increase of the budget, at certain point they required in a rigid form, and subsequently managed to secure that this rate is 'frozen'.

Today, the zero budget increase rate has become the major impediment to the progress of the CTBT verification mechanism. Only advances in the ratification of the Treaty by the US and other states from among the 'list of 44' may lead to the revision of this attitude. As for the operation of the verification mechanism prior to the entry of the Treaty into force, the member states have agreed to operate it in the test mood with no verification functions.

Despite the above challenges, to date, a high state of readiness of the International Monitoring System has been achieved, including of the IDC and global communication infrastructure that links the data center to the monitoring stations and National Data Centers. The level of readiness for different subsystems varies from 91 percent (for hydroacoustic subsystem) to 70 percent (infrasound one). The readiness of seismic subsystem is 80 percent for the primary component and at least 75 percent for the auxiliary one. The capabilities for monitoring radioactive noble gases (xenon isotopes) deployed within the radionuclide monitoring subsystem should be given special consideration.

The functional and operational compliance of the system (so far incomplete) with the agreed criteria has been periodically checked both in the course of its routine operation and through partial and comprehensive testing. Although on the whole the operating capability of the system is assessed positively, there are certain problems with ensuring due access to the data from monitoring stations.

The real capability of the IMS to detect nuclear explosions was demonstrated at least twice. The first time was the North Korean test explosion of a subkiloton nuclear explosive device (Mb ~ 4) conducted on October 9, 2006 and registered by the 22 seismic stations (including by 13 primary stations) of the IMS that was less complete as compared to now. States parties received the result of that first automatic analysis of data, including the time, magnitude and location from the IDC 2 hours after the registration of the event. Two weeks after the test a Canadian radionuclide IMS station registered an increased concentration of xenon-133 isotope in the atmosphere, which accorded with the hypothetic emission of this isotope in that test, taking into account the modeled air transport. The second opportunity to demonstrate the capabilities of the system was also offered by the North Korean nuclear test explosion conducted on May 25, 2009. That explosion had a greater seismic magnitude (Mb ~ 4.5), and was registered by 61 seismic stations (including 31 primary stations). The data of primary automatic data processing were received one hour after the event had been registered. That time, however, radionuclide monitoring stations registered no isotopes of xenon and other fission products of the explosion in the atmosphere, which may be explained by their almost complete retention and an extremely low emission.[166] Based on that, it would be logical to raise the question of whether the capabilities of the radionuclide component of the IMS could be enhanced. It should be reminded that the CTBT provides for the possibility to further improve the moni-

[166] According to the VTS of the CTBTO PrepCom the failure to detect xenon-133 by means of IMS after the second North Korean test shows that its emission might have been lower than 0.1 percent of its total yield from the explosion.

toring system after its entry into force. In this case, states parties could consider supplementing the existing radionuclide subsystem with airborne radionuclide monitoring means. Let us remind that such solution was proposed by the Russian Federation as far back as during the CTBT negotiations at the CD in Geneva in 1994-1996. At the same time, the failure to detect radionuclide product of the second North Korean test highlights the role of the inspection component of the CTBT verification regime, as in such case only OSI could provide a more credible corroboration of the fact that a nuclear explosion was conducted.

To date, the work of CTBTO PrepCom to develop and efficient inspection component of the CTBT verification regime has come upon major difficulties. This task is much more complicated as compared with others due to a number of reasons. First and foremost, the regime of on-site inspections (OSI) is unique in terms of its scientific and technical saturation and complexity (it uses over a dozen of different techniques for position finding, defining the area and the nature of ambiguous event as precisely as possible) and has no equivalents in verification systems of other Treaties. Besides, there was no opportunity to accumulate an experience of practical implementation of OSI comparable to the many years' experience of detection of nuclear explosions with the help of the IMS technologies, particularly seismic monitoring. For this particular reason OSI regime has lagged behind the IMS from the outset, when the CTBTO PrepCom started to work. There is also another, much more fundamental difference between OSI and IMS that further complicated the task of OSI. The signals from nuclear explosions registered by IMS are similar to a great extent. For instance, seismic signals from underground nuclear explosions registered by seismic stations have a number of typical properties almost irrespective of the location and other parameters of the explosion. As a result, it is much easier to distinguish between these particular signals and those not related to explosions.

In case of OSI, there is a wide variety of possible scenarios depending on topographical, climatic, geological and other features of the area in question, the environment and properties of the ambiguous event to be clarified, and the interaction with the inspected state that gives the OSI a game-like nature. Therefore, OSI readiness criteria have not been specified yet. As they have little in common with those for IMS, states parties will most probably have to limit them to operational readiness implying possibility to conduct all procedures from the arrival of the inspection team and its equipment to the point of entry of the inspected state to the performance of post-inspection activities in strict compliance with the timeframe requirements set forth by the Treaty.

Nevertheless, considerable progress has been made in developing the inspection component of the verification mechanism. This was shown in particular by the first major OSI Integrated Field Exercise in September 2008. Based on the results of that exercise, a so-called Action Plan was elaborated. It provides for further development of inspection techniques with a focus on those for which no considerable experience of practical application for OSI has been accumulated,[167] acquisition and testing of the lacking equipment, further infrastructure development, progress in the elaboration of darft OSI Operational Manual and other

[167] This also refers to active seismic survey and resonance seismometry, multi-spectral imaging, including infrared imaging, and directed drilling in the supposed epicenter.

documents, a new round of training for potential inspectors. The progress achieved in developing the OSI regime will be demonstrated at another large-scale integrated field exercise scheduled for 2013. It is expected that after the Action Plan is implemented, a minimum level of operational capability necessary for the conduct of OSI, will be achieved. It goes without saying that the development of OSI should not stop at that and should be taken further to a point when OSI will be capable of fulfilling their mission irrespective of the variety of possible scenarios and conditions in which the OSI is conducted. This however, can be done both before and after the Treaty enters into force.

As for other elements of the CTBT verification regime, such as consultation and clarification and confidence-building measures, the tasks facing the CTBTO PrepCom are very limited, indeed. The Treaty has detailed provisions governing their use and hardly requires the development of any additional documents. The Commission has prepared Standard Forms of voluntary notifications on high-yield chemical explosions. It has also completed the work on model forms, requests and responses for consultation and clarification.

It can thus be expected that the minimum required level of readiness of the verification system will be achieved in several years, which will make it possible to comply with the relevant Treaty requirements.

V.4. NUCLEAR WARHEADS AND WEAPON-GRADE MATERIALS

Agreed limitations and reduction of nuclear weapons would be impossible without transparency and verification measures.

It should be noted that transparency and verification measures set forth by the US-Russian nuclear arms reduction agreements apply mostly to delivery vehicles: intercontinental ballistic missiles, submarine-launched ballistic missiles and strategic bombers. At the same time, these instruments provide for no transparency measures with regard to nuclear warheads, their elimination and their nuclear materials.

It is impossible to control nuclear warheads using national technical means of verification. To be credible, such control can only be exercised only through inspections at production (dismantling) facilities, storage sites and delivery vehicles. However, the inspection of nuclear warheads is hampered by the fact that their construction, production and maintenance are part of the most protected secrets in any of the nuclear-weapon states. Taking in consideration the lack of trust among the parties and the difference in laws and the interpretation of the concept of sensitive information, the expansion of the scope of verification measures to nuclear warheads and nuclear materials inventories will inevitably require an in-depth and comprehensive research.

On a way towards developing transparency measures. The first transparency measures limited in nature yet applying to nuclear warheads were developed in the framework of the US-Russian Intermediate-Range Nuclear Forces Treaty (INF Treaty) concluded in December 1987. The Treaty provided for the elimination of front section of missiles in question in designated areas.[168] However, the procedures for verification of warheads elimination included only deformation of warhead shell. They were not applicable to the nuclear explosive device itself.

Under the START I Treaty, verification measures applied only to warheads deployed on strategic delivery vehicles. In accordance with the Treaty, the parties exchanged information on the number of warheads attributed to deployed ICBMs, SLBMs and heavy bombers. The inspecting party could also use radiation detection equipment in order to confirm that the items emplaced on the delivery vehicle and declared as non-nuclear are in reality non-nuclear.

At the January 1994 Summit, the Presidents of the US and Russia agreed to establish a joint working group to consider "steps to ensure the transparency and irreversibility of the process of reduction of nuclear weapons".[169] The group's agenda included elaboration of agreement on cooperation, possible exchange of data on aggregate stockpiles of nuclear warheads and nuclear materials, verification of such data through selective checks, as well as arranging and conducting joint inspections.

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[168] Harahan J.P. On-Site Inspections Under the INF Treaty: a History of the On-site Inspection Agency and INF Treaty Implementation, 1988-1991. On-Site Inspection Agency, United States Dept. of Defense. Washington, D.C., 1993.

[169] Joint Statement by the Presidents of the United States of America and the Russian Federation on Non-Proliferation of Weapons of Mass Destruction and the Means of Their Delivery. Moscow, January 14, 1994.

The agreement on cooperation should have provided for the US-Russian exchange of data on nuclear warheads classified according to both countries' legislations, and guarantee the protection of such information. As a matter of fact, this agreement was to lay a foundation for the successful progress of the whole initiative "to ensure the transparency and irreversibility of the process of reduction of nuclear weapons".

However, despite the fact that the importance of progress in enhancing the transparency and irreversibility of the process of reduction of nuclear weapons was also reiterated in the subsequent joint statements by the Presidents of the United States and Russia (September 1994, May 1995),[170] the parties' discussion has come to a deadlock in the autumn of 1995.

Nevertheless, the topic was not completely forgotten, and it reappeared in the arrangements reached at the US-Russian Helsinki Summit of March 21, 1997. The parties agreed that the basic elements of the future START III Treaty will include "measures relating to the transparency of strategic nuclear warhead inventories and the destruction of strategic nuclear warheads and any other jointly agreed technical and organizational measures, to promote the irreversibility of deep reductions... The Presidents also agreed that in the context of START III negotiations their experts will explore, as separate issues, possible measures relating to... tactical nuclear systems, to include appropriate confidence-building and transparency measures".[171] The parties also agreed to consider issues pertaining to the transparency of nuclear materials.

Transparency of nuclear weapons and approaches to ensuring it. It should be noted that in the 1990s the parties had different approaches while discussing transparency of nuclear weapons and nuclear materials. The US deemed it necessary that as much information as possible is provided and a comprehensive control system is introduced embracing the whole inventory of nuclear weapons and weapon-grade nuclear materials.

Russia supported efforts to develop transparency measures as regards the available inventory of strategic nuclear warheads, elimination of strategic nuclear warheads to be reduced and the nuclear materials deemed excess for the purposes of ensuring national security. However, its interest to the transparency of nuclear warheads was mainly explained by its desire to ensure verified elimination of the upload capability (of non-deployed warheads) the US obtained under the START II Treaty. Therefore, Russia firmly believed that the transparency regime should apply only to those strategic nuclear warheads (both deployed and held as a reserve) that were to be eliminated in accordance with agreements on nuclear arms reductions after the latter entered into force.

As for verification, Russia contended that only those measures are necessary that confirm the very fact of dismantling of nuclear warheads destined for reduction and the routine mode of handling excess weapon-grade nuclear materials.

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[170] Joint Statement by the Presidents of the United States of America and the Russian Federation on Strategic Stability and Nuclear Security. Washington, September 28, 1994.

Joint Statement by the on the Transparency and Irreversibility of the Process of Reducing Nuclear Weapons. Moscow, May 10, 1995.

[171] Joint Statement by the Presidents of the United States of America and the Russian Federation on Parameters on Future Reductions in Nuclear Forces. Helsinki, March 21, 1997.

These measures, however, should not affect any design, technological or other information that is not directly related to verification of nuclear weapons reductions.

Thus, the parties converged on the purpose of transparency regime and the necessity to develop measures for ensuring such transparency, yet had different visions as to its scope.

It is obviously impossible to reach any agreements on transparency of nuclear warheads without developing possible technical solutions for its practical implementation first.

The US Department of Energy held special survey and prepared a report assessing the ability and readiness of the nuclear weapon production complex to introduce transparency and verification measures with regard to warheads dismantlement.[172] The authors of the survey have come to notable conclusions.

They believed that even without an agreement on the exchange of protected information, a combination of the verification techniques in question could ensure an acceptable level of confidence as to warheads dismantlement. At the same time, introduction of verification regime with regard to warheads, their dismantlement and fissile material will have a considerable beneficial effect on the functioning of the whole nuclear weapons production complex of the Department of Energy. The most serious challenge is related to confirming that the item delivered to the dismantlement facility is really a nuclear warhead.

The comparison of key operations of verified nuclear warheads dismantlement regime as examined by both Russian and the US experts showed that they coincided to a great extent. Like their US counterparts, the Russian experts came to the conclusion on the necessity to be certain that the item removed from the delivery vehicle or removed from the arsenal and subjected to all stages of dismantlement was really a nuclear warhead, and that fissile material stored came from that particular warhead. That was the more necessary as both Russian and the US arsenals had warheads of different types, makes and containing different amounts of fissile materials.

The first joint discussion of transparent nuclear warheads dismantlement by Russian and the US nuclear experts took place in late 1995 in Snezhinsk. Based on the outcome of this discussion All-Russian Institute of Technical Physics (VNIITF) and Sandia National Laboratories concluded a contract for joint technical research on the matter.[173] Later on, after the All-Russian Research Institute of Experimental Physics (VNIIEF) from Arzamas and the All-Russia Research Institute of Automatics (VNIIA) from Moscow joined that work, the joint research performed by Russian and the US nuclear centers was dubbed “Lab-to-Lab Program”.[174]

The US party declared that the main task of the Lab-to-Lab Program was to initiate and support the technical dialogue with Russian specialists and to establish through the dialogue spearheads to promote transparency within Russian nu-

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[172] Transparency and Verification Options: An Initial Analysis of Approaches for Monitoring Warhead Dismantlement. US Department of Energy. Office on Arms Control and Nonproliferation, Washington, May 19, 1997.

[173] Bukharin O., Luongo K. US-Russian Warhead Dismantlement Transparency: The Status, Problems, and Proposals. Princeton University, Princeton, April 1999.

[174] Warhead and Fissile Material Transparency Program: Strategic Plan. US Department of Energy, Office of Nonproliferation and National Security, Washington. May 1999.

clear-weapons production complex.[175] The programme consisted of four stages and had the following objectives:

- defining the process of nuclear warheads dismantlement;
- identification and demonstration of technical means to be used to confirm the dismantlement;
- identification of measures enabling control throughout the dismantlement process from the warhead dismantlement to placing it into nuclear materials storage facility;
- identification of technical measures for transparent storage of plutonium and highly enriched uranium.

In 1998 the final, third stage of the research under the programme was nearing completion. At the Russian-US seminars held in April and May of 1998 in Sarov and Snezhinsk Russian specialists demonstrated their methods for radiation control of isotope composition and the weight of fissile materials, as well as methods of detection and elimination of warhead explosives and verified elimination of warhead shells. The experts reached agreement on the outline of the warheads dismantlement monitoring scheme and considered and made proposals for possible technical and organizational measures enhancing confidence as to whether the item that cleared all stages of dismantlement process was a real nuclear warhead. These results gave grounds for hope that the prototype transparency system would be completed and tested as early as in 1999.

However, the Lab-to-Lab Programme has never arrived at its fourth stage due to another tide of the parties' suspicions against each other.

Possible scenario for practical implementation of transparent nuclear warheads dismantlement. As it has already been noted, the expansion of transparency regime to nuclear warheads is primarily aimed at ensuring the authenticity of nuclear weapons withdrawn from service and subjected to verified dismantlement. However, this objective can only be achieved with the help of a number of techniques enabling identification of nuclear warheads. The procedure of identification of warheads removed from delivery vehicles may be as follows. The removed warheads are placed in special transportation containers. The containers are marked and equipped with anti-tampering devices.

An additional certainty as to authenticity of nuclear warheads could be ensured through the issuance of radiation passport for each container. Such passport could include the passive measurement of gamma-ray spectra or properties of the neutron flux. The feasibility of this method has been demonstrated by both Russian and the US specialists.[176]

The measurements obtained through this method (radiation passport) are recorded on a medium and stored by the inspecting party. In the course of a check

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[175] Ibid.

[176] Olinger Ch.T., Stanbro W.D., Johnston R.G., Nakhleh Ch.W., Dreicer J.S. Technical Challenges for Dismantlement Verification. New Mexico, Los Alamos National Laboratory;

Разиньков С.Ф., Кондратов С.Е., Моренко А.А., Сысоев В.Н., Белов В.А., Хлыстов С.В. К вопросу о неразрушающих радиационных методах контроля атрибутов плутония. РФЯЦ ВНИИЭФ.

(Razinkov S.F., Kondratov S.E., Morenko A.A., Sysoyev V.N., Belov V.A., Khlystov S.V. Non-destructive radiation methods of plutonium attribute verification. VNIIEF).

at the entry either to the dismantlement facility or to the storage facility, the same measurements are performed using similar equipment and in similar circumstances, with the results compared to those of previous measurements and the conclusion on the integrity and authenticity of the item made. The use of radiation passports method can be accompanied by the use of information barriers in order to exclude intrusive measurement.[177]

Warheads authentication may be especially important in a situation when the inspectors have not been present when the warheads have been removed from the delivery vehicles and placed in the storage facility. The inspecting party may suspect that the items have been replaced with imitations containing smaller amounts of fissile material. Radiation passports can also be used in this case. To do this, the inspecting party should be allowed to perform radiation measurements of a certain number of randomly selected warheads of the same type removed directly from their delivery vehicles and placed in the containers. Comparing – following an agreed method – the radiation passports of warheads delivered to dismantling facility from storage sites with those removed from delivery vehicles would enable the inspecting party to ascertain that there is no deceit.

The process of transparent nuclear warheads dismantlement involving the use of radiation passports and the unique marking on the containers with warheads may consist of the following three stages.

At the first stage the parties declare and monitor on a reciprocal basis their excessive nuclear warheads and their locations. Then the nuclear warheads destined for verified dismantlement are removed in the presence of inspectors from their delivery vehicles or withdrawn from storage facilities and are placed in the containers to which a unique marking is subsequently attached. The containers are also provided with anti-tampering devices. If necessary, radiation passports are filled in, as agreed. After that the nuclear warheads are transported to a temporary storage or dismantlement facility. In case the warheads go to temporary storage, random checks of sealed containers may be performed.

The second stage begins when the nuclear warheads arrive at the dismantlement facility. As they enter the facility, the inspecting party checks the marking and anti-tampering devices, as well as compares the nuclear warheads radiation passports. The premises of the dismantlement facility may also be checked to ascertain the absence of concealed spare parts both before and after the nuclear warheads dismantlement. In case the containers and the warhead parts contained within them should be moved within the facility in between the stages of dismantlement, they can be subjected to radiation measurements and marking.

At the third stage, non-nuclear components removed from the nuclear warheads (explosives, electronic components, etc.) and the shell are disposed of and demonstrated to the inspecting party in a form excluding the disclosure of sensitive information. The containers holding the parts consisting of fissile materials are checked by both the inspecting and the inspected parties as they exit the facility. The check could involve confirming weapon-grade quality of the materials contained with the help of a non-intrusive technique. After that the containers go

[177] MacArthur D.W., Whiteson R., Wolford J.K. Functional Description of an Information Barrier to Protect Classified Information. Los Alamos National Laboratory and Livermore National Laboratory. July 25-29, 1999.

to a storage facility, or, if a decision is made on their final disposal, to a reprocessing facility, at the entrance to either of which they undergo the acceptance inspection.

Ensuring control over the fissile materials deemed excessive for the national defense purposes. Irreversibility of the nuclear arms reductions implies that in addition to political commitments the parties assume obligations to apply reciprocal transparency measures to excessive weapon-grade materials resulting from the nuclear warheads reductions and dismantlement.

In February 1993 Russia and the US concluded an intergovernmental agreement on the disposal of HEU extracted from the reduced and dismantled Russian nuclear warheads. Under this agreement intended for 20 years, 500 tons of HEU were to be downblended to the level of 4-5 percent in uranium-235 and shipped to the US to be used for the production of fuel for commercial nuclear reactors (HEU-LEU Agreement).

The parties also signed a MoU on transparency measures designed to guarantee that:

- the HEU falling under the Agreement is extracted from nuclear weapons and that it is this particular HEU that is fed into the oxidizer;
- the quantity of HEU downblended to LEU is compliant with the declarations;
- LEU shipped to the US is used for the production of fuel for commercial nuclear reactors.

Under the MoU, each party may send observers to the other party's facilities to observe uranium sampling for technical analysis and sealing of the containers.

In March 1994 the US Secretary of Energy Hazel O'Leary and the Russian Minister of Nuclear Energy Victor Mikhailov signed the protocol on measures to ensure the transparency of the HEU-LEU Agreement for the implementation of the MoU.[178] It listed the facilities subject to control.

In 1994-1996 Russian and the US experts elaborated a few annexes to the protocol governing the monitoring procedures at the mentioned facilities.[179] In the framework of the transparency measures the US inspectors use portable non-destructive control equipment to measure the enrichment of HEU at all stages of its downblending to LEU: at the arrival of weapons parts at the Siberian Chemical Combine, cutting them into metal chips and the oxidation and fluorination processes.[180] The materials are placed in sealed containers in the course of these controls. At the enrichment facilities of the Ural Electrochemical Integrated Enterprise, Siberian Chemical Enterprise and Electrochemical Plant in Zelenogorsk the US inspectors monitor the (weekly) sampling of material from the blending pipeline and the analysis of samples in the facilities' laboratories. Besides, non-destructive control equipment has been installed at each blending pipe, which

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[178] Percival M., Ingle T.H., Bieniawski A.J. Proposal for Broader United States-Russian Transparency of Nuclear Arms Reduction. US Department of Energy, Washington, 1995.

[179] Warhead and Fissile Material Transparency Program…

[180] US Transparency Monitoring of HEU Oxide Conversion and Blending to LEU Hexafluoride at Three Russian Blending Plants, by D. Leich, D. Thomas, D. Decman, J. Glaser, K. Lewis, J. Benton, A. Demenko, Lawrence Livermore National Laboratory, preprint UCRL-JC-131457, July 27, 1998

enables continuous monitoring of enrichment in uranium-235 and the volume of materials in the flow.

The experience of transparency measures accumulated in the course of implementation of the HEU-LEU Agreement has caused no problems in the relations between the two parties, which is another proof of reliability and credibility of such measures.

Ensuring transparency of excess weapon-grade plutonium. In September 1993 the Russian Ministry of Atomic Energy and the US DOE concluded an agreement providing for the US assistance to Russia in constructing a storage facility for fissile materials resulting from nuclear arms reductions. The US was to provide assistance on the key condition that the Russian side consented to ensure transparency of the storage facility in order to ascertain that:

- the stored fissile materials are extracted from the dismantled nuclear warheads;
- the materials in question are stored in a safe and secure manner;
- the material withdrawn from the storage facility is not used for nuclear weapons.[181]

In March 1997 based on the arrangement set forth in the joint statement by Hazel O'Leary and Victor Mikhailov, a working group was established to develop a list of verification procedures and future reciprocal inspections with regard to plutonium and HEU extracted from dismantled nuclear warheads and falling under the existing and future agreements on nuclear arms reductions.

After the consultations, the two countries' experts came to the conclusion that an inspection could be deemed sufficiently credible if its equipment and methods made it possible to define the ratio of plutonium-240 to plutonium-239, the shape and the weight of the plutonium part.[182]

The construction of the storage facility at the Mayak Chemical Combine was completed in December 2003, with loading commenced in July 2006.[183] However, the parties have not yet reached a final agreement on the list of verification procedures applying to plutonium to be placed in this storage facility. The US insists that it should be able to confirm that the plutonium placed in the facility comes from nuclear weapons. Russia disagrees with that as that would imply expanding verification activities beyond the storage facility.

One can also cite an example of more successful transparency measures applied to weapon-grade plutonium, the 1997 US-Russian intergovernmental agreement on cooperation with regard to plutonium-production reactors. It provides for stopping the operation of three industrial plutonium-production reactors: two in Seversk and one in Zheleznogorsk.

It contains a number of provisions governing verification measures, including those applying to plutonium newly produced at these reactors since January 1, 1997. The plutonium in question in the form of plutonium dioxide was placed in containers and sent to storage facility.

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[181] Warhead and Fissile Material Transparency Program…

[182] Safeguards for Nuclear Material Transparency Monitoring, by J.K. Wolford, Lawrence Livermore National Laboratory and D.W. MacArthur, Loa Alamos National Laboratory, 1999.

[183] Bunn M., Wier A. Securing the Bomb. Belfer Center for Science and International Affairs, John F. Kennedy School of Government, Harvard University, May 2004.

Russian side authorized observation at storage facilities so that the US could ascertain that:

- the quantity of plutonium in the containers is compliant with the declaration;
- the plutonium is newly produced;
- the containers with plutonium have not left the storage facility.

Some verification procedures were also specified by the joint implementation and compliance commission.

To confirm that the plutonium has been obtained from the fuel with low burn-out rate, i.e. as a result of reprocessing fuel for industrial reactors, the ratio of plutonium-240 to plutonium-239 was measured. According to the agreement, it should not exceed 10 percent. For this verification procedure, a method of high-definition gamma-ray spectroscopy and special software using information barriers were used. The result of measurement was displayed in the form of binary indication, a pass or a fail.[184]

The age of the plutonium produced, i.e. the age of the material declared by the Russian side based on the month and year of its separation is verified based on the ratio of americium-241 to plutonium-241. This parameter is measured through high-definition gamma-ray spectroscopy using information barrier.

To verify the weight of plutonium in sealed containers, a combination of two measurement procedures is used. The intensity of neutron radiation that is proportional to the product of plutonium weight by the content of plutonium-240, is measured with integrated neutron detectors. Alongside with that, gamma-ray spectroscopy is used to measure the effective isotope concentration of plutonium-240 based on the measured ratio of plutonium-240 to plutonium-239. This technique makes it possible to confirm that the amount of plutonium in the containers is compliant with those declared, and has already proven effective.

Transparency and the concept of a world free from nuclear weapons. The interest in the concept of a world free from nuclear weapons has activated discussions on specific steps towards this end.

It is evident that it is impossible to build a world free from nuclear weapons overnight. Nuclear arms reductions will take considerable effort and time, and will only be possible if global security and stability are maintained and the role of nuclear weapons in ensuring national security is diminished. One can be certain that fears that the countries may breach their international obligations by partially concealing their nuclear arsenals to avoid their complete elimination, will be of particular importance in this process. These fears can be minimized exclusively through effective verification and transparency measures applied to the reduction of nuclear arms and weapon-grade fissile materials. In this context, the experience of verified nuclear arms reductions accumulated by the US and Russia will be especially valuable.

The above analysis has shown that verified nuclear warheads elimination presents an enormous challenge even for the US and Russia possessing considerable nuclear arms inventories. One can expect that these countries will face even greater challenges as they engage in deeper arms reduction and as more nuclear-weapon states are involved in this process. Those will be related mainly to the

[184] Safeguards for Nuclear Material Transparency Monitoring…

need to protect the design information and to declare the states' inventories of nuclear arms and weapon-grade fissile materials, as well as to verify these inventories. Such declarations serve as a valuable source of some basic information, and it appears obvious that they should be verified in case of deeper arms reductions.

To prepare such declarations nuclear-weapon states will have to engage in full-scale examination of all their data on their nuclear arsenals. To avoid deceit, the declarations should contain as detailed information as possible. Ideally, they should include the history of production and use of nuclear materials, their quantity, enrichment and storage locations, the total number of available warheads and nuclear components desegregated by types, including by fissile material used and its quantity, and the location of warheads. However, some information of such declarations, e.g. location of warheads storage sites, is extremely sensitive. For this reason one can hardly expect that nuclear-weapon states will be ready to expand the transparency regime to all their nuclear arsenals at once.

As it has already been stressed, nuclear arms can be eliminated only gradually. Taking this in consideration it appears optimum that at initial stages the states should declare total amount of their weapon-grade fissile material. The transparency regime would apply only to those nuclear warheads that are subject to the agreements on nuclear arms reductions at a particular stage, including to the non-deployed warheads and warheads awaiting dismantlement, and weapon-grade fissile materials that are deemed excess for defense purposes by the government.

The transparency regime could include compulsory elements providing confidence that all parties comply with their obligations to implement the concluded agreements, such as inspections, including short-notice inspections.

Nuclear arms reductions process cannot be successful, unless a reliable control is ensured over this process up to complete elimination of nuclear weapons. The issue of such control will become especially topical as the parties engage in deep nuclear arms reductions, when even small number of nuclear warheads concealed from control may undermine the stability of the process. To address this issue, organizational procedures and techniques need to be developed that would guarantee the transparency of the reduction process.

PART VI
PROSPECTS FOR THE TRANSFORMATION OF NUCLEAR DETERRENCE

VI.1.TRANSFORMING NUCLEAR DETERRENCE THROUGH COOPERATION IN BMD

Transformation of nuclear deterrence. Nuclear deterrence, as a key factor of ensuring security is most likely to persist in the doctrines and force planning of all nuclear states. It applies not only to democracies. As things stand now, a number of authoritarian and totalitarian states are de facto nuclear-weapon states, and some others may soon catch up. These states will mainly regard nuclear weapons as a deterrent, though alternative scenarios are also possible.

Therefore when it comes to the transformation of mutual nuclear deterrence, it is analyzed primarily in the context of strategic relations between the US (NATO) and Russia. In this context it is one of the worst remnants of the Cold War that has moved on like a heavy road-roller, just because of the momentum it gained during the decades of intense antagonism of the two superpowers and their alliances. In addition to its negative effect as a survival of the Cold War era, mutual nuclear deterrence currently impedes the expansion of Western-Russian efforts to counter new common threats and security challenges of the XXI century.

In the two recent decades, hundreds of books and papers have been written proposing various options to break the vicious circle of such relations. It is obvious that to do so, besides new forms of disarmament and confidence-building measures, specific long-term joint military projects are needed. One of the key projects of this kind is cooperative development of anti-missile defense to protect against missile attacks by third countries and irresponsible regimes.

Missile defense and problems of cooperation. The possibilities and prospects for missile defense cooperation have been reviewed in the recent research papers, in particular under the NTI-IMEMO project, the Brooking Institution-IMEMO project, and as part of the activities by the Euro-Atlantic Security Initiative (EASI; includes Russia, the US and European NATO countries). The sponsors of these projects generally have a relatively clear picture of the potential architecture of joint European missile defense and the priority steps required.

The decision by Barack Obama Administration on the new Phased Adaptive Approach to missile defense in Europe (PAA) was conducive to cooperative US-Russian endeavor in BMD. However, as is known in Stage 4 anti-missile system in Europe may acquire strategic capabilities – a potential of intercepting strategic intercontinental ballistic missiles (ICBMs) and submarine-launched ballistic missiles (SLBMs). Nonetheless, according to many experts, even such kind of missile defense – if built unilaterally with no participation of or agreement with Russia – will have virtually no effect on Russia's projected nuclear deterrence capability.

The estimates show that to intercept only one medium-range missile with primitive missile defense penetration aids launched by Iran, no less than five SM-3 missile interceptors will be required. Further, to intercept only one ICBM warhead with highly effective missile defense penetration aids, more than 10 strategic interceptors will be required. Therefore, there is no point even in planning such missile defense against Russian strategic forces.

Nevertheless, unilateral deployment of NATO missile defense will undoubtedly raise political tensions and fortify the opposition on both sides to any military and security cooperation between Russian and the West.

The US missile defense would pose a threat for Russia's nuclear deterrence capability only if the US had fully implemented the technical projects related to the Strategic Defense Initiative (SDI) of the first half of the 1980s with its space-, air-, sea- and land-based missile defense components. However, this is not a near-term prospect, even if the Republican Party returns to power in Washington in 2012 or 2016.

Meanwhile, preventing political crises related to missile defense and transforming mutual nuclear deterrence requires much deeper cooperation of the great powers on this issue. In the first stages, the cooperation could mainly focus on the integration of missile attack warning systems of the US and Russia. In fact Russia's interceptor missile systems for countering ballistic missiles with the range of 1,000 to 4,500 kilometers are still behind the US THAAD and SM-3 interceptors.

At the same time, the integration of information systems is of key importance in terms of effective use of any missile defense systems. The space echelons of Russia's missile warning system are much less efficient than their US counterparts. However, the probability of missile launch detection by space echelons of missile defense depends on the cloud cover in the launch area and is therefore less than 100 percent. By contrast, the radars of Russia's missile attack early warning systems in Mingechaur (Azerbaijan) and in the vicinity of Armavir (Russia) have unique capability to detect missiles launched by Iran. When a missile is test-launched southeastwards from the site in northern Iran, the Mingechaur radar detects it in 100-110 seconds as it progresses along its flight path, while in case of north-westward operational launches the detection speed of the radar is even higher. This is beyond the capability of any existing radars of the US missile early warning system. Basing radars in Turkey, Georgia or any Arab state near Iran would be prone with serious political risks in view of the recent developments in the Middle East and Maghreb.

Follow-on steps could include more profound cooperation projects. Missile defense cooperation was discussed in depth by Russian and US experts in the Spring and Summer of 2011 at IMEMO RAN in Moscow and at the Luxembourg Forum in Stockholm. For example US delegates proposed an idea of a new missile early warning radar with target detection and tracking at all azimuths. It could be built in South Urals or Siberia employing US new technology and would be used jointly by the two countries or solely by Russia on condition that it provides the obtained data to the US. This certainly implies an advanced type of cooperative relations, comparable to the one existing within NATO or Collective Security Treaty Organization (CSTO).

Likewise the parties could share information of Russia's missile early warning radars, as well as of the state-of-the-art high-performance radars of Moscow

A-135 missile defense complex, such as Dunai-3U, Dunai-3M and Don-2N which ensure target detection at several thousand kilometers, target tracking and anti-missile guidance.

It would be most reasonable to start the cooperation in this area with the immediate revival of the Joint Data Exchange Center (JDEC) project for exchanging and storing missile launch data of global dimension. The decision to establish the JDEC was taken 12 years ago by the then US and Russian presidents. At the Moscow meeting in July 2009, presidents Barack Obama and Dmitry Medvedev discussed this option. The JDEC was almost established in Moscow; it could integrate the data obtained from the US and Russian early warning systems. This Center could further evolve into a Global Center for early warning and monitoring missile launches on a real-time basis.

However, given present conservative moods in the relevant US and Russian agencies, the parties could at least start with the revival of the original project on collecting and storing data, while establishing a similar center in Brussels to forge a parallel NATO-Russian link.

In addition to that, the suspended series of joint US/NATO-Russia TMD computer exercises should be resumed with a prospect to extending these exercises to actual test ranges and beyond the theatre scale. In bilateral US-Russia format, five computer exercises on theatre missile defense alternately in each of the two countries were held in 1996-2006. In 2003-2008 four computer trainings were held in the US-NATO-Russia format in the USA (Colorado), and in the Netherlands, Russian and Germany (Munich).

There were further plans to explore the possibility of arranging a live exercise at a test range in Russia, including the use of operational S-300 and Patriot anti-aircraft missile systems. However, these plans were "frozen" after the armed conflict between Russia and Georgia in August 2008.

As regards intercept systems, Russia's advanced experience in the development of unique software for inbound missile detection, warheads selection among decoys and despite jamming, as well as other developments could be of substantial use. In addition, Russia has a strong test range infrastructure, including a network of radar, optical-electronic and telemetric units that are not available in Europe.

Thus, already there is some cooperation experience, and a technological potential for such cooperation that should be used to the full extent. In the longer term, it may be of crucial importance for the transformation of nuclear deterrence: joint missile defense represents a transition to some kind of allied relations, which naturally transcends and removes mutual nuclear deterrence even with relatively large nuclear forces remaining operational.

It may not be completely excluded that the Iranian missile threat may be eliminated under various scenarios that are not examined here. Yet, the said consideration should not lead to withdrawal from the cooperation on BMD projects. Their value is much broader, than just countering missile threats of Iran and North Korea. Cooperative anti-missile systems are essential as an element of advanced great powers' joint strategy against global nuclear and missile proliferation, as well as common efforts in transforming mutual nuclear deterrence as a basis of NATO-Russian strategic relationship.

VI.2. PROSPECTS OF COOPERATIVE BMD AND NUCLEAR DETERRENCE

The objective of this paper is to briefly address how missile defense might offer a vehicle for enhancing transparency and cooperation among major states, and therefore of transforming nuclear deterrence. The emphasis here is on technical cooperation, meaning collaborative work involving scientists and engineers; although the focus is on cooperation between the US and Russia, it could involve other countries as well. A key point is that work on technical matters can help lay the foundation for the political and military cooperation that are ultimately needed in order to transform deterrence.

Because of this technical focus, I do not consider what is politically viable, let alone optimal. Instead, the highlight is on what is technically possible, the rationale being that one must first identify what is physically feasible – and therefore which policies or programs are even worth considering – before deciding which policy might be best.

For example, many in the technical community are skeptical about missile defense being effective against ballistic missiles carrying nuclear warheads. This is not because of doubt about the ability to detect missile launches in a timely manner, but because of skepticism about current technology being able to engage and destroy the warheads with adequate reliability.[185]

This skepticism about the present maturity of the technology suggests that international collaboration to address the technical challenges of missile defense may be at least as militarily useful as missile defense itself. However, this is only true if that collaboration leads to enhanced cooperation, transparency and stability between nations.

Here one must distinguish between two aspects of missile defense: i) detection of launches, and ii) destruction of the threat. The second – engaging and destroying warheads on incoming missiles – involves detailed procedures and technologies that quickly become sensitive, in part because this is the least technologically developed aspect of missile defense. Vulnerabilities are among the most sensitive aspects of any defensive system; in the present case, vulnerabilities include the ability to evade detection or otherwise undermine capability. Therefore, it is implausible that cooperation can easily begin with this (second) aspect of missile defense.

Instead, it is the detection of launches that can most easily be the focus of technical cooperation, at least in the initial stages as confidence is established between partner nations such as the Russian Federation and United States. Fortunately, this is also the aspect of missile defense that is technologically the most mature, which means that cooperation would be most fruitful with this emphasis on monitoring launches.

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[185] The argument here is that even a small number of nuclear explosions represents a disastrous outcome, whether on its own or because it triggers a larger nuclear exchange. Therefore, missile defense has to operate with much higher - near-perfect - reliability in protecting against nuclear as compared with non-nuclear attack. Current technology is far from having proven such reliability, when realistic sources of uncertainty are taken into account.

As an example, MIT Professor Ted Postol has proposed that existing US and Russian capabilities could be combined in order to create an enhanced system for early warning of potentially threatening ballistic missile launches. As is well known, the US has deployed space-based infrared surveillance capability for many years, including the Defense Support Program (DSP) and more recently the Space Based Infrared Satellite (SBIRS) systems. It is conceivable, at least on technical grounds, that it would be possible to share information from these systems in order to enhance global monitoring of missile launches.

By the same token, Russia has capabilities with its radar systems that could enhance US and allies' monitoring of potentially threatening missile launches. Specifically, radar coverage over the Russian territories could provide the US and its allies as much as 10-20 minutes increased warning time for missiles having flight tracks between Iran and either Japan or the West Coast of the US; and similarly for missiles having flight tracks between North Korea and Europe. One can imagine that such collaboration between the US and Russia could be pursued through the structure of the Joint Data Exchange Center (JDEC).

There is no intent to dwell on Postol's proposal, as similar proposals have been put forward by others. However, it does illustrate the potential for technical discussions about collaboration in missile defense, with a focus on enhanced global monitoring and early warning of launches. There may be other opportunities for technical cooperation between our nations: for example, in increased sharing of such technologies as low-noise, space-qualified infrared sensor arrays. In all of these cases, the point would be to improve monitoring of launches by enhancing spatial coverage, reducing response time and increasing reliability of the monitoring technology. Such an activity ought to be intrinsically stabilizing and mutually beneficial.

Obviously, these points are made from a scientist's perspective, and ignore political constraints. Nevertheless, this is a good time for technical experts to look into such ideas in greater detail, formulating more complete proposals or plans so that policy makers can then consider the potential benefits of moving forward with technical cooperation, along with other confidence-building measures between the US and Russia. Making more tangible progress on implementing the proposed missile-defense Joint Data Exchange Center is a case in point.

In a similar spirit, Stanford professor Sidney Drell and Harvard professor Christopher Stubbs have recently suggested expanding the monitoring activities conducted under the Open Skies Treaty.[186] With more than 739 flights conducted since 2002, considerable experience is being accumulated under the Open Skies regime. Significantly, the treaty specifies sharing of data and allows for enhancement of the technologies involved.

Because observations are made from aircraft, it is in principle possible to make far more sophisticated measurements than is the case using satellites, both because the observation platform is much closer to the ground and because that platform can carry far heavier equipment. For example, high-sensitivity spectroscopy with excellent spatial resolution is much easier from aircraft than from satellites.

Such capability can have powerful applications for nuclear arms control and non-proliferation monitoring, so it represents an early precursor to missile de-

[186] Drell S.D., Stubbs C.W., Realizing the full potential of the Open Skies Treaty // Arms Control Today, July/August, 2011. PP. 15-20.

fense. Again, technical cooperation in this domain can be stabilizing. Drell and Stubbs have therefore proposed expanding the Open Skies regime so as to apply a much broader range of technologies, and also to include more countries than are currently involved.

In both examples just summarized, the focus is on technical cooperation leading toward improved monitoring of activities or events around the world. One can think of this as a generalization of global monitoring systems already in place, such as the International Monitoring System (IMS) that has been deployed in support of the Comprehensive Nuclear Test-Ban Treaty.

It is notable that the IMS has proven to have significant applications in monitoring the environment, going well beyond nuclear arms control in documenting both natural and man-made phenomena. These have included devastating earthquakes and tsunamis that have killed hundreds of thousands; volcanic eruptions that have endangered commercial aviation and affected millions of passengers; and, most recently, the plume of radioactive gas emanating from Fukushima Japan, and then encircling the globe.

In all of these cases, enhanced global monitoring has significantly improved the ability to save lives, by offering warning with enough time and reliability for people to protect themselves. These benefits- in addition to the important, long-term benefits in support of arms control and non-proliferation – argue for moving ahead more rapidly in advancing our ability to monitor the entire world: everywhere, all the time, with high sensitivity, and with an ability to respond effectively.

In closing, this presentation has emphasized one aspect of cooperative missile defense as a practical approach for making progress in transforming nuclear deterrence. The focus has been on technical collaboration toward enhanced monitoring and early warning, because this provides a basis for increased transparency and improved confidence.

The next steps to making progress would include bringing together a small team of technical experts from both our countries to start identifying possible areas of cooperation. To be sure, this is not meant to ignore other forms of collaboration, such as military or political cooperation; these are also important, and should be pursued as energetically as possible. But there is at present a real opportunity for enhanced technical cooperation.

Put another way, technical matters are only a starting point for improved relations. In the end, it is political and military cooperation that are needed, but technical collaboration can provide a solid foundation for these broader forms of cooperation. It is essential that cooperation between our countries be technically substantive in order to make the necessary progress. Also, because scientists and engineers can focus on technical matters, we can maintain communications even when political relations may become strained.

Finally, the multiple benefits of such collaborations are worth emphasizing, whereby improved global monitoring can have real and immediate benefits for society, in addition to the long-term objectives of enhancing stability and security between our nations.

VI.3. COOPERATION ON BMD: POSSIBILITY NOT PANACEA

Efforts to achieve an agreement on BMD cooperation are now the focus of high-level attention by the governments of the US and Russia, as well as by the NATO Secretary-General. Leaders on both sides emphasize that such an agreement could be a 'game changer' in mutual relations, and would make possible a much more fundamental transformation in a relationship that is still dominated by mutual distrust, securitization and zero-sum thinking.

Yet there are risks involved in placing too much emphasis on this one area of potential cooperation if it means that is seen to be the main test for whether a broader breakthrough in mutual relations can be achieved. The relatively immature nature of missile defense capabilities, compared with the long-range missiles of technologically sophisticated powers, means that they have not reached a stage at which they can make a significant difference to the strategic nuclear balance. Nor are they likely to do so during the next decade, even if offensive nuclear arsenals are reduced to levels well below those agreed in the New START Treaty.

For decades, since President Reagan's 'Star Wars' programme was announced in 1983, the vision of a game-changing 'shield' against strategic missiles has exercised the imagination (as, respectively, a dream or a nightmare) of leaders in both Washington DC and Moscow. The failure to agree on the future of the US's strategic BMD programme was the main obstacle to agreement on far-reaching nuclear disarmament measures at the 1986 Reykjavik summit between Soviet President Gorbachev and US President Reagan. Yet, a quarter of a century later, the US programme remains limited in its capability. The US's only existing anti-ICBM systems are thirty mid-course interceptors based in Alaska and California, still comfortably within the numerical limits agreed in the 1974 Protocol to the ABM Treaty (from which the US withdrew in 2002). Over time, this programme may be able to provide the US with a significant degree of protection against a limited attack from unsophisticated ICBM's, for example from North Korea or from accidental launches. In terms of deployed capabilities against ICBM threats, however, the US still has remarkably little to show for the $150 billion that it has spent on missile defense over the last 27 years.[187] The dream of a 'shield' against long-range missiles remains just that: a dream.

In contrast, the US is developing increasingly capable missile defenses for protection of European and Asian allies, and its own deployed forces, against short and medium range ballistic missiles. In Europe, NATO's Phased Adaptive Approach is designed to provide its European members with defense against a possible future threat from Iranian nuclear-armed medium and intermediate missiles, in the event that current diplomatic efforts fail to prevent such a development. As part of this effort, sea-based Aegis interceptors are now being deployed on a regular basis in the Mediterranean, ground-based Aegis bases are planned for Romania (in 2015) and Poland (in 2018), and a new ground-based radar installation is currently being discussed. BMD-capable Aegis ships also operate in

[187] US Anti-Missile Spending to Match Cost of Apollo Space Programme // Global Security Newswire, August 5, 2011.

the Western Pacific and Persian Gulf, and the number of such ships continues to increase. Increasingly capable interceptors, now under development, are planned for deployment in four phases between now and 2020. Under the fourth phase of EPAA, the US plans to deploy a capability for defense against a limited Iranian ICBM attack in 2020. But this timetable is likely to slip, both because of the technological challenges involved, and because the Iranian threat is unlikely to materialize, at least on this timescale.

The presence (or lack thereof) of missile defense capabilities in Europe could make a difference to future strategic relations between NATO and a nuclear-armed Iran, were the latter to become a reality at some time in the next 10-20 years. But it will take a longer period of time before these capabilities can make a significant difference to the strategic balance between Russia and the US. If EPAA Phase 4 goes ahead, Russia will seek assurances that these cannot threaten its own second strike ICBM capability. It should be possible – at least in principle – to find ways to give credible assurances to Russia in this regard. These could include the provision of data on the technical capabilities of BMD systems, for example on interceptor terminal velocities. They might also include assurances that sea-based systems will only be deployed in locations relevant to defense against an Iranian (or other future third-party) threat.

Since BMD is unlikely to make much difference to the strategic balance between the US and Russia over the next 15 years, cooperation in this area may not, by itself, be able to act as a 'game changer' in relations between the two countries. But it could be an 'ice breaker', helping to create an atmosphere in which it becomes more feasible to consider a wider package of other measures designed to demilitarize relations between Russia and NATO member states. Such measures could include, inter alia, further reductions in offensive strategic forces, confidence-building and transparency measures in relation to NSNW (for example in relation to Russian facilities in Kaliningrad) and military exercises, the resolution of outstanding post-Soviet territorial disputes, closer economic and people-to-people ties, and agreement to work more closely together on common problems.

From Reset to Transformation? The real importance of an agreement on BMD cooperation, therefore, does not lie primarily in whether or not it increases 'first strike stability' in the event of a future war (though this is not unimportant). Rather, the test of such cooperation will be whether it has the potential to transform the negative threat perceptions that still exist between Russia and the US, and between Russia and NATO. If BMD cooperation is able to have this 'ice breaker' function, it could open the way for a much broader mutual recalibration of military structures, and for a lasting transformation in East-West relations.

Seen in this broader context, a 2012 agreement on BMD cooperation would allow a deepening of the 'reset' in US (and NATO) / Russia relations that has been underway since 2009. 'Reset' has involved a broad range of military, political and economic measures, the common theme of which has been an effort to develop mutual support and reassurance. The US and NATO have been able to (at least partially) reassure Russia about missile defense through the abandonment of plans for stationing a 'third site' for strategic BMD in Europe, instead focusing on measures to counter medium-term (and medium-range) threats through EPAA. The loss of the previous momentum behind NATO enlargement to Georgia and Ukraine has helped to reassure Russia on one of the issues on which it had previ-

ously been most concerned. For its part, increasing Russian willingness to cooperate with the US, UK and France on the UN Security Council (notably in relation to Iran), together with Russia's increasingly central role as a supply route for ISAF forces in Afghanistan, has helped to convince NATO member states that they are also benefiting from 'reset'.

Goldilocks and Arms Control. Both the US and Russia continue to devote substantial resources to maintaining, and modernizing, large offensive strategic forces, the size and structure of which can only be justified in relation to the other state. The financial burden of this commitment is especially onerous for Russia, which continues to seek nuclear parity with the US, despite a defense budget that is only a tenth as large.

This continuing investment reflects the political reality that, although the probability of a major war is very low, the possibility of such a war still plays an important role in the national political narratives of the US and (even more so) Russia. In part, this reflects the continuing legacy of World War Two and the Cold War, both of which have left strong military and industrial lobbies in place in the two former military superpowers.

Controversy over unilateral military interventions, notably those in Kosovo and Georgia, has reinforced mutual suspicion. Even so, the possibility of a major war, in which nuclear threats might be seen as a plausible option, remains very remote. There has not been a large-scale war between major powers since 1945 (the Korean War in 1950-53 came close, but was geographically limited). The whole world is not yet turning into something akin to the Atlantic security community, within which war between states has become unthinkable in calculations of state policy. But there does appear to be a broad trend towards war between higher-income industrialized states becoming less and less common.

As a result, we may now be seeing a world emerge in which relations between the major powers are entering a 'sweet spot' for arms control and mutual arms restraint. For, arguably, arms restraint may work best when the relationships between states are not too warm and not too cold. If they are too warm and pacific (as within NATO and the EU, or between the US, Japan and Australia), conflict between states is no longer an issue in national policy. As a result, mutual restraint is not relevant. If relationships are too cold, by contrast, then the search for marginal advantage in a crisis, together with deep-seated mutual distrust, is so great that agreement on mutual restraint is highly constrained.

Yet, in between these two extremes, there might be quite a wide scope for the states involved to perceive the possibility of mutual gain through agreement to mutually restrain military capabilities and/or operations. This could be called a 'Goldilocks Theory' of Arms Restraint. The very process of enhancing mutual arms restraint between these countries, moreover, could help the process of moving their relations further towards the Warm – or Post Modern – end of the spectrum.

One measurable indicator of such a trend would be that key states were reducing their military budgets, at least as a proportion of GDP. Such a trend has been underway in NATO-Europe since the end of the Cold War, and now seems likely in the US as a result of its debt crisis. But other major powers- notably China, India and Russia – are still increasing their military budgets more rapidly than their national incomes. This reflects the high priority that all three of these

states continue to give to hedging against the possibility of conflict with other major powers.

Cooperative BMD. There are special features of BMD that make it especially suitable as a symbol for a broader process of mutual trust-building and restraint between Russia and NATO. During 2011, the expectations created at the 2010 Lisbon summit created some significant political momentum for progress, both in the US and Russia. But there also is a window of opportunity in another sense. Th current opportunity for cooperation on missile defense exists as a result of the 1987 agreement between the US and the Soviet Union to eliminate all ground based missiles with ranges between 500 km and 5500 km. As a result of the INF Treaty that followed, 2,700 missiles were destroyed. More than two decades later, and as an unintended consequence, the Treaty has made BMD cooperation between the US and Russia possible in a way that it would have been hard to conceive without it.

At the heart of current proposals for BMD cooperation is the attempt to identify ways in which the US and Russia can cooperate in countering the INF ballistic missiles of third parties, such as Iran, while simultaneously reassuring each other that they do not intend to threaten each other's nuclear forces. Yet, if there had not been an INF Treaty, and as a consequence the US still deployed some Pershing missiles in Germany and/or Russia still had some SS-20 missiles, it would have been much harder to build a common ballistic missile shield, given its likely impact on these systems. There would simply have been too many voices –especially in Russia – saying that NATO plans for theatre missile defense posed a threat to what would have been portrayed as an essential part of its nuclear deterrent.

If an agreement on missile defense cooperation during 2012 is achieved, therefore, it can be seen as being the direct descendant of the INF Treaty, in the very literal sense that it could not have existed without this previous agreement.

But the history of attempts at BMD cooperation also suggests the need for caution. Time and again, missile defense has proven one of the trickiest issues in US – Russia strategic relations. And one of the biggest problems is precisely the tendency to view the issue as one that has the potential to transform the nature of international relations radically. President Reagan's proposal for zero nuclear weapons – or at least zero ballistic missiles – foundered on his unwillingness to abandon his Star Wars programme in return. The Soviet Union, for its part, saw Reagan's stance as an attempt to gain offensive superiority through a superior defensive shield. Then, in 2002, President Bush's decision to pull out of the ABM Treaty was seen as a body blow to relations with Russia and as an attempt to push for military superiority.

Cooperation not Integration. Not only is the potential for missile defense cooperation to transform US / Russia relations limited by the technical immaturity of current and planned capabilities. It is also important to recognize the limits to what is possible under the umbrella of 'cooperation'. Even between countries with as long-standing a history of mutual interdependence as the US and the UK, all armed forces are under national not collective control. The US is not about to give Russia a veto on the use of its forces when it has not been prepared to do so for other NATO member states. Consultation, information sharing and scenario planning are at the heart of NATO's modus operandi. And NATO appears to be

willing to go some considerable way towards including Russia in such processes in relation to missile defense. But, as is true for NATO member states themselves, the only circumstances in which Russia will be able to exercise effective control of components of a shared ballistic missile defense system will be when it either pays for those components or provides a territorial base for them.

But the EPAA does – precisely because it is both phased and adaptive – provide a fruitful area in which Russia and NATO could engage in a process of gradual and reciprocated confidence-building, should they choose to do so. In an early stage of such a process, the establishment of the proposed Joint Data Exchange Centre could provide a mechanism for addressing some of the concerns that drive policy in the US and Russia. Thereafter, increased levels of data exchange could be complemented by the allocation of Russian assets – including interceptors and radars – to the joint architecture.

On the US side, the possibility that Iran could acquire an ICBM capability by the mid 2020's continues to be an important driver of national policy. Russia, for its part, is sceptical of such prognostications. The JDEC, and continuing exchanges of technical data and analyses, could help the two sides understand why they differ on such a key issue. It can also, as 2020 draw nearer, help bring Russia and NATO closer together when it comes time to make decisions on Phase 4 of the EPAA, which is currently planned as a counter to a possible future Iranian ICBM. If such a threat does develop, coordinated threat analyses may be able to help Russia understand the basis of NATO concerns. If the threat does not develop as rapidly as some fear, by contrast, cooperative mechanisms may provide NATO with an incentive to postpone its deployment schedule appropriately.

Intensified processes of data exchange could also help Russia understand both current US missile defense capabilities and plans for future developments. Russia could be offered access to test data for interceptors, together with forward plans for both land-based and sea-based deployments.

In parallel with data exchange and confidence-building, the two sides could explore whether, and in what ways, Russian radars and, potentially, new interceptors could be integrated into a joint architecture for missile defense against threats from the wider Middle East region. There could be no compromise on the principle of national control over nationally-owned assets. But protocols could be developed to ensure that participating states develop operational doctrine and plans in close cooperation with each other, and on the basis of equity and full partnership. The more assets, and money, that Russia is able to contribute to a joint system, the more it can add value to the whole. Possibilities in this regard may include the addition of extra capacity to counter multi-missile threats, extra intercept opportunities against single missiles, and additional, and complementary, tracking opportunities. If a crisis does develop in future between a Middle Eastern state and/or Russia or NATO, this preparation will stand both NATO and Russia in good stead. Even if such a crisis never happens, the experience of working together to plan for mutual assistance will have a positive confidence-building effect.

BMD cooperation and transforming nuclear deterrence. An agreement on BMD cooperation would not necessarily lead to a wider breakthrough in NATO/Russia relations. In a 'transformative scenario', the trust-building effects of such an agreement would open the way for deeper cuts in offensive arsenals,

well beyond those agreed in New START. Russian security elites would be reassured that US missile defense no longer posed a threat to Russia's strategic missile force. US security elites would welcome Russia's adoption of a more cooperative approach to security, and in particular the formation of a common front against potential 'rogue state' and terrorist threats. The leadership of both countries, in this scenario, would have greater latitude to make far-reaching nuclear reductions, well beyond the levels that currently seem possible. Progress could also be made on related issues, such as constraints on US long-range conventional (ballistic and cruise) missiles and on Russian non-strategic nuclear warheads.

In principle, progress of missile defense cooperation might also create conditions for confidence-building in relation to conventional capabilities. As with missile defense, it is not realistic for Russia to expect to achieve strict parity in its total conventional forces with the US. It would be even less realistic for Russia to expect military parity with NATO. Such aspirations were barely affordable for the Soviet Union during the Cold War. They are neither affordable nor equitable today, in a world where the population of NATO is many times that of Russia, and the disproportion in GDP is even greater.

As in the case of missile defense, however, the US and NATO can do more to reassure Russia that they respect its own vital interests, and that they will shape and deploy their forces in such a way as to minimize their potential for posing an offensive threat to Russian territory. Further reassurance of Russia in this regard may, in any case, be provided by the reductions in European armed forces and defense budgets as a result of the programmes of fiscal retrenchment in most NATO member states.

These reductions have only been possible because NATO European member now assess the probability of a major war in Europe as being very low. But the large forces that remain, both in NATO and Russia, are still to some extent shaped by the legacy of past periods of distrust and antagonism. In this context, a ballistic missile cooperation agreement could indeed be a 'game changer' in the relationship, providing the psychological impetus for further steps of conventional disarmament, as well as a broader demilitarization, between NATO and Russia.

Whether or not missile defense cooperation opens the way to a deeper reset of this sort, however, will depend both on domestic politics and on the evolution of remaining points of dispute. On the former, having used up so much of their political capital to achieve a BMD agreement, both US and Russian leaders may feel that some time will have to elapse before another major negotiating effort can be launched. In the US, in particular, much will depend on how the issue of cooperative security with Russia plays in the 2012 Presidential Elections. The more that BMD cooperation becomes a partisan issue, the more that further progress on offensive reductions may have to wait the outcome of that election. On the latter, continued improvements in NATO/Russia relations remain at risk as long as deep disagreements remain on approaches to Georgia, Moldova and other longstanding disputes. If one or more of these disputes were to flare up, it could risk reversing many of the political gains made by a missile defense agreement.

Don't Forget China. Missile defense cooperation between NATO and Russia should not be viewed in isolation from the wider international security environment, and in particular from the potential impact on China, with whom cooperation will be vital for future global strategic stability. Both Russia and NATO

are concerned at the long term impact on their security of growing Chinese economic and military power. China's government, in turn, is concerned at the impact of growing US missile defense capabilities for its own, relatively small, offensive nuclear force.

One way to move forward on this, in the wake of a NATO/Russia missile defense agreement, could be to use the existing talks between the five NPT nuclear weapon states as a forum for developing means for ensuring that China is progressively brought into the new data exchange arrangements. This might involve, for example, JDEC-type arrangements between the US, Russia, China and Japan. It could also begin a conversation on whether the smaller nuclear weapon states (UK, France and China in the first instance) could be persuaded to accept transparency and restraints on their offensive forces, in return for further deep reductions by the US and Russia.

Possibility not Panacea. A NATO – Russia agreement on missile defense cooperation would not be a 'game changer' by itself. But it would have the potential, along with other measures, to accelerate a process of mutual attitudinal change, and thus help lay the basis for a broader demilitarization of relations. Such an outcome is far from guaranteed. In the absence of a missile defense agreement, and even with one, the next decade of NATO – Russia relations could still end up looking remarkably like the last one, characterized for the most part by sullen co-existence, but punctuated by incidents of real tension and risk. It could be worse. But a better outcome is now a real possibility, and would be in the interests of both Russia and NATO.

VI.4. MUTUAL RENUNCIATION OF THE LAUNCH-ON-WARNING CONCEPT

Nuclear deterrence, first and second strike options. It is commonly assumed that the aim of nuclear disarmament is to absolutely ensure that nuclear weapons will never be used again. However, nuclear disarmament seems a long and thorny way off, and while the parties advance along this path, nuclear deterrence will remain a political and military reality of international relations.

Nuclear deterrence is a form of strategic relationship between states which are neither allies (like the USA, Britain and France), nor benign partners (as Russia and India, or China and Pakistan), or militarily disengaged states (India and Israel) – and which are located within the strike range of each other's nuclear delivery vehicles. As long as nuclear weapons exist, nuclear deterrence will prevail and there will remain a theoretical possibility of a nuclear conflict in the event that the deterrence fails.

Therefore, as nuclear disarmament progresses, the primary task is to ensure that the use of nuclear weapons becomes an increasingly unlikely option not only in political, but also in military-strategic sense. Hence, till final nuclear disarmament is achieved, the principal goal of agreements and unilateral measures in this area is to bring the probability of intentional, unauthorized or accidental use of nuclear weapons as close to zero as possible – i.e. to make nuclear deterrence fail safe and stable to a maximum degree.

This is one of the principle directions of the concept of transforming mutual nuclear deterrence into a more constructive form of strategic relations between nuclear powers. Deterrence implies a threat of using nuclear weapons for achieving some security and foreign policy goals (i.e. preventing aggression against oneself or one allies). Thus, if the probability and physical possibility of using nuclear weapons is minimized – the very concept of nuclear deterrence is profoundly transformed.

Nuclear deterrence may manifest itself in different nuclear force levels and postures, as well as in various doctrines and operational concepts. A type of strategy and forces, which are oriented on a first (disarming) strike against the adversary, is the most dangerous form of nuclear deterrence that is prone with a significant threat of a nuclear war. Such reliance of nuclear forces – both in a unilateral and bilateral format – actually turns nuclear deterrence into its opposite. Instead of serving as a means to achieve political aims without actual use of nuclear weapons (i.e. of preventing nuclear war in a hostile international environment), it becomes an instrument of unleashing war – a factor, which is inducing probability of nuclear conflagration.

In the new 2010 military doctrines of the United States and Russia the probability of *intentional first use of nuclear weapons, while retaining this concept as an option of last resort,* has been reduced. However, it was retained by Russia in view of growing NATO conventional superiority (and implicitly that of China), and in case of the United States – to sustain security guarantees to allies in Europe and the Far East. Britain, France and Pakistan also preserve this option openly, while Israel and North Korea – implicitly and India by way of reservation.

Hence, the first step in reducing the probability of actual use of nuclear weapons should be to remove first strike option from nuclear doctrines, operational planning and force postures. Foremost, this applies to the United States and Russia which possess the largest physical first strike capabilities and have the least real need to preserve this option. To facilitate this step of transforming nuclear deterrence some agreements on conventional forces and weapon systems, as well as unilateral revisions of security requirements and armed forces' deployment and development would be required.

However, even nuclear deterrence based on retaliatory (second) strike concept may be quite dangerous. Moreover, since after the end of the Cold War a deliberate first strike is politically highly unlikely – despite declaratory doctrines' reference to this option – some forms of retained second strike postures may in fact be more dangerous from the point of view of the actual probability of nuclear war. Besides, such options are closely intertwined with first strike concepts and should be dealt with in conjunction.

The launch-under-attack concept. The most dangerous version of a retaliatory strike strategy is the concept of a launch-on-warning (LOW) or launch-under-attack (LUA). Both imply launching one's missiles before the enemy's missiles hit them at their deployment areas, and thus prevent implementation by the foe of a disarming strike, designed to avoid retaliation or limit its destructive consequences to an acceptable level.

This method of using nuclear forces implies that land- and sea-based missiles may be launched on the basis of information from missile attack early warning systems. The difference between LOW and LUA is that the first means lunching missiles while opponent's missiles are still in flight, while the second refers to lunching missiles while opponent's nuclear warheads are already exploding over one's territory. Since the time frame of the two scenarios is quite short and overlaps, the difference between LOW and LUA is quite blurred. In the West the first term is more commonly used, while in Russia – the second.[188]

This strategy, as well as the related technical capacities was regarded as the top achievement in the development of the US and Russia's nuclear posture, though it was never the only concept to rely on: alongside with launch-under-attack, there were also the first-strike and the deep retaliatory strike concepts. The military minds of the two powers were strongly convinced that the launch-under-attack strategy and weapons were the most sophisticated form of nuclear deterrence and the most dependable guarantee of national security.

Today, 20 years after the Cold War ended, there are serious reasons for mutual revision and rejection of such concepts.

The flight time of an ICBM launched by the US against USSR/Russia or vice versa is around 30 minutes. Under the LOW/LUA concept within that period, the launch should be detected by the missile attack early warning systems, the top level decision should be made and the order for missile launch should be given and implemented and the missiles must escape from the nuclear kill zone. Since the early 1980s, when the SLBMs acquired counterforce (hard target kill-

[188] In Russian they are referred to, correspondingly, as *vstrechniy udar* and *otvetno-vestrechniy udar*.

ing) capability (as the US Trident-II missiles did) the requirements to launch-under-attack systems tightened to allow for SLMB flight reduced to 15−20 minutes.

A danger has always remained that the sides may exchange accidental or unintended nuclear strikes as a result of technical malfunction or incorrect assessment of data from missile attack warning systems. Even if all the systems perform ideally, the state leadership would only have several minutes to make the most apocalyptic of all imaginable decisions – the decision to carry out a massive nuclear attack against another superpower.

Currently, of the nine nuclear-weapon states, only Russia and the US have launch-under-attack concepts in their nuclear strategies and possess adequate technical assets to implement them. Other nuclear-weapon states have no significant counterforce capabilities against the US or Russian forces, and the two major nuclear powers do not need any launch-under-attack concept for a retaliatory strike against them. Besides, other countries do not possess the warning and command-control systems necessary for a launch-under attack, neither do they maintain their missiles in a state of adequate readiness for launch.

The US can carry out a launch-under-attack using land-based ICBMs. So can Russia, with the ICBMs of its Strategic Missile Forces and a part of SLBMs of submarines on alert in bases. Presumably, the two countries together permanently keep on high readiness some 2,500 nuclear warheads, of which around 1,700-1,800 warheads are ready for launch within several minutes, as soon as information is obtained by the missile attack early warning systems – satellites and ground-based radars.

Arguments for retaining the launch-under-attack concept and high readiness. Within the US and Russian military communities there is a strong opposition to proposals of mutually renouncing the launch-under-attack concept. These run counter to the conventional military logic, according to which higher readiness and the ability to carry out immediate retaliatory strike is an enormous advantage and the main task of military training and technical improvements in armed forces and equipment.

Besides, there are a number of specific points in favor of this concept:

Firstly, when carrying out a launch-under-attack, however complicated this operation might be, missile attack warning and command-control systems perform virtually in the peace-time environment, that is, they are fully operable, unlike the situation after the impact of adversary's nuclear strike, which might affect them in unpredictable ways.

Secondly, if they are not launched after the warning from a missile warning system, silo-based ICBMs will be significantly weakened as a result of the counterforce strike. The US has a superiority in this regard, as Russia's SNF rely more on vulnerable silo-based ICBMs (and keeps most of submarines at bases, and the aircraft at a limited number of airfields).

Besides, Russia’s counterforce capacity is not as significant as that of the US SNF, which relies mostly on the invulnerable sea-based component of the triad.

Moreover, Russian SLBMs are lacking counterforce capability in contrast to US sea-based missiles.

Third, the possibility of the US deploying multilayered missile defense and long-range high precision conventional weapons in the long run makes the concept of launch-under-attack more valuable for Russia, as it would enable Russia

to avoid the destruction of its weapons at their bases and facilitate saturation of the enemy's defense systems.

Fourth, mutual renunciation of launch-on-warning would either be unverifiable (like de-targeting agreements) or too difficult a task for negotiations, shall those be aimed at achieving a technically feasible, verifiable, safe, economic and balanced agreement with the existing disparity in the two powers' forces.

Fifth, in a crisis, there may start a race to reconstitute the readiness of the sides' forces, which would encourage the side having an advantage over the enemy to implement a preemptive strike.

The above reasoning should not be dismissed off-handedly. Yet, a considerable part of these points is a subject of critical analysis from strategic, operational, organizational and technical angle of view.

The risks of the launch-on-warning concept. The launch-on warning plans and capabilities are obviously an indication of the highest level of the organizational and technical development of two countries' strategic nuclear forces. At the same time, one cannot but qualify the said concept as a Cold War relic, and a most dangerous one at that.

First, in today's political environment, the presumption underlies the launch-under-attack strategy – that is the possibility of the USA or Russia carrying out a disarming nuclear strike against each other – has virtually reduced to zero. This political reality should not be divorced from strategic planning leaving it to fully independent dynamics.

Second, taking in consideration a completely different (compared to the Cold War times) level of stakes in any conceivable conflict between the two powers, there should be a drastic drop in the acceptable damage criteria. The threat of losing one or several major cities is enough to prevent a nuclear attack of one of the powers against the other. This no longer requires the major or significant part of strategic forces to survive in case of a hypothetical first strike of the adversary.

Third, after the collapse of the USSR, Russia's missile warning system (both land- and space-based) has partially degraded, which resulted in higher risk of false warning of a nuclear strike, or a wrong assessment of information – with all the foreseeable catastrophic consequences.

Fourth, the survivability of strategic nuclear forces of the two powers increases rather than decreases. While the quantitative levels of their strategic forces are reducing, the USA shifts an increasing part of its capacity to sea-based missile forces. Russia is proceeding with its programs of deployment of mobile land-based ICBMs and a new generation of nuclear-powered ballistic missile submarines (SSBNs).[189]

Fifth, the proliferation of nuclear weapons and missile technologies across the globe, including among irresponsible and unstable regimes and extremist groups, will increase the likelihood of accidental or provocative launches of ballistic and cruise missiles (especially sea-based ones[190]) and even of terrorist at-

[189] If a decision on deployment of a new heavy silo-based ICBM is taken in Russian in 2018, this stabilizing evolution of its forces may be reversed and LUA concept may be largely enhanced.

[190] SLBMs and SLCMs launched from ships, vessels and submarines pose particular danger, since it is difficult to define the state that carried out the launch for an adequate response.

tacks with smuggled nuclear explosive devices in the capitals of the great powers. Maintaining strategic nuclear forces in the launch-under-attack mode in this environment can bring about spontaneous exchange of nuclear strikes.

Sixth, keeping major missile forces in the state of a one-minute readiness for the strike against each other's territory seriously hampers the two powers' cooperation in countering new security threats of the XXI century: primarily the proliferation of WMD and its delivery means, international terrorism and the terrorists' striving to get access to nuclear weapons. In particular, such juxtaposition of launch-ready nuclear forces is incompatible with shared missile attack warning systems and cooperative development of missile defense.

Lowering operational readiness of strategic forces. Nuclear disarmament seems unlikely to take the form of linear reductions of the number of warheads from 1550 to 1000, and subsequently (with the involvement of other nuclear-weapon states) to 500, 200 and eventually to zero.

If Russia and the USA continue this process after the new START Treaty, the next step could imply the reduction of the number of warheads down to 1000-1200, after which the parties may opt for lowering the force readiness rather than physically reducing their nuclear forces.

Their rationale behind this assumption is as follows:

- there is uncertainty as to the possibility of engaging other states in the nuclear disarmament process;
- there is ambiguity in the second-strike stability assessments for strategic forces' levels of less than 1,000 nuclear warheads;
- there are difficulties related to the limitation of non-strategic nuclear systems;
- the prospects for the development of missile, air and space defense and for cooperation in US-NATO-Russia format remain vague;
- there are difficulties related to limitations of conventional precision-guided weapons and space (fractionally orbital) strike systems.

As mentioned above, the first step in transforming nuclear deterrence may be to mutually renounce the concept and postures of a first (counterforce) strike – by reducing nuclear weapons while strengthening strategic stability, thus removing both: motivation and possibility for a first strike.

As a next step, the US and Russia should agree to eliminate the planning of launch-on-warning.

First of all, if lowering readiness is to be a series of coordinated and verifiable organizational and technical measures, rather than a merely symbolic act, these measures require that the parties jointly explore the issues and agree on the principles and specific measures to be taken.

Basically, the phased verifiable measures to lower the readiness could be implemented for the levels of strategic nuclear forces set forth in the new START Treaty. At the same time, this would involve increased timeframes and higher expenditures of the parties, compared to those which may follow an agreement on further physical strategic offensive arms reduction to a level of around 1,000 warheads.

Technical measures to lower the readiness. It is evident that a favorable political environment and an atmosphere of mutual trust are needed to negotiate

specific administrative and technical measures to lower combat readiness and consequently resolve many complex operational and technical issues.

In fact many of such technical measures were discussed by experts while elaborating the measures to accelerate the implementation of the START-II Treaty in the mid-1990's through early deactivation of delivery means to be eliminated under the Treaty.

Deactivation meant bringing the elements of missile systems of each party from initial condition into a condition in which launch of missiles is impossible without reconstituting their initial condition. The time necessary for such recovery could vary and be extended gradually on a mutual, balanced and verifiable basis.

The following ways of ICBMs deactivation were suggested:

- separating the upper stage;
- dismantling onboard power supply;
- dismantling gas generators that open the roofs of silo launchers;
- mechanical breakdown of pneumo-hydraulic launch system.

SLBMs deactivation methods, for obvious reasons, are only applicable to the submarines in bases. There may be following possible methods to lower SLBMs readiness for immediate launch:

- blocking the roof of SLBM launcher by welding;
- dismantling the upper stage of deployed SLBMs;
- removing SLBMs from their submarine launchers and storing them at base facilities.

All the described methods ensure full control over the technical status of missiles' safety and do not hinder regular maintenance and repair.

Interestingly enough and most importantly the systems with highest counterforce strike capability – silo-based ICBMs – are simultaneously the most suitable for a launch-under-attack. They should be the subject of deactivation in the first place. Thus, the strategic forces of the parties would move away at the same time from first-strike and LUA postures and transform into exclusively delayed second-strike retaliatory mode, which would enhance strategic stability.

Aviation component of Russia's and the US triads are usually not viewed as a weapon provoking the launch-under-attack, since the bombers are unsuitable for a counterforce strike due to extended flight time. Nevertheless, if missile readiness to launch is lowered deeply enough, one cannot exclude aviation from the set of measures of verifiable deactivation, as the flight time of a bomber (7-10 hours) would be less than the time necessary for reconstitution of the initial alert status of the missiles.

Deactivation measures based on principles of converting bombers for non-nuclear missions provided for by START-I Treaty could be applied to the bombers. Deactivation of nuclear heavy bombers (HBs) should prevent their quick use without reconstitution of their initial condition, as is the case with missiles. Such measures could include, for example, removing nuclear weapons and storing them away from airbases (100 km), followed by deeper measures, such as dismantling internal and external launchers for missiles and bombs, etc.

Generally speaking, the precedent for such an approach was set in the new START Treaty which introduced the concept of operationally non- deployed de-

livery vehicles and warheads. Basically, deactivation means changing the status of the forces from deployed to non-deployed. As the deactivation deepens, an increasing part of the forces will be withdrawn from deployed status while extending the time necessary for their reconstitution. In order to limit the reconstitution capability, non-deployed weapons may also be limited by certain ceilings, as was done to non-deployed delivery vehicles under the new START. But mutual departure from the counterforce and launch-under-attack concepts and sole reliance on retaliatory strike should be the priority objectives in terms of deactivation.

The estimates show that depending on the initial quantity of strategic weapons and deactivation methods, the time required for full reconstitution of all arms with lowered readiness may exceed 100 days.

For instance, if and when the next START Treaty stipulating a reduction of strategic nuclear forces to a level of 1,000 warheads is signed, at the first stage, the two countries' SNF could be deactivated (dealerted) so that for each of them a maximum of 600 to 700 warheads remain ready for launch.

That would initially leave the US without the launch-on-warning capacity (ICBMs) and deeply reduce the quantity of such arms of Russia, which would however be offset by the US's retaining more sea-based forces in the state of high readiness.

The latter, however, are not suitable for launch-on-warning, yet the US does not need that to ensure SNF survivability. At the same time, they retain counterforce capability and should be limited at later stages of dealerting.

At the next stage, the level of ready forces could be lowered to 500 warheads, and subsequently to 300-200 and less. Since such measures cannot be applied to submarines at sea and mobile ICBMs on patrol, it would be necessary to reduce the share of those outside their bases (reduce the so-called operational intensity). Ultimately, the USA might retain on alert one nuclear-powered ballistic missile submarine (SSBN) in the Atlantic Ocean and another one in the Pacific Ocean (160 warheads), and 40 ICBMs with a single reentry vehicle. Russia might retain on alert 110 Topol-M ICBMs with a single reentry vehicle deployed in silo and mobile launchers and 30 Yars ICBMs on patrol (or one SSBN at sea). All other strategic weapons of both nations would be dealerted and transferred to non-deployed status.

That would virtually eliminate counterforce threat to Russian ICBMs and make the concept of launch-under-attack pointless. The two states' forces remaining in a state of readiness would only provide a capacity for a deep retaliatory strike by limited yet sufficient power in accordance with strategic stability principles.

The main principle which should be complied with during mutual verifiable lowering of SNF readiness is that counterforce capacity of the two parties should be reduced faster than the strategic forces' readiness for a retaliatory strike. This is the reason why the survivability of the forces remaining combat ready (mobile ICBMs, submarines at sea) is so important.

This is also necessary in order to eliminate the motivation for a preemptive strike in a crisis, if the parties engage in a race to reconstitute the readiness of their forces.

One can expect that in the USA, and even more so in Russia, the suggested measures would face strong opposition. To implement them, a considerably improved political climate is needed in the relations between the two powers. This

should be attained through practical steps, such as arms control treaties and security cooperation, rather than political declarations.

Lowering readiness in this manner, while retaining large enough non-operationally deployed forces, in parallel to the integration of missile attack early warning systems and the development of a partially common limited missile defense for the protection against the third nuclear-weapon states would signify a profound transformation of the mutual US-Russia nuclear deterrence towards co-operation and mutual defense.

For this purpose, third nuclear states could also be engaged in nuclear disarmament through an agreement on the limitation of operationally deployed (combat ready) nuclear forces.

Eventually, as the launch-ready forces are drawing closer to zero, a so-called 'virtual deterrence' could be introduced on a multilateral basis, implying that nuclear forces are withdrawn from deployment status and the practical security of states ceases to rely on nuclear deterrence. Then the two countries' non-deployed reconstitution capability would be retained only as a hypothetical insurance and would be gradually phased out in line with advance of their bilateral and multilateral security cooperation.

VI.5. REDUCING THE OPERATIONAL READINESS OF BALLISTIC MISSILES [191]

The concept of reducing the technical operational readiness of nuclear weapons systems has been debated for many years and has frequently been paired with a policy of No First Use of nuclear weapons. For simplicity, the term "de-alerting" has generally been used to denote this concept. De-alerting can be defined as reversible actions to increase the time or effort to launch nuclear weapons – in particular, ballistic missiles. The main attraction of de-alerting is the obvious concern that having systems on high-alert, accompanied by a *philosophy*, if not *policy*, that fateful decisions must be made within a few minutes, could lead to catastrophe due to an accident or miscalculation. Former US Senator Sam Nunn has pointed out that "de-alerting" may not be the best term to use for attempts to increase warning and decision time, since "it goes against the grain of every military person – they spend their career trying to be alert".[192] Another term frequently used – "hair-trigger alert" – is misleading and should probably be avoided. Whatever the terminology used, an argument has been made for many years that this dangerous situation should be corrected by taking nuclear weapons systems off high alert. The argument made is that, even if the high-alert arrangements made sense during the height of the Cold War (which is open to debate), they make no sense whatsoever now.

Thoughtful analysis has been devoted to this problem by Alexei Arbatov and Vladimir Dvorkin in Russia,[193] and a number of scholars and former officials in the US.[194] Two famous articles in the Wall Street Journal by George Shultz, William Perry, Henry Kissinger and Sam Nunn called attention to the dangerous situation created by the alert status of nuclear forces.[195]

The problem is stated succinctly in a draft statement signed by a number of Heads of Medical Schools in the US The statement says, "There have been at least five occasions since 1979 when either the US or Russia believed, in error, that it was under attack by the other side, and prepared to launch a counterattack. The most recent of these episodes occurred in January, 1995 five years after the fall of the Berlin Wall. On each of these occasions we were minutes away from a major nuclear war. Our leaders have worked with skill and determination to pre-

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[191] The views and characterizations expressed are those of the author and do not necessarily reflect the policies of the US State Department or Georgetown University.

[192] Nunn S., The Four Horsemen of the Nuclear Apocalypse // Time, May 20, 2011.

[193] Arbatov A. and Dvorkin V. Beyond Nuclear Deterrence. Carnegie Endowment for International Peace, Washington, 2006.

[194] Blair B.G., De-Alerting Strategic Forces / Reykjavik Revisited, Nuclear Threat Initiative and Hoover Institution, 2008; Edenburn M.W., Trost L.C., Connell L.W., Fraley S.K. De-Alerting Strategic Ballistic Missiles. Sandia National Laboratory, 1999. For a more skeptical view, see. Ford Ch.A. Playing for Time on the Edge of the Apocalypse: Maximizing Decision Time for Nuclear Leaders / Deterrence: Its Past and Future. Edited by G.P. Shultz, S.D. Drell and J.E. Goodby, Hoover Institution, 2011(summary of a paper presented at a conference at the Hoover Institution, November, 2010).

[195] Shultz G.P., Perry W.J., Kissinger H.A., Nunn S. A World Free of Nuclear Weapons // Wall Street Journal, January 4, 2007; Toward a Nuclear-Free World // Wall Street Journal, January 15, 2008.

vent an accidental nuclear war. But, if we are honest, we must confess that our survival over the last 30 years owes much to simple good luck. We cannot assume that our luck will hold out forever".[196] One dramatic example occurred in June, 1980 when US National Security Adviser Brzezinski was about to awake President Carter to inform him that thousands of Soviet nuclear weapons were heading for the US and recommend nuclear retaliation. Fortunately, a computer chip malfunction was discovered in time to cancel the alarm.[197]

In 2007, the UN First Committee considered a resolution calling for "further practical steps to decrease the operational readiness of nuclear weapons systems, with a view to ensuring that all nuclear weapons are removed from high alert status." The resolution was supported by 124 countries, including India and Pakistan. The US, UK and France voted against. China and Israel abstained, along with 32 other countries, while Russia and North Korea did not vote.[198] More recently, attention has been drawn to the problem by a book, The Dead Hand, by David Hoffman, which purports to describe a Soviet system, Systema Perimetr – a sort of Doomsday Machine of the type made famous in the classic movie "Dr. Strangelove".[199] Although this system was apparently never made operational, the fact that serious people considered it illustrates the problem.

The 2010 NPT Review Conference also took note of the issue and endorsed reducing the operational status of nuclear weapons when it declared, "The Conference recognizes that reductions in the operational status of nuclear weapons and announced measures related to de-targeting contribute to the progress of nuclear disarmament through the enhancement of confidence-building measures and a diminishing role for nuclear weapons in security policies".[200]

The reason the more ambitious measures urged by advocates of de-alerting have not been implemented is concern that such measures could increase, at least theoretically, the vulnerability of retaliatory systems, thus possibly increasing the incentives for a first strike and weakening deterrence. One cannot ignore the fact that the reason very fast launch times were built into the systems in the first place was the short flight times of attacking ballistic missiles and the fear of losing retaliatory forces in a devastating first strike. In addition, for systems for which uncertainty of location contributes to survivability, measures which reveal location would be a potential problem.

The problem of *accidental* launch has been largely solved by de-targeting. As it is generally understood, if a de-targeted missile is launched accidentally or without proper authorization, it would land harmlessly in the ocean. Although very useful, de-targeting has the obvious problem that it is not verifiable and could be reversed very quickly.

During the 2008 presidential campaign, candidate Obama said that the capability for prompt launch "increases the risk of catastrophic accident or miscal-

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[196] Private communication, Physicians for Social Responsibility.

[197] Blair B., Brown M., Burt R. Can Disarmament Work? // Foreign Affairs, July/August, 2011. P. 174.

[198] Boese W. Nuclear Weapons Alert Status Debated // Arms Control Today, December, 2007.

[199] Hoffman D.E. The Dead Hand, Doubleday, 2009.

[200] Final Document of the 2010 NPT Review Conference, Vol. I, paragraph 90 (NPT/CONF 2010/50 Vol. I).

culation". However, the US 2010 Nuclear Posture Reviewconsidered the issue of de-alerting and concluded that "The United States will maintain the current alert posture of US strategic forces: US nuclear-capable heavy bombers off full-time alert, nearly all ICBMs on alert, and a significant number of SSBNs at sea at any given time". It went on to say that the US will "make new investments in the US command and control system to maximize Presidential decision time in a nuclear crisis and explore new modes of ICBM basing that could enhance survivability and further reduce any incentives for prompt launch".[201] A new follow-on study of US nuclear policy is underway that could shed more light on these goals. Addressing this study, the White House arms control coordinator observed that "We're expecting that options will be presented to the President that will look at the implications of changing the alert status and postures and what impact that would have on force size and structure".[202] The unclassified version of the 2010 Russian Military Doctrine did not address de-alerting.

De-alerting is usually discussed in combination with *launch on warning* and is frequently seen as the solution to the dangers posed by a Launch on Warning policy. It is very important to distinguish between a *capability* to launch on warning and a *policy* to launch on warning. It seems clear that both the US and the Russian Federation have the capability – it is not clear that either has this as a policy. The US Strategic Command has stated that "US policy is not to rely on a launch on warning strategy. US forces are postured to provide maximum flexibility so the US is not faced with a use or lose dilemma".[203] What would actually happen in a severe crisis would depend upon many factors, most of which can be made less risky and less subject to misinterpretation. It is also important to note that, unless people are foolish enough to install some sort of automatic Doomsday Machine device, Presidents and military leaders are free to take as much time as they wish to make a decision under any scenario, regardless of the policy that may be in place. Many of the considerations put forward with regard to Launch on Warning apply in lesser measure to *launch under attack.*

Forms of de-alerting. There are a number of specific measures related to de-alerting that can be divided into categories:

Separation or removal of critical components. The most obvious option in this category, and one frequently suggested, is to separate nuclear warheads from their delivery vehicles. Most observers believe this is the practice already with regard to ballistic missiles in India and Pakistan.[204] Other critical components could also be removed – for example, guidance components and batteries or inverters, which change DC to AC power for SLBMs. In the START I Treaty, certain objects were forbidden from being within 100 km from certain locations. For example, nuclear weapons could not be located within 100 km of conventional heavy bomber bases. Before the INF Treaty was signed, East Germany, Bulgaria, Slovakia and the Czech Republic destroyed the connecting sections of their SS-23 missiles before dismantling them several years later. In May, 1997, President

[201] US Nuclear Posture Review Report, April, 2010, P. 27.

[202] Pentagon to Revise Nuclear Guidance // Arms Control Today, June, 2011. P. 36.

[203] E-mail from US Strategic Command to the Arms Control Association, November, 2007.

[204] See, for example: Krepon M. The Search for Nuclear Stabilization in Southern Asia. Stimson Center, March, 2009.

Yeltsin announced that nuclear warheads would be removed from all missiles aimed at Europe. This caused some brief excitement in the West and consternation in Russia. It turned out that Yeltsin had misspoken and had meant to describe de-targeting, but it did open the door to discussion of more ambitious measures.

Nuclear warheads are not currently loaded on US heavy bombers. In the early days of nuclear weapons, critical nuclear components were only inserted into US bombs, or safing devices removed from bombs, during flight.

Launch Barriers. These are physical means that make launch impossible. Examples are welding shut ICBM silo doors or SLBM launch tubes, placing heavy obstacles on the roofs of ICBM silos or blocking the roofs and doors of mobile ICBM fixed structures so they cannot be opened without time-consuming and, perhaps in some cases, verifiable actions.

Launch Delays. Electronic devices could build in a delay time between the order to launch and the actual launch. Safety switches that prevent a launch could be installed in ICBM silos. These could be designed so that they would require some time to deactivate.

Post-launch Measures. Self-destruct mechanisms, such as those routinely used during test flights, could be installed in operational missiles, so that a mission could be aborted, even after launch. An obvious concern here would be that an adversary might learn how to activate such devices.

Declaratory Measures. An unambiguous announcement that a side does not have a policy of Launch on Warning to replace the current ambiguity might serve some useful purpose.

The Bush-Gorbachev and Bush-Yeltsin parallel unilateral statements in the early 1990s that certain systems were being taken "off alert" were interesting examples of this approach. The Russian decision to keep rail-mobile ICBM trains in their garrisons and decisions to de-alert systems scheduled for dismantlement were more than declaratory, but the fact that they were announced made them more effective.

De-alerting as "Reductions Light"*:* One can foresee situations in which countries agree that they have more nuclear weapons than necessary and wish to get credit for reductions, but are reluctant to take the irreversible step of eliminating delivery vehicles and dismantling the nuclear weapons themselves. An intermediate state, which could last as long as desired, would be to apply some of the more convincing de-alerting measures to such systems. While such measures would not meet the standard that reductions should be irreversible, they should be verifiable. Recall that the 1991 US-Russian unilateral decisions to remove short-range nuclear weapons from Europe, while useful, have led to some uncertainties because of the lack of verification.

Role of ABM Defenses. Advocates of ABM defense will be quick to point out that an effective defense could make decision makers less inclined to feel they must launch quickly to avoid losing retaliatory forces. This is a complicated issue and one which would be controversial in Moscow.It is useful to recall, however, that the original US Safeguard ABM system was designed to protect only retaliatory forces, not populations or economic assets.

Evaluation of De-Alerting Measures. Ideally, de-alerting measure would satisfy certain criteria. Such measures should:

- significantly increase the time and effort required to launch nuclear weapons;
- not decrease the safety, security or reliability of nuclear weapons;
- not decrease the deterrent value of nuclear weapons;
- permit a stable return to alert status, if necessary;
- be verifiable – though unverifiable declarations should not automatically be excluded. Some possible de-alerting measures could be verified during the 18 annual inspections being conducted under the New START Treaty.

In evaluating possible de-alerting measures, several considerations are apparent:

- silo-based ICBMs are most amenable to such measures – their locations are already known and the silos already restrict access to the missile and provide a reliable constraint on their launch. Measures which reveal the real-time locations of submarines or mobile ICBMs have obvious negative implications for survivability. Measures which would require submarines to return to port before a launch would suffer from the same problem in an even more serious form;
- some believe that a condition in which it is physically impossible to launch for hours, days or even weeks, would be an invitation for an adversary to carry out a disarming first strike;
- a related point is that measures which require the physical removal of key components, such as warheads, could make them lucrative targets, if their locations were known. One suggestion to deal with this problem is to put nuclear warheads into empty ICBM silos. Silos are already protected from unauthorized access, provide some protection from attack and are amenable to monitoring;
- de-alerting measures could make it even more difficult for terrorists to use nuclear weapons if they were somehow able to gain access to them;
- verifiability could be a problem. In some cases – for example, purely declaratory measures about policy – verification would not be a realistic possibility. In cases where verification would be physically possible, it could be intrusive and expensive to be effective. As noted above, declarations or inspections which reveal the location of critical components could make them targets;
- some believe that a "race to re-alert" in a crisis could, in itself, be more destabilizing than the original high-alert status. Others believe that a move to re-alert could be a useful signal of serious intent that could help to avert disaster – something like the French *ultime avertissement* (final warning).

The US and Russian Federation have already made commendable efforts to reduce the danger of accidents or miscalculation. These measures include:

- the Hot Line;
- the Nuclear Risk Reduction Centers in the US State Department and the Russian Ministry of Defense;
- the Ballistic Missile Launch Notification Agreement;
- de-targeting policies;
- the quite extensive and detailed data exchanges carried out under the START and New START Treaties;

- the Incidents at Sea Agreement;
- the Bush-Gorbachev and Bush-Yeltsin declarations.

Similar initiatives have been taken by other nuclear powers.

The continuing close consultations we have in diplomatic, military and academic channels about these problems are important and useful. We should continue and deepen these at every opportunity and involve other states with nuclear weapons, as appropriate.

We should continue to search for ways to reduce both the *capability* and the *incentives* to launch nuclear weapons on very short notice.

We should continue to improve the survivability of deterrent systems and the survivability and reliability of command and control systems.

We should conclude the establishment of the Joint Data Exchange Center (JDEC) in Moscow (with perhaps another similar center in Brussels), which has been stalled for far too long. Madeleine Albright and Igor Ivanov have recently urged the completion of this type of facility.[205]

We should work hard to reach agreement on a shared vision of the proper role of ABM systems. Successful cooperation on this would make our lives easier, and the world safer, in many ways.

[205] Albright M., Ivanov I. Moving Ahead on Reducing Nuclear Arms // New York Times, April 6, 2011.

VI.6. TRANSFORMING NUCLEAR DETERRENCE THROUGH TRANSPARENCY

Transformation of nuclear deterrence will hardly be attainable without a transparency regime in this sphere. At the heart of this assumption lies the security dilemma (uncertainty) – a factor that is obviously intrinsic to nuclear deterrence.

Any activity of a nuclear-weapon state is perceived by states other than its allies as a potential threat and provokes their response, thus increasing tensions across the world. This was exactly the case during the Cuban missile crisis of 1962, when the covert deployment of nuclear-missile weapons in Cuba by the Soviet Union and the subsequent uncertainty as to the USSR's intentions caused an aggressive reaction of the United States. In the course of the crisis, the US strategic bombers flying over Soviet borders, the USSR nuclear-armed attack submarines patrolling the blockade area, as well as intensive efforts by the Soviet technicians at placing the missiles in Cuba in operational readiness – were regarded by the opposing party as preparation for a nuclear strike. That put the world on a brink a nuclear catastrophe.

Luckily for the humanity, political reason prevailed over emotions and the two nuclear superpowers' leaders, despite the militant pressure of their subordinates, managed to strike a compromise: the Soviet Union withdrew nuclear weapons from Cuba while the United States gave up the idea of a military invasion of the country.

To avoid similar collisions in the future, Moscow and Washington established a direct communications link under the Memorandum of June 1963, and in September 1971 they signed the Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War between the United States of America and the Union of Soviet Socialist Republics. Since then, the two documents have remained in force.

Is it possible that nowadays there will be an outbreak of a crisis similar to the Cuban confrontation? This possibility should not be dismissed, since at this point nuclear deterrence is maintained in various forms by all nine members of the nuclear club. And it is difficult to tell how other nuclear weapons states (especially those outside the NPT Treaty) might l behave in crisis situations.

The need to enhance transparency. To minimize the likelihood of a crisis getting out of hand and inadvertently escalating to nuclear exchange, enhanced transparency is required as regards the intentions of nuclear-weapons states. Paradoxically, there is a transparency regime for conventional weapons, while there is no such regime for nuclear weapons – much more dangerous arms in terms of survival of the mankind in case of a conflict.

The main objective of the multilateral transparency regime should be to minimize the effect of the uncertainty intrinsic to nuclear weapons' operations by implementing a package of measures to build and enhance confidence among the participants in the regime.

To accomplish this, it seems reasonable to use the instruments that were established by the Organization for Security and Cooperation in Europe (OSCE) to ensure the transparency in the field of conventional armed forces. These instruments include, primarily, the Vienna Document of 1999 envisaging effective and concrete actions aimed at security and confidence-building, and the Treaty on

Open Skies of 1992 empowering its states-parties to perform aerial monitoring of military activities. In this respect, the adapted Treaty on Conventional Armed Forces in Europe may also be of great value. Sadly enough, the Agreement on Adaptation has never entered into force.

It would be expedient to draw upon the vast experience of ensuring transparency of nuclear weapons that has been accumulated during the implementation of US-Soviet and US-Russian treaties and agreements on the limitation, reduction and elimination of various types of nuclear weapons.

Ensuring the openness of nuclear doctrines. Ensuring the openness of the nuclear-weapon states' nuclear doctrines and predictability of their potential use of nuclear weapons may be the first steps.

Five official NPT nuclear-weapon states – the USA, Russia, the UK, France and China – have so far displayed a various degree of openness of their nuclear doctrines. Generally speaking, all these nuclear powers are committed to no first use of nuclear weapons. However, each of these states (except China) has made significant reservations. The behavior of the three non-NPT nuclear-weapon states (India, Pakistan and North Korea), as well as of Israel, possessing undeclared nuclear weapons, is unpredictable, since these states have refrained from openly elaborating their nuclear doctrines.

In 1995, before the Review and Extension Conference of the States Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, the P5 states made unilateral statements declaring they would not use nuclear weapons against non-nuclear weapon states. However, since then, despite insistent demands by non-nuclear weapon states of the Non-Aligned Movement to sign a legally binding agreement on no-first-use or threat of use of nuclear weapons (providing the so-called negative security assurances), no such agreement has been signed. Only Russia and China declared their determination to sign it. It is doubtful whether the non-NPT nuclear-weapon states will become parties to such an agreement.

Signing an agreement on negative security assurances to non-nuclear states of NPT by just the P5 states would contribute to the transformation of nuclear deterrence. In addition, it would inspire non-NPT nuclear-weapon states to join such an agreement at some future date.

Usual arguments given against such unequivocal commitment – conventional/BMD/space inferiority, deterrence of attack with other WMD weapons, security commitments to allies – in most cases do not withstand realistic strategic and political scrutiny. In few exceptional cases, when it does, the obstacles should be removed by arms control agreements, confidence-building measures and unilateral changes of defense policy and programs. No doubt, doing away with doctrinal reliance on first strike/use of nuclear weapons and with the threat of nuclear conflict erupting out of miscalculation of intentions of the other nation – is worth it.

Ensuring transparency of nuclear capabilities may become a second step of the nuclear-weapon states to enhance transparency. Nuclear postures are assessed not only by doctrines (intentions), but still more by existing and projected military capabilities.

Uncertainty, let alone secrecy, around the deployed nuclear arsenals breeds additional suspicions as to the intentions of other states.

Rating the P5 states according to decreasing level of transparency of their respective nuclear arsenals, the sequence will be as follows: the UK, the USA, France, Russia and China. The latter has been very reserved in providing information on its nuclear forces. As to the three non-NPT nuclear-weapon states, the information on their nuclear arsenals is wrapped in mystery, while Israel does not confirm its very possession of nuclear weapons.

For the sake of fairness, it should be pointed out, that the USA and Russia have been increasingly open about their nuclear arsenals due to the demands of verification under their bilateral arms control treaties during four decades of their history. France and Britain can afford openness being secure in the center of NATO and European Union. However the United States and Russia are still quite opaque regarding their non-strategic nuclear weapons and weapons in storages. These are exactly the kind of weapons that constitute the bulk or all of the nuclear arsenals of all five other nuclear weapon states.

Preliminary notification of the participants in the transparency regime. Such notification of certain types of nuclear forces' activities may be a third measure. In particular, these include notifications of large-scale exercises involving nuclear forces, operational tests and test launches of ballistic missiles and other activities that may raise concerns of other participants in the transparency regime.

During the Cold War the absence of preliminary information on the US' strategic offensive forces exercise each time provoked increase of the level of alert of the USSR's SNF, including the reinforcement of the shifts on duty at strategic nuclear forces' command centers. Each ICBM launch by the USA was regarded as a potential threat. The times have changed, true, but nuclear deterrence has not disappeared, while the nuclear club has expanded. Therefore, confidence-building measures need to be extended to eventually envelope all non-nuclear weapon states.

Observation of certain nuclear forces activities may be the fourth measure. Currently, the states-parties to the Treaty on Open Skies, with its area of application spreading from Vancouver (Canada) eastward to Vladivostok (Russia), have the right to conduct flights over each other's territories to observe dangerous military activity. Activities by the nuclear forces of the USA, the UK, France and Russia should also be subject to such observation. Practice has shown that such observation flights relieve concerns of states and therefore increase the level of mutual trust.

China and the three non-NPT nuclear weapon states, as well as Israel, remain outside the scope of the Treaty on Open Skies. For the Treaty to become a robust instrument of the proposed transparency regime, its area of application should include all nuclear-weapon states. Engaging China, India and Pakistan in this regime does not look unrealistic.

Mutual compliance verification by the participants in the transparency regime is the fifth required measure. Presently many states use – in line with their capabilities – national technical means to monitor the military activities of other states. Among the nuclear-weapon states, the USA, Russia, China, France, the UK, India and Israel have been especially active in using such technical means.. However, the obtained information on the nuclear forces' activities often requires additional on-site verification.

Currently, such on-site verifications may be carried out on the reciprocal basis only in the US-Russia format, in line with the new Prague Treaty on strategic offensive arms signed in April 2010. It appears that to establish a multilateral transparency regime the US-Russian practice of on-site verifications will have to be extended to include all the participants in the regime. In this case the scope of such verifications would change from arms reduction to checking the declared data on the states' nuclear forces against the actual status. The numbers and types of such verifications will be the subject of a future agreement on a multilateral transparency regime. Evidently that these verifications will be less extensive and rigorous than those stipulated by the START Treaty.

It is evident that to establish a multilateral transparency regime, political will and persistence would be required first of all on the part of the P5 heads of state.

VI.7. TRANSPARENCY AND STRATEGIC STABILITY

In contemporary discussions about nuclear disarmament, transparency is often seen as an unalloyed good.[206] Non-nuclear-weapon states and non-governmental organizations regularly propose new transparency initiatives. Nuclear-weapon states, meanwhile, try to demonstrate that they already are highly transparent. Yet, in this virtual openness stampede, few pause to ask why – and indeed whether – transparency is desirable.

Many of the non-nuclear-weapon states and non-governmental organizations that advocate greater transparency see its main value in permitting closer scrutiny of the nuclear-weapon states and their commitment to disarmament. For fear of appearing to provide a tacit endorsement of nuclear deterrence, they are strongly disinclined to even consider whether greater transparency could, in some circumstances, negatively affect deterrence; instead, they prefer to assert – as though it were a truism – that greater openness would automatically result in greater security. This approach is short sighted. The nuclear-weapon states have made it clear that abolition will be a gradual process with progress towards disarmament tied to changes in the broader international security environment. Given that nuclear weapons will continue to exist for some time, it is in the interests of all states that further transparency does not undermine the stability of deterrence by, say, precipitating an arms build-up or increasing the probability of nuclear use.

This chapter considers the interplay of transparency and strategic stability. The term transparency is used here in a broad sense to include all initiatives leading to greater openness, ranging from *ad hoc* unilateral releases of information (such as the United States' declassification of its stockpile size) to legally binding arrangements involving more than one state (such as treaty-based verification regimes). Strategic stability has two components: arms race stability and crisis stability. Arms race stability is high if neither state in a deterrence dyad has or perceives an incentive to build up its nuclear forces. Crisis stability is high if, in a crisis, neither state has or perceives an incentive to use nuclear weapons first, out of the fear that the other state is about to do so.

The usefulness of the whole concept of strategic stability – and this "classic" definition in particular – has been questioned since the end of the Cold War (indeed, it was questioned during the Cold War too). Space limitations do not allow a full defense of the concept here – but a few words, about crisis stability in particular, might help justify its continuing importance.[207]

Although the world has changed dramatically since the concept of crisis stability was first developed, the possibility of serious crises between nuclear-armed states remains. Indeed, partly because such crises could still occur, nuclear-armed states retain – and plan for the use of – nuclear weapons. Should international relations deteriorate sharply, plunging any pair of these states into a crisis serious enough for the use of nuclear weapons to be contemplated, it would be in the

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[206] I thank Jaclyn Tandler for research assistance.

[207] For a lengthier defense of the concept see: Acton J.M. Deterrence During Disarmament: Deep Nuclear Reductions and International Security. Routledge Publications. International Institute for Strategic Studies, Issue 417, Abingdon. 2011. PP. 15–21.

global interest to minimize the probability of nuclear use. Fear that the other side was about to use nuclear weapons first could raise that probability.[208] For instance, fear of a US first strike might spur Moscow or Beijing to disperse their mobile missiles early in a crisis, thus exacerbating the crisis and potentially creating new risks of accidental or unauthorized launch. Worse still, extreme fear of an imminent US first strike could prompt Moscow or Beijing to use nuclear weapons on a small scale in the hope (vein or otherwise) that doing so would terrify the American people into forcing their government to back down.[209] The large-scale use of nuclear weapons by Russia to attempt to limit the damage it would suffer in a nuclear war would be another, albeit less likely, response. Preventing such potentially escalatory dynamics – that is ensuring crisis stability – should remain an important goal in any deterrence dyad.

Transparency and arms race stability. The interplay between transparency and arms race stability is complex. The early twentieth century naval arms race between Germany and Great Britain – the "stereotype of the modern arms race"[210] according to arch-nuclear and naval strategist Bernard Brodie – provides an example of how transparency can actually undermine stability by promoting competition.

There was a relatively high degree of transparency between Germany and Great Britain as far as their ship building plans were concerned. To obtain funds for naval construction, both governments placed their ship building plans publicly before their national legislatures in the form of the German Naval Laws and the British Naval Estimates. Moreover, the challenges of hiding such large-scale construction created a constant flow of reasonably accurate intelligence.

Great Britain's decision in 1905 to build Dreadnought (a revolutionary battleship armed solely with big guns) sparked an almost immediate counter-reaction in Germany.[211] The German program (which began in 1906 with the construction of three capital ships annually, before an extra ship was added each year from 1908) helped spark a massive increase in British ship building in 1909. Importantly, the public nature of German ship building plans stirred up "increasing uneasiness and frustration" amongst the British populace that put pressure on politicians to respond.[212] Meanwhile, following the launch of the battle cruiser Invincible (a slightly smaller and more lightly armed ship than Dreadnought), a qualitative competition in battle cruisers battle raged, as each side sought to outdo the capability of the other's latest ships:

The German battle cruiser Von der Tann, 19,400 tons (2,000 heavier than the Invincibles) with eight 11-inch guns and 25 knots' speed, was laid down in Octo-

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[208] For a recent discussion of different possible instability "pathways" see: Gerson M.S. No First Use: The Next Step for US Nuclear Policy // International Security, Vol. 35, # 2, 2010. PP. 35–39.

[209] Such a strategy, it should be noted, would violate China's no first use commitment.

[210] Brodie B. On the Objectives of Arms Control // International Security, Vol. 1, # 1, 1976. P. 30.

[211] Holger H.H. The German Reaction to the Dreadnought Revolution // International History Review, Vol. XIII, # 2, 1991. PP. 273–283.

[212] Moll K.L., Politics, Power and Panic: Britain's 1909 Dreadnought "Gap" // Military Affairs, Vol. 29, # 3 1965. P. 137. See PP. 136–141 more generally. For details of the ship building programs see: Massie R.K. Dreadnought: Britain, Germany, and the Coming of the Great War // New York: Random House, 1991. PP. 909–911.

ber 1908. Britain replied in February 1909 with the Indefatigable, a bigger Invincible with the same armament and speed, but additional tons of armor spread over her sides and decks. [Grand Admiral Alfred von] Tirpitz came back in April and July 1909 with the Moltke and the Goeben, each 23,000 tons, with ten 11-inch guns and 27 knots' speed. Seydlitz – 25,000 tons, with ten 11-inch guns and 26.5 knots' speed – and Derfflinger and Lützow – each 28,000 tons, with eight 12-inch guns and 27 knots' speed – followed. Britain's reply to Moltke and her sisters was the four "Cats", Lion, Princess Royal, Queen Mary, and Tiger, 27,000 tons, with eight 13.5-inch guns and 28 knots' speed.[213]

Transparency catalyzed this arms race. It ensured each side had a relatively accurate picture of how many ships the other was building, along with their capabilities, and created pressure – including public pressure – to respond.

To be fair, although generally good, transparency between Germany and Great Britain was imperfect. While each side had an accurate understanding of the number of ships that the other intended to build, neither could accurately predict when its opponent's ships would be ready for launch. The result was worst-case analysis that exacerbated the arms race. For instance, Britain's "Dreadnought panic" of 1909 – an episode remarkably similar to the "window of vulnerability" saga in the United States more than seven decades later – was sparked by fears that the rate of German ship building had previously been underestimated. Even with an expanded program of its own in place, the Liberal Government of Great Britain estimated that its lead would be cut to a mere three Dreadnoughts by April 1912.[214] The Conservative opposition was even more gloomy. It predicted that, by the same date, Germany would have taken the lead with 21 ships to Britain's 20. In the event both predictions turned out to be far too pessimistic – Great Britain actually had 15 Dreadnoughts to Germany's nine by April 1912 – but this pessimism was nonetheless instrumental in precipitating a significant escalation of the arms race.

Given this predilection for worst-case analysis, it is, perhaps, possible to argue that there was exactly the wrong level of transparency between Germany and Great Britain: enough that each state – and their publics – knew about the other's plans, but not enough to allow an accurate assessment of when these plans would come to fruition. Whether more transparency would actually have been stabilizing is, however, unclear. Since neither side could accurately estimate when its *own* ships would be launched, more transparency may not have enhanced predictability in practice.

Turning to nuclear weapons, it is interesting to examine the extent to which a lack of transparency – particularly about Soviet forces – early in the Cold War, when competition was at its most fierce, contributed to the arms race. Unsurprisingly there is no clear answer but, on balance, the absence of transparency seems to have been a distinctly mixed blessing.

Historian David Alan Rosenberg argues that in the 1950s the expansion of the US target list, which at that time was an important driver of arsenal size, was "largely attributable to identification of additional 'counterforce' targets, in particular airfields and suspected missile sites".[215] US intelligence on these targets

[213] Massie P.K., Op. cit. P. 496.

[214] Moll K.L., Op. cit. P. 140.

[215] Rosenberg D.A. The Origins of Overkill: Nuclear Weapons and American Strategy, 1945–1960 // International Security, Vol. 7, # 4, 1983. P. 50.

was, however, poor. Between 1956 and 1958, the United States conducted only 20 or 30 U-2 overflights deep into the Soviet Union. In consequence, Rosenberg argues that "the poor quality of target intelligence through the 1950s…encouraged creative guesswork," and contributed to the rapid expansion in the number of US targets.[216] It could plausibly be argued that, during this period, greater transparency about Soviet forces would have stemmed the growth in US targeting requirements and hence taken the edge off the American build-up.

A similar argument could be made about the late 1950s and very early 1960s when fears of a "missile gap" with the Soviet Union famously abounded in the United States. An August 1958 US National Intelligence Estimate, for instance, predicted that the Soviet Union could have as many as 500 intercontinental ballistic missiles (ICBMs) by 1961 or 1962.[217] Some public estimates of the missile gap were even more alarmist. Newspaper columnist Joseph Alsop predicted that by 1963 the USSR would have 2,000 ICBMs to the United States' 130.[218] In his successful Presidential campaign of 1960, John F. Kennedy promised to close this gap with an aggressive build-up of US nuclear forces.

By late 1961 it had become clear to the US Intelligence Community that although a missile gap did exist, it was, in fact, in the United States' favor. However, it would have been politically damaging for Kennedy to backtrack; he continued with his policy of expanding US ICBM and sea-launched ballistic missile forces much faster that the previous administration had planned. Enhanced transparency about Soviet forces at the start of the missile era could plausibly have prevented the myth of the missile gap from forming and hence avoided the acceleration in American procurement that resulted from it.

Yet transparency might have been a double-edged sword. The case that opacity contributed to the expansion of US nuclear forces is every bit as plausible as the argument that it acted as a break on the Soviet build-up. Just as the belief that the United States was in second place in the nuclear arms race led to pressure in Washington to expand American nuclear forces in 1958 – 61, so public knowledge that the Soviet Union was actually the runner-up could have prompted Moscow to do likewise. Indeed, the Soviet build-up decided upon in late 1961 or early 1962 appears to have been precipitated, at least in part, by exactly this kind of pressure. Historians Richard Ned Lebow and Janice Gross Stein have argued that the Kennedy Administration's public dunking of the missile gap in October 1961 "created serious problems for the Soviet Union and its leader" and probably helped stimulate Soviet actions to close the gap, including the placement of medium- and intermediate-range ballistic missiles in Cuba.[219]

Later in the Cold War, once political relations between the Soviet Union and the United States had started to improve and both states were reasonably content with equality, there is a more convincing case to be made that transparency was unequivocally a stabilizing force. In particular, as partial and imperfect as Cold War

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[216] Ibid.

[217] See, for example, Preble Ch.A. Who Ever Believed in the Missile Gap? John F. Kennedy and the Politics of National Security // Presidential Studies Quarterly, Vol. 33, # 4, 2003. P. 804.

[218] Ball D. Politics and Force Levels: The Strategic Missile Program of the Kennedy Administration. University of California Press, Berkeley, CA. 1980. P. 7.

[219] Lebow R.N., Stein J. G. We All Lost the Cold War // Princeton University Press, Princeton, NJ. 1994. P. 39. See PP. 34–39 more generally.

arms control efforts were, they did help to restrain – and eventually reduce – force levels. Without sufficient transparency to enable verification, it is hard to imagine that any kind of negotiated arms limitation or reduction would have been possible.

A similar conclusion can be drawn from Anglo-German naval completion. That arms race started to stabilize in the few years immediately before World War I when relations between Germany and Great Britain briefly improved and support in Germany for challenging Great Britain's naval superiority began to wane. In part this was because of a threat made by Winston Churchill, then First Lord of the Admiralty, to build two Dreadnoughts for every one that Germany built.[220] Even this form of informal, unilaterally imposed arms control would not have been possible without sufficient transparency for the two sides to monitor one another's ship building programs.

Transparency and crisis stability. Survivable nuclear forces are a necessary (but not sufficient) condition for crisis stability. A state with forces that it knows to be survivable does not have to worry about being on the receiving end of a disarming first strike and its incentives to use nuclear weapons early in a crisis are thus reduced. One potential objection to transparency – about force size in particular – is that it could undermine force survivability and hence reduce crisis stability.

This logic is most commonly advanced by Chinese analysts, especially in arguing against greater transparency by Beijing about the size of its nuclear force. In 2003, for instance, arms control analyst Li Bin argued that the survivability of [China's] current ICBM force…relies on ambiguity surrounding numbers. Because China will not confirm or deny reports on the number of its ICBMs, other states cannot have confidence in any estimates. An attacker considering launching a first strike against China would be uncertain of China's retaliatory capacity. This is how China's nuclear deterrent works today.[221]

Over the last few years, however, this argument has become less compelling. Mobile forces – road-mobile ballistic missiles most importantly, but also sea-launched ballistic missiles – are now the centerpiece of China's nuclear deterrent. The US Department of Defense estimates that China currently has between about 95 and 120 transporter-erector launchers for a similar number of nuclear-armed ballistic missiles.[222] While not all of these weapons can hit the continental United States – indeed only 10 – 15 DF-31A missiles can – all of them could hit targets of extraordinary value to a US President, including Taiwan or Japan. Once dispersed, mobile missiles are extremely difficult to destroy. Even if Washington knew the exact size of Beijing's mobile missile force, China could almost certainly inflict devastating nuclear punishment on the United States and its allies, even after absorbing an American first strike.[223]

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[220] Maurer J.H. The Anglo-German Naval Rivalry and Informal Arms Control, 1912–1914 // Journal of Conflict Resolution, Vol. 36, # 2 (1992), PP. 284–308.

[221] Bin Li. China and Nuclear Transparency / Transparency in Nuclear Warheads and Materials: The Political and Technical Dimensions. Edited by N. Zarimpas, Oxford University Press for SIPRI, 2003. P. 55.

[222] Office of the Secretary of Defense. Military and Security Developments Involving the People's Republic of China 2010. US Department of Defense, 2010. P. 66. (http://www.defense.gov/pubs/pdfs/2010_CMPR_Final.pdf).

[223] Acton J. Deterrence During Disarmament, PP. 44–48.

It would, however, be too simplistic to conclude definitively that greater transparency by China would not undermine strategic stability. Beijing might still worry that releasing more information about its forces would enable a US first strike. This belief, even if it were erroneous, could generate crisis instability. Alternatively, in another undesirable outcome, Beijing might accompany an increase in transparency with a faster build-up in its nuclear forces as a way of bolstering their perceived survivability.

All this creates a dilemma for arms controllers. If deep reductions in nuclear weapons – and eventually abolition itself – are to be realized, the arms control process will eventually have to be multilateralized. Greater transparency by China (as well as France, the United Kingdom and other nuclear-armed states) is a prerequisite to their involvement in arms control.[224] The timing of this process is, however, delicate. While China should rightly be criticized if it uses the fear of vulnerability as an excuse for opacity after the survivability of its forces has been assured through other means, the international community should also not want to pressure China into premature transparency with its attendant risks.

Transparency and ballistic missile defense. To date, transparency initiatives for nuclear weapons have generally promoted openness about force size rather than force capabilities. Treaty-based verification regimes, for instance, have almost always been designed to build confidence in the size of a state's arsenal – the number of launchers, missiles and warheads in its force. Exceptions – such as the missile telemetry exchanges facilitated by START I (Strategic Arms Reduction Treaty I) for the purpose of establishing throw weight – have been few and far between. By contrast, for the obstacles to future arms control agreements to be successfully navigated, it will be necessary to build confidence in the capabilities (or lack thereof) of controversial systems. This presents a new set of challenges for transparency, as the case of ballistic missile defense demonstrates.

Russia fears that American ballistic missile defenses, if further developed and expanded, could enable the United States to undermine its deterrent. These fears could have consequences for strategic stability. Indeed, the Russian leadership has explicitly threatened to build up its nuclear forces if its concerns about ballistic missile defense are not addressed. In November 2010, for instance, Russian President Dmitri Medvedev stated that one of the following two things will happen within the next ten years: either we reach an agreement on missile defense and create a full-fledged cooperation mechanism, or (if we can't come to a constructive agreement) we will see another escalation of the arms race.[225]

Since the end of the Cold War, the United States has consistently stated that Russia is not the target of its missile defense efforts. However, Russian analysts and officials are wary that, without an agreement limiting deployments, a future US administration might quickly and dramatically expand its missile defenses.[226]

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[224] For a discussion of one possible pathway to multilateral arms control see: Acton James M., Low Numbers: A Practical Path to Deep Nuclear Reductions // Carnegie Endowment for International Peace, Washington, 2011, (www.carnegieendowment.org/files/low_numbers.pdf, ch. 4).

[225] Medvedev Dmitri. Address to the Federal Assembly of the Russian Federation. November 30, 2010. (http://eng.kremlin.ru/transcripts/1384).

[226] Рогов С.М., Есин В.И., Золотарев П.С., Ярынич В.Е. Судьба стратегических вооружений после Праги // Независимое военное обозрение, № 32, 27 августа 2010 г.

Absent a major improvement in US-Russian relations, Moscow is only likely to discount this risk and agree to further arms control if it believes that US interceptors are incapable of threatening Russian ICBMs. The United States is, therefore, faced with the challenge of building Russian confidence in the limited *capability* of its interceptors.

Following its withdrawal from the Anti-Ballistic Missile Treaty in 2001, cooperation has been the United States' preferred mechanism for trying to assuage Russian fears. US officials have frequently argued in private that transparency is the main benefit of cooperation. Their hope is that greater transparency will convince Moscow that it is not threatened by US ballistic missile defenses. For transparency to be effective, however, the United States and Russia will have to develop a shared understanding of how to interpret technical data about ballistic missile defenses – something that is currently lacking.

Russian officials place great importance on the burn-out velocity of interceptors (i.e. their speed immediately after the rocket motors have cut off). They worry that US interceptors of a sufficiently high burn-out velocity could catch up with and destroy Russian ICBMs. Moscow's concerns about the Phased Adaptive Approach (the Obama administration's plan for missile defenses in Europe) appear to stem, in large part, from the steady increase in interceptor burn-out velocity envisaged by this program. Indeed, during discussions in 2010 and 2011 over missile defense cooperation, Russia sought (unsuccessfully) to negotiate limits on the burn-out velocity of US interceptors.

Interceptor performance is generally assessed differently in the United States. While not denying the relevance of burn-out velocity, US officials see it as only one of a number of factors that affect the overall performance of an interceptor. They argue that even if US interceptors had a high enough burn-out velocity to catch up with Russian ICBMs, actually destroying them would still prove extremely difficult, if not impossible. This is partly because of the inherent difficulty of intercepting a "bullet with a bullet" but mainly because Russian ICBMs have sophisticated countermeasures that would massively complicate any attempt by the United States to destroy Russian ICBMs in flight.

Without a common way of assessing the effectiveness of interceptors, transparency may do little to ease Russian concerns. To be fair, the US vision for missile defense cooperation *does* involve more than just transparency. The United States and Russia are, for instance, trying to negotiate an agreement that would allow them to share sensitive technology, including missile defense interceptor technology. If this agreement can be concluded, brought into force and implemented, technology sharing may enable the United States to bring Russia around to its view that US missile defenses could not undermine Russia's deterrent. By contrast, other proposed elements of cooperation, such as joint missile early warning, while highly desirable from other perspectives, are unlikely to help narrow the gap between American and Russian methods for assessing of interceptor efficacy.

If this gap cannot be narrowed then it is possible that, over the long term, transparency could end up exacerbating Russian fears. If, over the course of a

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(Rogov Sergei, Esin Viktor, Zolotarev Pavel, Yarynich Valeriy. The Fate of Strategic Arms after Prague // Nyezavisimoye Voyennoye Obozryeniye, # 32, August 27, 2010). (http://nvo.ng.ru/concepts/2010-08-27/1_strategic.html).

decade or two, Russia observes the United States steadily developing faster and more effective interceptors then, in the absence of numerical limits (which are extremely unlikely to be domestically saleable in the United States), its fears about missile defense could become more acute.

To be clear, this is not an argument against transparency; the risks to strategic stability of not trying to assuage Russian fears outweigh the risks of trying to manage them through cooperation. However, it is an argument for the United States and Russia paying careful attention to those risks and proactively seeking ways to mitigate them.

The relationship between transparency and strategic stability is complex. Historically, there is considerable evidence to support Steve Fetter's dictum that "transparency generally increases security only when states are reasonable comfortable with the status quo".[227] The early twentieth century Anglo-German naval arms race was sparked by Germany's decision that the status quo – British naval superiority – was unacceptable and by its consequent attempt to challenge it; a relatively high degree of transparency exacerbated each side's worst fears and catalyzed competition. With Germany's reluctant acceptance of British naval superiority in the immediate run-up to World War I, transparency began to play a more stabilizing role. A similar pattern can be seen in the nuclear arms race. By the 1970s, the United States and Soviet Union had come to accept the status quo of nuclear equality and mutual assured destruction. In this era, transparency helped to stabilize the arms race by facilitating arms control. Earlier in the Cold War, when the arms race was at its height, there was much less transparency. It is, of course, impossible to know whether more transparency would have been stabilizing. However, the evidence suggests that while the lack of transparency accelerated the US build-up, it simultaneously prevented a faster Soviet one.

Looking forward, enhanced US-Russian transparency could have a potentially useful role to play, both today and at further stages of the reductions process. A range of strategic capabilities, including ballistic missile defense, could be employed in an attempt to change the status quo by attaining nuclear superiority; transparency could help reduce fears that they will be. Some significant challenges will, however, have to be overcome. Russian concerns about ballistic missile defense relate primarily to the capability of US interceptors. Using transparency to build Moscow's confidence in US capabilities would require a shared understanding about missile defense technology that is absent today.

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[227] Fetter S. Stockpile Declarations/ Transparency in Nuclear Warheads and Materials: The Political and Technical Dimensions. Edited by N. Zarimpas, Oxford University Press for SIPRI 2002. P. 137.

VI.8. THE PRAGUE START TREATY AND THE PROSPECTS OF FURTHER ARMS REDUCTIONS

July 2009 saw the Joint Understanding for Further Reductions and Limitations of Strategic Offensive Arms signed at the Moscow Summit. This document signifies progress in the Russia-US strategic dialogue.

At the same time it highlighted considerable problems that were to be solved. That problems were connected not only the well-known differences between Russia and the US on BMD, high-precision conventional weapons on strategic delivery means, and the upload hedge of the US strategic offensive forces remaining after the new treaty. Besides, both in the USA and in Russia there are influential groups that believe that genuine strategic dialogue between the two countries runs counter to their respective countries' national security interests.

Suffice to mention the strong protests in the US against President Obama's decision to cut down expenses on missile defense by 14 percent, and discontinue the program of research on reliable replacement warhead (RRW). Many in Russia also believe that the USA engage Russia's SNF in the disarmament process with a sole purpose of securing the absolute American military superiority in general-purpose forces, newest strategic non-nuclear assets and missile defense.

Due to the efforts taken by the two nations' leaders and negotiating teams, the obstacles to the elaboration of the new START Treaty had been overcome (Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms). It was signed by the Presidents of Russia and the US on April 8, 2010 in Prague and ratified by the US Senate in December 2010 and by Russian Federal Assembly, in January 2011.

The main parameters of the new START Treaty. *Defense-offense interaction.* Among the key problems of the new Treaty was the relationship between offense and defense. Russians insisted on a classic formula, stemming from the end of the 1960's Secretary of Defense Robert McNamara's times: reduction and limitation of offensive weapons should be conditioned on limitations of BMD systems. Americans elaborated President Ronald Reagan's philosophy of the 1980's (albeit with less enthusiasm, than preceding Republican Administration): offensive arms reductions should not prevent expansion of BMD against rogue missile and nuclear states.

After prolonged disagreements the diplomats came with an elegant formulae in the Treaty Preamble: "Recognizing the existence of the interrelationship between strategic offensive arms and strategic defensive arms, that this interrelationship will become more important as strategic nuclear arms are reduced, and that current strategic defensive arms do not undermine the viability and effectiveness of the strategic offensive arms of the Parties…". Although after the achievement of the new START the parties disagreed on whether this formula was legally binding, it is obvious that it can equally satisfy both interpretations of strategic defense-offense interaction.

A more tangible achievement of Russia was the Treaty's Article V, p.3, which states: "Each Party shall not convert and shall not use ICBM launchers and SLBM launchers for placement of missile defense interceptors therein. Each

Party further shall not convert and shall not use launchers of missile defense interceptors for placement of ICBMs and SLBMs therein. This provision shall not apply to ICBM launchers that were converted prior to signature of this Treaty for placement of missile defense interceptors therein." Although the USA was not planning at the time any actions of the above type, this might limit some potential future options and was much more concrete embodiment of Russian version of defense-offense interaction.

Force ceilings, counting and dismantling rules. Unlike its predecessor, the new START (Article II) sets forth only the following main limitations: 1550 warheads on deployed delivery vehicles, 700 deployed delivery vehicles and an aggregate number of 800 deployed and non-deployed ICBM launchers, deployed and non-deployed SLBM launchers, and deployed and non-deployed heavy bombers (HB). No limits are provided for the structure and no subceilings on the parties' nuclear triads.

The counting rules contained in Article III have undergone significant changes as compared to those of the START-I: the number of warheads is counted as the actual number of warheads emplaced on ICBMs and SLBMs irrespective of the number of 'seats' in a bus, that is, the capability of the post-boost vehicle, or the maximum number of warheads with which the missiles have ever been test-launched. Any number of ALCMs or gravity bombs on a HB is counted as one warhead. To withdraw a SSBN from deployment, it is no longer necessary either to remove missile section from submarine hull, or to remove launch-tubes from the hull which was required by the previous treaty. It is sufficient to remove all missile launch tube hatches, their associated superstructure fairings, and, if possible, gas generators (Protocol, Part III, Section IV, para. 1).

To render a submarine unaccountable as a strategic offensive arms platform its launchers have to be converted in a manner excluding the possibility to launch SLBMs (e.g. if a submarine is converted for launching cruise missiles). In this case, it is sufficient to demonstrate the conversion in a way chosen by the converting party (Protocol, Part III, Section IV, para. 7).

New START Treaty envisages no limitations as to modernization and replacement of strategic offensive arms. The parties are only obliged to notify each other on new types of ICBMs and SLBMs, the technical characteristics of which differ from the technical characteristics of an ICBM or SLBM of each type declared previously in at least one of the following parameters: number of stages, type of propellant, the length of the assembled missile without front section or the length of the first stage, by more than three percent, diameter of the first stage, by more than three percent (Protocol, Part I, para. 42). This implies much greater freedom for the parties to upgrade missiles and change their arming, as compared to START-I Treaty.

Besides, almost all previous limitations of space-time nature regarding basing and deploying road-mobile ICBMs have been excluded from the new Treaty. Russia assigned to this condition great importance during negotiations.

One of the problems that existed before the negotiations and subsequently hampered the negotiations process was connected with the US plans to arm SLBMs and ICBMs with high-precision non-nuclear multiple warheads. The text of the Treaty implies that the US agreed to include missiles with such warheads in the aggregate limit of strategic offensive arms. That meant that the US did not

plan to deploy non-nuclear SLBMs and ICBMs in quantities that could notably reduce the nuclear capability of their strategic offensive arms (and subsequently these projects were discontinued). That became one of the key advantages of the Prague Treaty as compared to the Moscow Treaty on Strategic Offensive Reductions of 2002, which limited only nuclear warheads. It was an important achievement of Russian diplomats and a major concession of the US side, which for some reason remained almost unnoticed by the general public.

At the same time, Washington did not agreed to any limitations and accountability for strategic submarines converted to carry conventional SLCMs, and heavy bombers (B-1 and an additional number of B-52), converted to carry non-nuclear air-launched cruise missiles (ALCMs). Nuclear submarine-launched cruise missiles (SLCMs) are not mentioned in a new Treaty at all.

The US Administration decided to unilaterally eliminate them (about 200 pieces). Russia did not raise the issue of limiting them (apparently, intending to retain these weapons as part of its non-strategic nuclear capability). The limitation of SLCMs caused major differences during negotiations on START-I that provided for a separate ceiling of 880 pieces for them, albeit without any verification procedures. This is yet another interesting example of how the parties swapped their approaches to certain weapon systems and how the issues that seemed exceptionally serious later lost their importance.

Verification regime. The parties introduced significant changes to the system of inspections and notifications. The number of inspections reduced from 28 to 18 per year, and they were divided in two types. Type one includes inspections to confirm the accuracy of the declared data on the number and types of deployed and non-deployed arms, on the number of warheads on the deployed ICBMs and SLBMs, and on armaments of the deployed HBs. Type two inspections are those to verify data on the number, types and specifications of the conversion and elimination of arms, as well as confirm that previously declared facilities are not used for the purposes not complying with the provisions of the Treaty.

In accordance with Part IV of the Protocol to the Treaty, the range of notifications on current baseline data pertaining to strategic arms, their movements and inspection activities has been reduced to 42 types instead of 152 envisaged by the START-I Treaty.

After extended discussions on the necessity to exchange telemetric information, the parties agreed to provide the other party with tapes containing recording of the parameters measured during flight tests for no more than five launches a year, with each party choosing specific flight tests for which it provides the data in question. That solved the Russian party's concern over the fact that only Russia flight-tested new ICBMs and SLBMs the data for which should be provided to the other party, while the US was not expected to develop new missiles in the near future.

That has become a novelty in arms reduction, as the exchange of information on 'no more than five launches' may also mean zero. This brings up a question of whether a party's good-will decision to provide information on six or more launches would be in compliance with the Treaty.

Besides an obvious legal absurdity of this provision, such position of the Russian side had a major military shortcoming: the US planned to flight-test SLBMs and ICBMs with non-nuclear high-precision warheads, and the informa-

tion on specifications of such type of arms could be useful to Russia. The fact that such programs were discontinued does not signify that the US will never decide to resume them, especially if the newest suborbital glide-missile systems do not meet their expectations, or if such systems are eventually included in START accountable items.

There have been 39 Agreed Statements in connection with the START-I Treaty, while only 10 of them are in the new Treaty (Protocol, Part IX). Those concern mainly inspection activities, exhibition of arms, including the viewing of SLBM launchers converted for cruise missiles and the traditional ban on rapid reloading of launchers (Fifth Agreed Statement).

It would be pleasant to conclude that the more "liberal" parameters of the new Treaty are due to greater trust between the parties, but this is hardly the case. At most it is possible to note that the vast experience of verification activities accumulated under START-I Treaty has enabled the parties to considerably reduce excessive bans and limitations pertaining to strategic offensive arms, and give up surplus inspection activities.

Political dimension of the new Treaty. Unlike during the Cold War, the relations between Washington and Moscow are one of the important issues of international relations and the foreign policy of the USA (to a lesser extent) and Russia (to a greater extent), rather than the main one. Similarly, the strategic nuclear balance and the respective negotiations are just one of many significant issues, rather than the central topic at the international security agenda (alongside with combating terrorism, non-proliferation of WMD and its delivery means, managing local conflicts, etc.).

As a consequence, the approach to agreements on strategic offensive arms reductions has become less rigid and exacting. The new Treaty is much more simple and "liberal" as to its limitations and verification, and a number of issues and differences between the parties have been relegated to the background or postponed.

Besides, the new Treaty has one unique distinguishing feature. While negotiating it, the USA had no high priority aim of eliminating, reducing and limiting any particular type of the other party's weapons or programs(as it was previously the case with the Soviet or Russia's heavy ICBMs or ground-mobile missile systems), and strived mainly to preserve the transparency regime. This was due to the US assessment of the forthcoming reductions of Russia's SNF irrespective of the strategic offensive arms agreements due to economic and technical difficulties and as a result of Moscow's specific decisions on strategic programs made in the previous decade.

As Washington did not strive for specific reductions and limitations on the part of Russia, Russia had no bargaining chips to exchange for concessions from the US (counting rules, limitations of conventional strategic arms, BMD link etc.). Besides, Democratic administration had to prepare for strong Republican opposition to the Treaty and was reluctant to make many concessions in search for a compromise.

Moscow, in its turn, did not find it necessary to make concessions as to verification regime (continuous monitoring of Votkinsk missile plant, ban on the encryption of telemetric information, etc.). The US accepted this position, as they were interested in the new Treaty, mainly for political reasons: Barack Obama's election commitments, the forthcoming NPT Review Conference. Moreover,

there was a factor of time, and the negotiations schedule was compressed, as the START-I Treaty was to expire in December 2009.

The new Treaty has demonstrated a tacit coincidence of Moscow's and Washington's nuclear policy, that is, the absence of intentions to engage in real reductions of their strategic arms significantly below the level set forth as far back as in the 2002 Moscow Treaty on Strategic Offensive Reductions (1700–2200 warheads) in the nearest future. Under the new Treaty the level of warheads is to be reduced mainly through changing the rules of counting warheads associated with bombers. Assuming that the 56 US B-52 bombers may hold 1120 ALCMs (warheads) in actual fact, and 672 warheads according to the counting rules of the START-I Treaty, now only 56 warheads are counted. Similarly, the real number or warheads (over 850 pieces) of the 77 deployed Russian Tu-160 and Tu-95 MS heavy bombers turns to 77 pieces.

However, these novelties are explained by certain operational reasons. The parties' decision to reduce the 'arms control profile' of HBs may be due to their perception of the receding role of these systems in the nuclear balance and their ongoing conversion to conventional or dual-purpose missions. As the risk of nuclear conflict has in reality greatly reduced, the parties decided to disregard heavy bombers, the more so as unlike missiles they do not carry nuclear weapons on board in day-to-day service. Hence HBs more fit under non-deployed delivery vehicles according to the new Treaty concept, but in view of their huge load capacity the compromise decision was to count them as carrying one warhead each.

The position of President Obama' administration as to further reductions of strategic offensive arms and pertinent negotiations with Russia may to some extent coincide with those expressed in the article by George Shultz and William Perry[228]. It says, inter alia, that before agreeing on new strategic arms reductions with Russia, the US should address the issue of joining the efforts of Russia, US and NATO on missile defense. It also suggests that the parties should engage in parallel consultations on tactical nuclear weapons (TNW), and conventional arms in Europe, as well as on the issues of Iran and North Korea, although missile defense should be attached top priority.

Despite all its novelties, the new START Treaty reflects the traditional nuclear deterrence pattern – preservation of mutual assured distraction balance at slightly lower force levels. And in some respects it is a step backward in terms of strategic arms control. Its “liberal” limitations and verification regime, under certain scenarios of weapon programs development, may lead to decreasing strategic stability – whether it is considered politically important or not.

Thus, the practice has shown that even during the greatest window of opportunity in the history of the US-Russian relations, which opened with the presidency of Barack Obama and Dmitry Medvedev, the two states could not depart from the concept of mutual nuclear deterrence, as embodied in the main legally binding agreement concluded at that time. In this sense in contrast to the renewed pledges of both leaders of striving towards a nuclear free world, “the mountain has given birth to a mouse”. Still, there remains a hope that another window of opportunity may open – depending on the results of presidential elections in both countries in 2012.

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[228] See: Perry W., Shultz G. How to Build on the START Treaty // The New York Times. April 10, 2010.

VI.9. THE POWERS' FOREIGN AND MILITARY POLICY AS A FACTOR OF DISARMAMENT

Comparisons of Russian and US foreign policy declarations with their nuclear doctrines and defense postures and programs demonstrates obvious discrepancies and inconsistencies. These have become more vivid after the positive changes in US-Russian political relations which started in 2008-2011. This may be indicative of a lack of both presidents' understanding of the defense issues involved, or of their insufficient control over their respective defense bureaucracies and military- industrial lobbies. Strong domestic political opposition to the presidents in both countries, whether open or tacit, also has been taking its tall.

Russian military policy. Russia's military policy is also highly controversial. In some cases, Russia's military priorities are right opposite to those of its foreign policy. Current military reform and its programs in a number of aspects exacerbate these contradictions.

President Dmitry Medvedev of Russia defined Russia's foreign policy priorities as follows: "What we need… are special modernization alliances with our main international partners. And who are they? First of all, it is countries such as Germany, France, Italy, the European Union in general, and the United States. The EU-Russia summit in Rostov-on-Don (May 31 – June 1, 2010) adopted a partnership policy that stipulates implementation of major joint projects, including technological modernization of Russia's industry... The cooperation in the innovations sector can... contribute to the positive agenda in our relations with the United States and expand the potential of our future cooperation, which should not be limited to cutting down missiles or sparring over various regional conflicts… The general approach of the US is also fully in line with our integrated approach to security, emanating from an understanding that the capability of military power is limited".[229]

This is in contrast to the new Russian Military Doctrine (MD) adopted in February 2010 and signed by the President, where the external threats are prioritized as follows:

"The main external military dangers are:

a) the desire to endow the military capability of the North Atlantic Treaty Organization (NATO) with global functions carried out in violation of the norms of international law and to move the military infrastructure of NATO member countries closer to the borders of the Russian Federation, including by expanding the alliance;

b) The attempts to destabilize the situation in individual states and regions and to undermine strategic stability;

c) The deployment (buildup) of military contingents of foreign states (groups of states) on the territories of states contiguous with the Russian Federation and its allies and in adjacent waters;

d) The development and deployment of strategic missile defense systems, undermining global stability and violating the established balance of forces in the

[229] Speech at Meeting with Russian Ambassadors and Permanent Representatives in International Organizations. President of Russia. July 12, 2010. (http://eng.kremlin.ru/transcripts/610).

nuclear-missile sphere, and the militarization of outer space and the deployment of strategic non-nuclear high-precision weapons".[230]

Obviously, all these four priority dangers emanate from the US and its allies, while "the proliferation of weapons of mass destruction, missiles, and missile technologies" and "the spread of international terrorism" which call for cooperation with the West, are only sixth and tenth items respectively on this list.[231]

As for the nature of possible future wars, the Military Doctrine says: "Military conflicts will be characterized by rapid rate, selectivity, and a high level of target destruction, fast maneuvering of troops (forces) and firepower, and the involvement of various mobile groups of troops (forces). Taking strategic initiative, preserving sustainable state and military command and control, and securing superiority on land, at sea, in the air and in outer space will become decisive factors in achieving objectives".[232]

This clearly refers to a hypothetical war against the US and their allies rather than fighting against terrorism and radical regimes. Moreover, as if to dispel the last doubts with this regard, the Doctrine clarifies: "Military actions will be characterized by increasing significance of high-precision, electromagnetic, laser, and infrasound weapons, computer-controlled systems, unmanned air vehicles and autonomous maritime craft, and controlled robotized models of arms and military equipment".[233]

Therefore, "providing timely warning to the Supreme Commander in Chief of the Russian Federation Armed Forces of an air or space attack..." and subsequent "ensuring the air defense of the vitally important assets of the Russian Federation and readiness to repel air and space attack"[234] are named the main tasks of the Armed Force.

It should be noted that the President also paid tribute to this strategy in his Address to the Federal Assembly and said that first "we need to put a special emphasis on aerospace defense, combining the existing missile and air defense systems, missile early-warning and space monitoring systems".[235]

In other words, whether deliberately or not, the main priorities of the Russian defense and military reform – nuclear deterrence and defense against aerospace attack – are aimed against those nations, with whom Russia should, according to President Medvedev, form "special modernization alliances", whom it expects to involve in "technological modernization of Russia's industry" and with whom it shares an "integrated approach to security, emanating from an understanding that military power is limited". Namely, as Russian President said, those are countries[236], with which Russia set a course towards Partnership for Modernization at the 2010 EU-Russia Summit in Rostov-on-Don.

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[230] Decree by the President of the Russian Federation # 146, February 5, 2010. On the Military Doctrine of the Russian Federation // Rossiyskaya Gazeta, February 10, 2010 (Text in Russian: http://www.rg.ru/2010/02/10/doktrina-dok.html).

[231] Ibid.

[232] Ibid.

[233] Ibid.

[234] Ibid.

[235] Presidential Address to the Federal Assembly of the Russian Federation. President of Russia. November 30, 2010 (http://eng.kremlin.ru/news/1384).

[236] Speech at Meeting with Russian Ambassadors and Permanent Representatives in International Organizations. President of Russia. July 12, 2010. (http://eng.kremlin.ru/transcripts/610).

It should also be stressed that from strategic perspective, the two priority functions of the Armed Forces are opposed to each other to certain extent. Namely, the focus on aerospace defense of the country's territory against massive strike of high-precision weapons (possibly, including nuclear weapons, although there are no clarifications as to this) questions the reliability of deterrence – Russia's resolve to use nuclear weapons in response to such attacks. At the same time, the Doctrine implies that nuclear weapons will be used in case of such military danger, as "hampering the operation of government and military command and control of the Russian Federation, disrupting the operation of its strategic nuclear forces, missile early warning systems, outer space surveillance systems, nuclear munitions storage facilities, nuclear power facilities, nuclear and chemical industry facilities, and other hazardous facilities".[237]

It can be assumed that in case of hypothetical massive conventional attacks the maximum of which Russian air and missile defense systems will be really cable in the long term is to ensure localized protection of command centers, SNF bases and early warning systems infrastructure in order to preserve the retaliatory strike capability. This, in fact, is quite consistent with the traditional concept of strategic stability underpinning all the SALT and START Treaties from the 1972 START Treaty to the 2010 START Treaty signed in Prague.

American nuclear posture. The US 2010 Nuclear Posture Review (NPR) was released on April 6.[238] According to the NPR, today's most urgent nuclear threats are posed by nuclear proliferation and nuclear terrorism. The NPR states that "the fundamental role of US nuclear weapons…is to deter nuclear attack on the United States, our allies, and partner" (p. vii). Hence the United States would only "consider the use of nuclear weapons in extreme circumstances to defend the vital interests of the United States or its allies and partners" (p. ix).

By way of reducing reliance on nuclear weapons, the NPR postulates that "the United States will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the NPT and in compliance with their nuclear non-proliferation obligations" (p. viii).

According to the NPR, the United States will retire the nuclear-armed sea-launched cruise missile (TLAM-N), but will maintain the nuclear umbrella over allies through forward-deployable fighters and bombers, as well as US ICBMs and submarine-launched ballistic missiles (SLBMs). The missile submarine patrol rate will also be maintained at the existing level (which provides for about 60% of the SSBN force to be at sea at any time).

The NPR states that "missile defenses and any future US conventionally-armed long-range ballistic missile systems are designed to address newly emerging regional threats, and are not intended to affect the strategic balance with Russia" (p. x).

But, Russian policymakers worry about the prospects that future US BMD capability could undermine Russia's potential for strategic retaliation,

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[237] Decree by the President of the Russian Federation # 146, February 5, 2010. On the Military Doctrine of the Russian Federation // Rossiyskaya Gazeta, February 10, 2010 (Text in Russian: http://www.rg.ru/2010/02/10/doktrina-dok.html).

[238] Nuclear Posture Review Report. April 2010. Wash., DC., 2010. (http://www.defense.gov/npr/docs/ 2010%20nuclear%20posture%20review%20report.pdf)

and that US strategic conventional precision-guided weapons (cruise, boost-glide and ballistic missiles) have a growing counterforce capability. These new assets of US power could hardly be endorsed by Russia (or China) as instruments for facilitating transformation of nuclear deterrence and progress towards a nuclear-weapon free world.

Nuclear deterrence: theory and hardware. The Russian Doctrine says with regard to nuclear deterrence, that "prevention of nuclear military conflicts, as well as any other military conflicts shall be the main task of the Russian Federation". The deterrence, in its turn makes it necessary "to maintain strategic stability and an adequate level of nuclear deterrence capability".

The Military Doctrine lists the following conditions for the use of nuclear weapons: "The Russian Federation shall reserve the right to use nuclear weapons in response to the use of nuclear weapons and other weapons of mass destruction against it and / or its allies, as well as in case the Russian Federation is subjected to conventional aggression which puts under threat the very existence of the state. In other words, the first use of nuclear weapons is only possible as the very last resort.

In conformity with the listed strategic aims the Military Doctrine sets the task of maintaining the level of strategic nuclear forces "guaranteeing the infliction of the required damage on the aggressor in any circumstances". Notably, the Doctrine makes no mention of the tasks of delivering a preemptive disarming strike (in the Soviet tradition this was called 'preventing aggressor's nuclear attack'), 'devastating retaliation' or 'assured destruction' that were set before. In general, the new Military Doctrine obviously reflects a more reserved approach to the role and tasks of nuclear weapons and with this regard is quite consistent with the President's foreign policy.

However, practical military policy, including the armament program which is an inalienable part of the current military reform, runs counter to both the Military Doctrine and the Kremlin's foreign policy course. This refers to the program of the development of the new heavy silo-based liquid-fuelled ICBM with multiple reentry vehicles (up to 10 warheads). The principle arguments in favor of the system are:

- facilitating missile build-up to the ceilings of the new START Treaty by 2020 in view of continuing decline of Russian SNF force levels below these ceilings;
- insuring penetration capability (with the huge missiles' through-weight) against any conceivable US/NATO BMD system;
- preserving (implicitly) some counterforce capability to match US Minuteman III and Trident II missiles' potential;
- provide the counterbalance to US up-load capacity through loading new ICBMs' MIRV buses with less than full warhead complement;
- create a technical foundation for possible boost-glide conventional systems.

Up to now the United States has done nothing to counter these arguments, but still worse – has done quite a lot (in particular during START ratification debates and Senate resolutions) to substantiate them.

Nonetheless, the new heavy ICBM program would contradict the main principles of strategic stability. This system would accumulate large number of warheads on few vulnerable fixed-based delivery vehicles. Hence this new system would provide anew a technical foundation to a strategy of first nuclear strike or

"at best" to launch-on-warning concept. As stated above, both should be mutually and unequivocally abandoned for the sake of US-Russian strategic stability and transformation of mutual deterrence relationship.

Politically heavy ICBMs are perceived by their proponents in Russia as a bargaining chip for further negotiations with the United States on strategic arms reductions ("making them once again interested in Russian limitations") and on the parameters of cooperation on BMD systems. Just like regarding strategic side of the problem, the United States policy has done very little, if anything, to dispel this position. On the contrary, the record of their positions at the new START negotiations (see above), as well as their present declarations and discussions over the future nuclear arms control provides plenty of ammunition to the mentioned Russian deliberations.

All in all, compared to President Obama's ambitious Prague speech of 2009 and his proposal to "reset" U.S.-Russian relations, as well as in view of preponderant U.S. conventional forces, the innovations of Nuclear Posture Review look quite modest and controversial. For example, one might expect an unequivocal commitment of no-first-use of nuclear weapons against any NPT state, including nuclear weapon states; no use of nuclear weapons in response to conventional or other non-nuclear attacks on the United States or its allies. As for the practical side, the United States should for example convert all bombers to non-nuclear missions; cancel the program of refitting Minuteman III ICBMs with hard-target-kill W-87 warheads and withdraw counterforce W-88 warheads from Trident II SLBMs; take a decision to reduce SSBN patrol rates and partially de-alert other U.S. strategic forces; and propose to negotiate tactical nuclear arms limitation with Russia, including withdrawal of such U.S. arms from forward bases in Europe.

Nonetheless, both Russian new Doctrine and U.S. NPR of 2010 demonstrated that nuclear weapons still have, and for the foreseeable future will retain, tangible political and strategic roles and missions. Radical nuclear disarmament, to say nothing of the achievement of a nuclear-weapons- free world, would imply much deeper changes in foreign and defense policies to abandon these nuclear roles and missions, or the development of alternative ways and means of sustaining these functions without provoking concern and mistrust of each other, their allies and other major powers.

Obstacles to missile defense cooperation. Striving to reset their relations, in 2008–2010 Russia and the USA, as well as the NATO-Russia Council adopted a number of declarations on joint development of missile defense.

Russia, for its part, suggested a concept of a shared "sectoral" missile defense, under which Russia and NATO would protect each other against missiles coming over their respective space from Southern azimuths. NATO opted for independent missile defense systems with a number of shared elements. The parties established contact groups at the government level and commissions of respected independent experts.

They made a number of reasonable proposals with regard to the principles and first practical steps of such cooperation. They advised, in particular, to establish a Joint Data Exchange Center (JDEC) for the exchange of data from missile launches early warning systems, to renew joint missile defense exercises, to engage in joint assessment of missile threats, and elaborate criteria and principles

governing the stabilizing missile defense and the transparency of their development, etc. (see above).

Nevertheless, despite all the advantages of the mentioned proposals, in Summer 2011 the dialogue was deadlocked. Apparently, there are major impediments to cooperation in such a pivotal and delicate sphere as missile defense, which up to now have been ignored by the proponents of cooperative BMD. Unless the parties overcome these obstacles, they will never escape the circle of impracticable declarations and proposals and practical standstill.

The first obstacle is the motives of the US BMD program. There are notable inconsistencies in Washington's course, which naturally raise Moscow's suspicions as to true aims of the Phased Adaptive Approach (PAA) to the development of missile defense in Europe.

It is not that so far Iran has had neither ICBMs, nor nuclear weapons. Indeed, there are serious grounds to suspect that it does have a military nuclear program (confirmed by the claims of IAEA and underlying six resolutions of the UN Security Council). And Iran is certainly conducting an intensive ballistic missile development program and may sooner or later achieve intermediate and intercontinental range capability. Russian argument about the absence of such capability now is not sound. It would take more time, resources and technological ingenuity to develop and deploy efficient conventional-interception BMD capability, than to test and deploy long-range missiles.

American inconsistency is rather that the US has repeatedly stated that it will never and under no circumstances let Iran acquire nuclear weapons (apparently, also implying Israel's resolve not to permit this). If this is the case, there is no need for a large-scale missile defense system to protect against conventional missiles. Unlike missiles with nuclear weapons, Iranian conventionally armed ballistic missiles cannot inflict too high a damage. In order to prevent it one could rely on the US and NATO conventional disarming strike capability and massive retaliation capacity of high-precision conventional systems that proved so militarily (if not politically) efficient in Yugoslavia, Iraq, Afghanistan and Libya.

At times Washington's spokespersons say that the missile defense will deter Iran from developing missiles and nuclear weapons. However, this is highly doubtful. On the contrary, such system is perceived in Tehran as a proof to the fact that the US will finally reconcile itself to Iran's accession to the nuclear club. Iranian leadership has never publicly opposed US missile defense program, and its development up to now has done nothing to slow down Iranian programs. In Tehran's view, the larger is the scale of the US missile defense, the better, as it drives a wedge between Moscow and Washington, which is the major loophole through which Iran may advance its programs with relative impunity.

However, in Russia many feel that judging by the scale and characteristics of the PAA, the BMD is most likely to go far beyond addressing Iran's missile threat. In addition to new potential Arab candidates for the membership in nuclear missile club (which may eventually stem from 2011 Arab revolutions), there is a most pressing issue of Pakistan. Islamists' coming to power may turn the country into a second Iran, yet having ready missiles and warheads for them at hand. However, for obvious reasons the USA cannot officially refer to this threat in order not to destabilize its current ally on which the operation in Afghanistan depends.

Finally, there is a factor of China, with which the US is seriously preparing to engage in a long-term rivalry at regional (Taiwan) and global level in the foreseeable part of the XXI century. The US offensive nuclear forces and high-precision long-range conventional weapons (SLCMs), as well as the newest boost-glide missile systems (Minotaur IV Lite) are also increasingly geared to confrontation with China. The European missile defense program is an element of a global missile defense, alongside with missile defense sites in the Far East, Alaska and California. Conceivably, it is intended to counter the limited nuclear missile capability of China in order to delay as long as possible China's achieving nuclear missile parity and mutual nuclear deterrence with the US. This is also something not to be openly announced by Washington, as it would provoke China to accelerate the buildup of its missile capability and aggravate the fears of Japan and South Korea, pushing them to opt for nuclear independence.

A world, in which the US is vulnerable to nuclear weapons and missiles of an increasing number of states, including extremist regimes, is a new and frightening military and strategic environment, with which the US is not going to reconcile itself. It should be remembered how much pain, time, crises and cycles of arms race of 1960s and 1970s it took Washington to accept the inevitable parity with the USSR and the vulnerability to is nuclear missiles. One should also not forget the fear of the USSR regarding China's deploying medium-range missiles and subsequently ICBMs in 1970s and 1980s. Preservation of the Moscow A-135 missile defense system was for many years largely determined by the Chinese missile threat .

For Moscow the key issue is whether this global missile defense can eventually be targeted against Russia. The most authoritative Russian experts affirm that both existing US missile defense and the one to appear in the forthcoming 10-20 years cannot significantly affect Russia's nuclear deterrence capability. Under the new START Treaty and even in case of further lowering of the ceilings (i.e. down to 1000 warheads) the attempts to develop a missile defense against Russian strategic forces would require such immense resources and would bring such dubious results, that this would undermine the security of the USA. Besides, there are new, more urgent threats to address, for which Washington needs to cooperate with rather than confront Moscow. This clearly, does not remove Russia’s need to maintain a robust strategic nuclear capability under the START Treaty so that no one has a temptation of changing the strategic balance with the help of global missile defense. At least that is true until mutual nuclear deterrence is transformed into a new constructive mode of strategic relationship.

At the same time, Washington's reluctance to admit the possibility of adjusting the missile defense program in the future is utterly unjustified. The program is called 'adaptive', hence, it should provide for the possibility of adjustments depending on the way cooperation with Moscow develops, rather than merely in response to an emerging threat. However, Washington is yet to decide what kind of contribution it expects from Russia. The policy of firmness of the Republican opposition in the US Congress with regard to missile defense is also a serious obstacles to mutual US-Russian adaptation.

The second obstacle is the diverging assessments of threats. Some of the US allies in NATO do not fully share Washington's assessments with regard to Iran, but they supported PAA as a new linkage of solidarity within NATO (as the diffi-

culties of operation in Afghanistan increase), and expecting that such cooperation will bring them economic and technological benefits.

The differences in the assessments of threats existing between the US and Russia are much broader. The diverging forecasts as to the evolution of Iran's nuclear and missile programs are far from being the main one. To be precise, the main difference is that the majority of Russia's political and strategic community does not regard Iranian (and North Korean) missile threat to be of any significance and believe that traditional nuclear deterrence is sufficient to take care of it. To their mind, it is the US and NATO that are posing the main missile threat to Russia. This is openly announced in the 2010 Military Doctrine of Russia, listing the activities and arms of the USA and NATO (including their missile defense) as the first four major military dangers, and charting the proliferation of missiles and weapons of mass destruction, against which the missile defense might be developed, as only a sixth issue (see above).

This dramatically reduces the basis for the cooperation between Russia and NATO in developing missile defense. To pretend this is not true and to discuss at all levels technical and operational issues pertaining to shared missile defense – would be nothing but military scholasticism divorced from strategic and political reality. It is high time this issue be included on the agenda of the dialogue on missile defense. Otherwise, this issue while living behind the scene will continue blocking any possibility of cooperation.

Against this background, the “sectoral” missile defense proposed by Moscow (with which Russia undertakes to protect NATO and NATO will be responsible for the protection of Russia) seems quite a dubious idea. As part of this, Moscow's official spokespersons at NATO-Russia Council have even suggested dual control over the button, single defense perimeter and division of sectors of missile intercept.

NATO understands very well that Russia in the context of its military policy does not intend to rely on the USA to protect its territory against nuclear missile attack – and visa-versa. So the West received the proposed sector missile defense at best as an early unrealistic improvisation, and in the worst case, as a bluff to be rejected by the other party – thus giving the proponent a pretext to block serious negotiations.

In addition to what was mentioned, there are two more circumstances. First, there are no states whose missiles would fly to Russia over the territory of NATO, except stipulated (by Russian Military Doctrine) NATO missile strike at Russia. For such a contingency should Russia to rely on NATO BMD for protection? Second, Russia has no interceptors that could in the foreseeable future protect its territory, let alone the territory of NATO, against medium-range missiles coming from the south and south-east.

The intentions of the Russian leadership might have been good, and it might have not realized the mentioned aspects. But this does not mitigate the damage the proposed “sectoral” missile defense inflicted to the 'business reputation' of Russian policy. Still worse is Moscow’s Summer 2011 stance of being offended and disappointed by the US rejection of its proposition, as well as the threats of a new arms race as a result of the failure of BMD dialogue.

The third obstacle is the diverging goals of the parties in missile defense cooperation. After the failure of missile defense negotiations in Deauville in June

2011, Russian President said: "We must receive guarantees that it is not directed against us. So far no such guarantees have been given".

However, it is not declarations and legally binding arrangements with the West (from which a party can withdraw, as experience has shown), but Russia's SNF capability under the new START Treaty, that serves as the main and indispensable guarantee that the PAA will not be directed against Russia due to a mere incapacity to tangibly affect Russia's deterrence capability. Likewise the USA does not request any guarantees from Russia that its aerospace defense would not undermine the US nuclear deterrence capability, although this program is openly aimed against the US and NATO. The US relies on its immense nuclear deterrence assets capable of penetrating any Russian defense.

Virtually any ballistic missile defense is technically capable of intercepting certain number of strategic missiles or their elements at their flight trajectory. This refers to both the Moscow A-135 missile defense and to its future S-500 system, judging by what its developers promise. According to the experts, even the existing US systems such as THAAD and Standard-3 have certain capability to intercept ICBMs.

However, in order to assess strategic impact of a missile defense on such major nuclear deterrence capability as US or Russian, one needs to take in consideration the capability of the entire system with all its components to repel the first strike, launch-under-attack and delayed second strike – taking into account all its resources. Besides, a realistic assessment should be kept in mind of catastrophic consequences of loosing at least several (not to mentions several dozens of) cities for any superpower of the XXI century.

Recent Kremlin's transparent threats to the West ("If we do not reach agreement ... a new arms race will begin") apparently have no effect abroad. Meanwhile, Russia should in any case upgrade its SNF and TNW at a reasonable scale (Topol-M/Yars ICBMs, Bulava-30 SLBMs, and Iskander tactical missiles) including development of technical means to penetrate any missile defenses at all phases of trajectory. Excessive arms (like new heavy silo-based ICBM) would only divert financial resources from really vital programs and other pressing defense needs.

Russia's insistent calls for guarantees show that its possible participation in the program is not aimed at countering the missile threat posed by the third countries (in which Moscow hardly believes), but is rather intended to obtain military and technical proof of impossibility of its use against Russian ICBMs, that is, to limit the capability of European missile defense. To participate in a defense program in order to limit defense rather that to ensure antimissile protection – is indeed a fragile foundation for cooperation.

Nevertheless, this is possible in principle for certain characteristics (location of interceptors, the ability of their guidance systems to intercept missiles during the boost phase, etc.). No doubt, operational and technical participation in the European missile defense, depending on the scope of this cooperation, might provide Russia with some opportunities to affect the characteristics of BMD.

At the same time, as the border between the systems to intercept ICBMs and medium-range missiles is rather vague, Washington will hardly consent to any considerable limitations of the efficiency of the systems aimed against Iran and other countries possessing limited missile capabilities. In the US very few expect that Russia will make a meaningful contribution to the joint missile defense.

Most likely, the US intends to implement this program independently and will be satisfied with Russia's political consent not to oppose and make no obstacles to the program.

The fourth obstacle is Russia's missile defense. The development of aerospace defense is one of the top priorities of today's military policy of Russia and the National Armament Program up to 2020. This program seems no less impressive than the US missile defense program. In addition to upgrading the existing and developing new elements of missile attack early warning systems consisting of ground-based radars and spacecraft (which is certainly necessary), Russia is to deploy 28 air defense surface-to air missile (SAM) regiments armed with the S-400 Triumph systems (about 1800 SAMs), and 10 divisions (about 400 SAMs) armed with prospective S-500 system.[239] In addition to that, Russia is to upgrade its fleet of fighter-interceptors (as a large part of 600 aircraft to be purchased), develop a new command and control system integrating missile and air defense, missile attack early warning and space surveillance systems.

The Military Doctrine does not conceal that the aerospace defense is to ensure protection against the US and NATO, mentioning the provision of a "timely warning of an aerospace attack to the Supreme Commander in Chief of the Armed Forces of the Russian Federation" and ensuring "air defense of the vital military facilities of the Russian Federation and readiness to repel air and space attack"[240] as top-priority tasks.

The Military Doctrine obviously implies not the third countries and terrorists, but rather the US offensive systems, especially the ones carrying high-precision conventional weapons (aircraft, cruise missiles, boost-glide missiles, etc.). This is another aspect of the topic, lying outside the agenda of the dialogue of the experts and policy-makers on BMD, but having a notable influence on it.

It is evident that the existing configuration of the Russian aerospace defense intended for the protection against an attack by the US and NATO weapons is hardly compatible with a joint missile defense to protect Europe. Yet Russia cannot develop two parallel programs: a joint Russia-NATO program to protect each other (the "sectoral" proposal), and an independent program to hold missile attacks ("aerospace attack") of the US and their allies. So it was not without reason that in his address to the board of the Ministry of Defense in spring 2011 President Medvedev stressed that the steps to develop aerospace defense should "includes settling the question of whether or not we will participate in the European missile defense system that is being created".[241]

So the issue of Russia's participation in the European missile defense is made-up and divorced from reality. Rather the issue is ensuring the compatibility of Russia's aerospace defense with NATO's phased program.

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[239] See: Поповкин В., Фаличев О. Мы не можем позволить себе закупать плохое вооружение // Военно-промышленный курьер. № 8, 2–8 марта 2011 г., С. 6; Независимое военное обозрение. № 9, 11−17 марта 2011 г., С. 8−9.

(Popovkin V., Falichev O. We cannot afford buying poor weapons // Voyenno-Promyshlenny Kurier. # 8, March 2–8. 2011. P. 6; Nezavisimoye Voyenne Obozrenie. # 9, March 11−17. 2011. P. 8−9).

[240] Military Doctrine of the Russian Federation. February 5, 2010. (Available in Russian at http://news.kremlin.ru/ref_notes/461).

[241] Speech at Expanded Meeting of the Defense Ministry Board. President of the Russian Federation. March 18, 2011. (http://eng.pda.kremlin.ru/news/1926).

The fifth obstacle is linked to internal factors. There is another tangible obstacle to joint missile defense. Neither Russian, nor the US military or defense industries are really interested in cooperation. The US military agencies and corporations are unwilling to restrict their freedom in developing the missile defense, to disclose their technological secrets and get dependent on Russia, which is quite dubious and unpredictable as to its integration with the West.

As for Russia, if the aerospace program accounts for at least one fifth of the National Armament Plan up to 2020, it will cost over 100 billion dollars. Hopefully, the aerospace defense program will not be affected by corruption (according to the recent well-publicized statement of the Military Prosecutor's Office, at least 20 percent of the national defense order is plundered). Nevertheless, Russian defense agencies and industrial contractors would hardly welcome US audit and the scrutiny of Congressional committees.

Both military establishments are uncertain as to how the joint missile defense would blend into the familiar relations of mutual nuclear deterrence. It is for this particular reason why they block even such simple and apparent first steps as the revival of the Joint Data Exchange Center and joint missile defense exercises.

New format. As the concept of a shared missile defense runs counter to the real military policies of both states, it would be naive to think that the idea of cooperation in this sphere would in and of itself change the whole military policies of the two nuclear superpowers. Things are more likely to go the other way round, and the joint missile defense project will rather be blocked, which has so far been the case.

First, it would be naive to think that technical proposals and the promises of mutual benefits of a joint missile defense will become a sufficient incentive to cooperate and will save the trouble of openly addressing the existing real obstacles. To unblock the way for a joint (or rather compatible) BMD systems these obstacles should be consistently removed through national decisions and international agreements.

The parties may give the process a new impetus by revising the format of discussions and including in the agenda a number of essential problems that are directly linked to the matter and affect its resolution.

Second, to make the agreement on missile defense a prerequisite for negotiations on other issues would bring the whole process to a prolonged stalemate. On the contrary, the parties should pursue negotiations at several parallel tracks.

Third, in order to implement their political will into practice the Presidents should not rely on entrenched bureaucracies to obediently implement their declared political intentions. Rather they must establish government and industry structures that would be tasked to develop cooperation and would have institutional and financial incentives to do that.

Talking about the modalities of the issues, Moscow should officially inform its Western partners that Russia pursues its own large-scale aerospace defense program, including missile defense. The country cannot build two defense systems: one – together with NATO and the other against it. Russian aerospace defense is developed as a result of Russia's concern over certain US offensive capabilities, programs and concepts of use of the newest non-nuclear weapons. Assuring that such capabilities and weapons are not a threat to Russia various

confidence-building measures and agreed limitations would be required (like including conventional warheads of ballistic missiles in the START Treaty limits). This may become a subject of the future negotiations on the reduction of strategic offensive arms. Alongside with that Russia should be ready to discuss limitations of tactical (non-strategic) nuclear weapons and measures to revive an Adaptation of the CFE Treaty.

Depending on the progress of these tracks, Russia should agree to restructure its aerospace defense program and gear it towards addressing missile threats from the third countries, thus making it compatible with European missile defense. For their part the USA and NATO should be ready to take Russia's concerns into account, including adjustment of their missile defense program and providing for its compatibility with Russia's aerospace defense.

VI.10. ENSURING PEACE AND STABILITY ON THE WAY TO NUCLEAR DISARMAMENT

A world free from nuclear weapons is perceived by many as some ideal state not to be described in detail. Yet this does not necessarily mean that in nuclear arms limitation and reduction the formula "the final aim means nothing – the movement is everything" would do. There should be at least a general idea of the final destination. Still more important is to make sure that non-nuclear world will be a more secure and stable place.

The *first scenario* implies that the world will become completely different – predictable, comfortable and reliable.

The *second scenario* is based on the assumption that there will be no dramatic changes in the post-nuclear international order. On the whole things will remain the same, save for minor modifications. The elimination of nuclear weapons will not remove the myriad of factors driving international development. There will still be economic competition, struggle for political influence, historic grievances, ethnical and confessional collisions, socio-cultural likes and dislikes, psychological complexes – in other words, all the range of human emotions that make the world go round and predetermine the relations between persons, peoples and countries.

These extreme assessments highlight the problems and prompt to look for the truth somewhere in between. This leads to the *third scenario* that appears more true to life. It is based on the analysis of functions assigned to nuclear weapons in the existing international system. The key issue is whether these functions will remain in demand, and if so, who and how will perform them in the absence of nuclear arms. In a sense this corresponds with the arguments in the debate on general and complete disarmament. People fight not because they have plenty of weapons; on the contrary, they have plenty of weapons because they have reasons to fight. As soon as the last reason to fight ceases to exist, weapons will no longer be necessary. On the other hand, the existence of weapons enables and encourages use of force in order to settle conflicts and denigrate other methods of reaching settlement or achieving a compromise.

This parallel provides basic parameters essential in terms of a nuclear-weapons-free world. In particular: what is required for the international order to function after nuclear weapons cease to exist? The answer will include three components.

- There should be a solution to the problems solved through indirect use of nuclear weapons.
- The world order (as a whole or its individual segments) should not be destabilized as a result.
- The incentives and possibilities to revive nuclear weapons should be effectively eliminated.

These are the topics for speculation as part of a practical analysis of the peculiarities and requirements of a post-nuclear-weapons world.

Security. The key issue is the role of nuclear weapons. Its genesis may include different components, of which the main is the imperative of ensuring national security.

This in fact is true for any type of weapons, any instruments of war. They are developed and improved for two essential purposes:

- to ensure one's superiority in case of possible war with an external enemy;
- to assure the enemy in advance that it would loose and not win in case of such war.

This dual function (war-fighting and deterrence) is brought to extreme in case of nuclear weapons.

- First, it is super-efficient in terms of inflicting instant devastating damage, leaving any other weapons far behind.
- Second, it is absolutely catastrophic due to its destructive capability and its blanket impact. For this particular reason it has a reliable, convincing deterrence effect that can prevent the enemy from crossing the critical line.

Certainly, other instruments of military force (and not only military force) may also fulfill the deterrence function, but nuclear weapons remain unrivaled. Listing the reasons for that, one should cite, in addition at least three more arguments.

- The nuclear weapons have been recognized as the main, or at least a major factor, that set the limits on the forty-year' bipolar confrontation, that was scaling it down and even encouraged the parties to cooperate.
- Several times, when there was a real prospect of clash in the crisis between the US and the USSR, that was prevented by the parties' fear of a global nuclear catastrophe.
- Nuclear weapons enable a weak party to deter a strong one, which would be impossible relying only on general-purpose forces.

The two mentioned functions (war-fighting and deterrence) are not intrinsic of nuclear weapons only. If such weapons cease to exist, the war-fighting and deterrence will, as may be supposed, remain in demand. In other words, the imperatives of ensuring national security will remain, but they will have to be responded to without reliance on nuclear weapons. The same applies to the task of deterring enemy, which will not necessarily become a purely theoretical matter. It may well become a very pressing task that will also have to be addressed without reliance on the effect of nuclear weapons. This brings up a question of what will substitute for nuclear weapons to perform these two functions.

To the advocates of a nuclear-weapons-free world, it is more difficult to answer this question than those on the ways to advance to this goal and specific tasks of reducing nuclear weapons and strengthening strategic stability. But what will happen *after that*? This is where their certainty vanishes yielding to growing uncertainties; time limits become increasingly vague, and the reasoning sometimes takes on a form of wishful thinking (often very appealing but mostly unconvincing). Notably, the opponents (or rather skeptics) of the world free of nuclear weapons often feel more confident in this respect.

Allegedly in a world free of nuclear weapons the international security will be more lasting and sustainable, as all the threats and risks posed by and linked to nuclear weapons will be eliminated.

- This primarily refers to various types of nuclear warfighting: first use, preemptive strike, disarming strike, counterforce strike (against military facilities and command-and-control centers), launch-under-attack, countervalue

strike (against urban-industrial centers), demonstrative strike (to show determination), selective strike (for limited specific tasks), strikes at a theater of military operations or as part of tactical operations, etc.

- The elimination of nuclear weapons will render irrelevant many issues that have caused strategic uncertainty and created incentives for dangerous manipulations with the confrontation paradigm: the threat of nuclear escalation of a conventional conflict, reducing or increasing nuclear threshold, reliability (or unavailability) of nuclear guarantees to allies, etc.
- Finally it will no longer be necessary to invest great material and intellectual efforts in maintaining the acceptable nuclear balance either trough new weapon programs, or arms control negotiations.

However, all the above concerns nuclear weapons as an *instrument* used politically in order to perform certain tasks. If these tasks persist, they would have to be solved through different means. This can be done in three different ways:

- using non-nuclear conventional forces and assets (conventional weapons and general-purpose forces);
- using non-military (political and economic) instruments;
- rethinking (either unilaterally or in cooperation with international partners) the listed tasks and prerequisites for resolving them.

These three ways are not mutually exclusive and may be pursued in parallel.

Alternatives. The first way is to use conventional forces and weapons to solve the tasks previously assigned to nuclear weapons. This approach seems evident if security is to be ensured through military means. At the same time it is extremely costly, at least because conventional weapons and forces can hardly serve as full substitute for nuclear weapons, unless some other innovative means of warfare emerge (i.e. using information technologies or weapons based on new physical principles).

This makes the expansion of conventional weapons and forces not only possible, but probable. 'Natural' course of events, unless considerably adjusted, may very soon lead to a new arms race with a focus on qualitative characteristics of non-nuclear weapons.

What is more, the very prospect of this would become a factor impeding the advance towards the world free from nuclear weapons. Why give up nuclear weapons, if an enemy may enhance and efficiently use conventional weapons? This issue has an important political aspect: one may regard the advocacy of nuclear-weapons-free world as US attempts to obtain superiority due to its leadership in non-nuclear science and technology and to make others, e.g. Russia, abandon the nuclear weapons making up for the country's conventional inferiority. Similar reasoning can also easily be applied to regional nuclear situations (India, Pakistan, Israel, North Korea, Iran).

This leads to a logical conclusion: achieving a nuclear-weapon-free world calls for rigid measures to regulate the rivalry between the states in the field of conventional armed forces and arms. Unless there is non-nuclear arms control – and a one much wider-ranging and profound than it has ever been – the elimination of nuclear weapons for many states may turn into a disadvantage rather than advantage and hence remain unattainable.

It should not be excluded that it would be much more difficult to resolve this task, than to reach agreements on nuclear-weapons-free world. As the experience (of the START and CFE Treaties) has shown, there are reasons to expect serious obstacles in conventional arms control due to the much greater number of parties, tiers, dimensions and calculations of military balances. However, the idea of a world free from nuclear weapons must be abandoned, unless the movement in this direction starts soon.

Another "catch-22" in moving to a nuclear-weapon-free world: the elimination of nuclear weapons may paradoxically result in lowering the threshold for the use of military force in international matters. This hypothesis is confirmed by the fact that the countries exercise much less restraint (self-deterrence) in the use of conventional forces and arms than in the use of nuclear weapons. Even today, 65 years after the dawn of the nuclear era, eventual use of nuclear weapons is considered as extraordinary, while the use of conventional arms and forces has been a routine since 1945.

In a world free from nuclear weapons the parties may more freely resort to the use of force, as military collisions will no longer be fraught with devastating nuclear escalation. From political and psychological perspectives, this may eliminate barriers preventing the parties in conflict from crossing the critical line and hence may lead to proliferation of international conflicts.

This leads to a logical and obvious conclusion: a world free from nuclear weapons would call for vigorous measures promoting a non-military resolution of disputes.

With this regard, there are issues that do not have universal recipe either in a nuclear, or in a nuclear-weapons-free world. For instance, if a political mechanism fails, there appears a temptation to breach the existing norms, including through the use of force. It is well known that this is often done in a unilateral and discriminating manner and has doubtful legitimacy. Yet, even the fact that some of the countries opposing such course do possess nuclear weapons, may not deter those who pursue this line. This was the case in Iraq, where the military intervention was conducted despite the negative attitude of four nuclear-weapon states: Russia, China, France and India. From this perspective, in non-nuclear world the range of issues, on which one may wish to ignore the partners' opinion, would most probably expand.

As a result, in a world free from nuclear weapons there will be an even more pressing need for efficient system of political settlement of disputes than today. This is another imperative of progressing towards a nuclear-weapon-free world.

Discussing it here would go far beyond the topic of nuclear weapons elimination. In effect, it is a matter of organizing an international political system, which poses a long list of questions on the functions of the UN, the sovereignty and international responsibility of states, opportunities offered by and limits to intervention in national affairs, the role of non-government actors, etc.

It would be absurd to require that all such questions should be answered in advance to accelerate the transition to a nuclear-weapon-free world. It would be equally absurd to fear that such transition would inadvertently bring chaos at the international arena. However, movement to a nuclear-weapons-free world should facilitate a new agenda for the international community and give a powerful impetus for its consistent implementation.

Besides reservations of nuclear states with weaker conventional forces or non-nuclear allies of nuclear powers, there are some problems for strong nuclear nations as well. For the five countries, that are official nuclear-weapon states (under the NPT), there are several politico-strategic functions related to status and security.

- From the political perspective, nuclear weapons are an attribute of exclusiveness. It is illustrative that all the permanent members of the UN Security Council which have special functions and powers in the international system are official nuclear-weapon states. Although three of them, except the United States and China, joined the UN SC before entering the nuclear club, being the Security Council permanent members most probably provided them with an extra incentive "to go nuclear". For each of them the possession of nuclear weapons is certainly closely associated with specific status motives.
- The mentioned countries, due to possession of nuclear weapons, are largely immune to the use of force against them, or, with some reservations, (i) against a large-scale use of force (ii) by an adversary comparable in power and status, (iii) through an aggression which could jeopardize the very existence of the state or validity of its vital interests.

For this reason, the transition to a world free from nuclear weapons might cause considerable political and psychological disadvantages for them. Although these countries have formally undertaken to "pursue negotiations... on effective measures relating to... nuclear disarmament" (NPT, Article VI), and on them the attainment of a nuclear-weapon-free world will primarily depend, one cannot shake off the feeling that this particular states will create serious obstacles on the way to it.

The problem is that the 'nuclear grandees' should undertake to give up their nuclear status, and not only formally, in order to show their political correctness and send a positive message to the public and other countries, but in their very world view. Is such development possible? There are serious doubts, because the mentioned world view is very inert and conservative.

Nevertheless, it appears that there are certain possibilities of their self-correction, for both ethical and rational reasons. This could happen in several directions.

- Despite all the importance of the nuclear status, in the future it can hardly be transformed into yet bigger political or military benefits.
- At the same time, the importance of nuclear status as compared to other components of military forces gradually reduces – as a result of proliferation of nuclear weapons among the least developed countries, development of high-precision conventional weapons, anti-missile and space systems, mobile forces, use of information technologies, etc.).
- The increasing role of the 'soft power': economic and financial power, innovative dynamics, informational assets, prosperity of the population and attractiveness for migration, appeal of political systems and civilian freedoms, etc.
- The prestige, authority, influence and other aspects of a country's status and image at the international arena become less dependent on the possession of

nuclear weapons. (For instance, as India makes claims for permanent membership in the UN Security Council, its status of a de-facto nuclear power is a liability, rather than an asset.)

- The renunciation of their nuclear status by 'nuclear grandees' may become one of the main factors, insuring the ultimate legitimacy of the prohibition to proliferate nuclear weapons and justify use of force against proliferators.
- In the relations among the major members of the 'nuclear club' the factor of multidimensional interdependence becomes increasingly important, moving the mutual military concerns and suspicions to the background.
- The positioning of the 'grandees' with respect to other international actors is part of a broader issue (the relations between the 'center' and 'outskirts' of world politics), and it is to be addressed mainly outside the nuclear weapons context.

Special attention should be paid to the nuclear status of non-NPT nuclear-weapon states. Those are India, Pakistan, Israel and North Korea (with the legal status of the latter being a contentious issue). Besides, there appear to be analytical reasons to include Iran in this cluster of states (assuming that it strives to acquire nuclear weapons).

All these states believe nuclear weapons to be a not only a matter of status, but a functional instrument to resolve certain issues considered of vital importance by these countries.

In a nuclear-weapon-free world these tasks should be resolved without nuclear weapons and in a manner that would satisfy the countries in question. This is the only condition under which one can expect their consent on the project and their participation in it.

Assurances. It is pivotal that in the international political order to be shaped together with doing away with nuclear weapons, there are powerful assurances against the 'comeback' of nuclear weapons. These should be ensured in at least three directions:

- maximally intrusive controls should be exercised over any activities that could possibly lead to development or recovery of nuclear capability;
- immediate sanctions, including military ones, should be applied in case such activities are discovered;
- pertinent decisions should be made by a special non-national or supranational institution, rather than by a consensus of states.

The latter may also be implemented on a larger scale, as part of a general course towards shaping international, transnational and supranational governance mechanisms. It is widely recognized that this cannot be done quickly, as there are too many imperatives governing the states' behavior at the international arena, which are connected solely with their national interests. Paradoxical as it may seem, the logic of moving towards a nuclear-weapons-free world would facilitate a breakthrough in the most sensitive sphere. This is the domain of nuclear weapons, as all the security and disarmament issues relating to nuclear arms would have to be delegated to a supranational or a non-national administration.

It should be noted that some of the required norms and institutions of non-nuclear world may evolve during the transition period with a great benefit for nuclear stability and non-proliferation:

- reaching agreements on unprecedented transparency as to nuclear weapons;
- reaching agreements among countries on the mutually acceptable parameters for their nuclear capabilities – in fact coordinating nuclear force postures and efforts to enhance safety of and stringent control over nuclear arms;
- internationalizing (step by step) the nuclear-industrial infrastructure, atomic energy, technologies and materials.

In today's political environment it would seem utopian to make such proposals. Yet taking in consideration the prospects of a world free from nuclear weapons this would be quite in keeping with 'thinking about the unthinkable'.

Certain practical steps have already been made at implementing such ideas. Attempting to resolve the crisis around Iran's nuclear program, policy-makers and analysts have thought along the line of establishing an international uranium enrichment production complexes and an international nuclear fuel banks managed or controlled by IAEA.

The focus should be made on politically appropriate proposal to withdraw from national control some issues and functions, that are typically among the most sensitive ones at the national level. This in actually implied by proposals to develop a joint Russia-US/NATO missile defense.

A precise and brief definition of the nuclear-weapon-free world is given in an article by Evgeny Primakov, Igor Ivanov, Evgeny Velikhov and Mikhail Moiseev.[242] In the long run, the four wise men stressed, “the world without nuclear weapons is not our existing world minus nuclear weapons... Therefore, nuclear disarmament, which shall remain a strategic goal, necessitates a thorough overhaul of the entire international system”. Both these processes should run in parallel, nourishing and supporting each other and paving the way to a more secure and stable world.

[242] Примаков Е.М., Иванов И.С., Велихов Е.П., Моисеев М.А. От ядерного сдерживания к общей безопасности // Известия. 15 октября 2010. (http://www.izvestia.ru/news/367072).

(Primakov E., Ivanov I., Velikhov E., Moiseev M. From Nuclear Deterrence to Universal Security // Izvestia. October 15, 2010).

CONCLUSIONS

The joint IMEMO-NTI project deals with crucial issues of desirability and possibility, as well as dilemmas, collateral problems and schedule, of a path towards deep nuclear disarmament, which eventually may lead to a world free of nuclear weapons.

To achieve this, international players will have not just do away with most of present nuclear arsenals – but moreover, and probably most difficult – to build qualitatively new security relations among themselves. During transition to a nuclear-weapons-free world, a new mechanism of resolving international conflicts on the basis of law, rather than force, must be constructed. It should be acceptable to the nations of varying size, economic and military power, social and political systems. An unprecedented military transparency would be necessary, as well as most radical and sophisticated bilateral and multilateral disarmament agreements, in fact eventually leading to some forms of joint management of remaining nuclear forces and programs, and broad internationalization of world peaceful nuclear energy and science.

Basing on the comprehensive analysis of the major relevant issues, the participants in the project (some of whom are the authors of this book) have come to a number of important conclusions that might serve as groundwork for practical policy decisions.

1. In the present and foreseeable political and military environment of global, polycentric and interdependent world, prone with new threats and challenges, the notion of strategic stability should be deeply revised as compared to the Cold War era. Accordingly the essence of strategic stability requires major adjustments to the post-Cold War times.

First, for the foreseeable future second-strike mutual assured destruction (MAD) capability of the two largest nuclear powers might stay at the core of stability, but should imply radically lower criteria of damage and much less rigid requirements of inflicting it. Destruction of a few big cities, energy-supplying industries or communications infrastructure would be treated as unacceptable damage by any of the advanced nations. Such traditional concepts as strategic triade with redundant strike potentials of each arm, greater-than-expected-threat force planning, overall equality in counterforce, counter-value, launch-on-warning and delayed second strike capability – all may be abandoned as a rudiment of the Cold War. An approximate equality in alert warheads and finite (minimum) destruction-deterrence potential would be a sufficient insurance of mutual security.

Second, the speed of proliferation of WMD and its delivery means has become a pivotal factor affecting stability. Consequently, the concepts and measures of strengthening the regimes of NPT and controlling proliferation of missiles and missile technologies should be incorporated into the philosophy and practice of strategic stability.

Third, the proliferation of nuclear weapons and their delivery means sets the major and most difficult task of integrating strategic defensive systems (C3I systems, BMD, AAD, and possibly some types of ASAT capability) into the context of strategic stability. Besides, it would be necessary, but still more complicated to

initiate and implement cooperative development and use of early warning assets and eventually intercept systems by the great powers, their allies and partners, as well as responsible neutral states. This endeavor would presuppose a fundamental transformation of traditional (MAD-based) notion of strategic stability.

Forth, compatibility of strategic stability and the leading powers' developing long-range precision-guided weapons for employment in local conflicts should be ensured through a special methods of arms control and confidence-building measures.

Fifth, if and when Russia and the US reduce their SNF below the level of about 1,000 warheads under any follow-on START treaty, the mostly bilateral balance of nuclear forces will be transforming into a multilateral one. This would make it necessary to look for ways of involving third nuclear powers, and subsequently non-NPT nuclear-weapon states into the general framework of nuclear arms limitation and transparency.

Sixth, the development of space weapons (either being orbital objects or designed to attack orbital objects) would undermine stability and should be prevented through multilateral space "codes of behavior" and treaties on banning tests and eventually deployment of such weapons.

2. On the one hand, a military doctrine, including its nuclear facet, represents the guidelines for the country's armed forces and defense industry inasmuch as it defines the type of potential wars and their probability, as well as the objectives of the country's military operations and the corresponding combat training and weapon programs for the armed forces. On the other hand, a doctrine is aimed at other countries, both adversaries and allies. It contains a warning to the former and security guarantees to the latter, by explaining under what circumstances and in what way the state may resort to military action, including the use of nuclear forces.

In terms of the conditions under which the use of force may be considered, the doctrines adopted by the United States and Russia in 2010 have much more in common than the two powers are willing to recognize.

3. The Russian Military Doctrine prioritizes deterrence and prevention of armed conflicts and treats nuclear weapons as weapons of last resort. The provisions of the Russian Military Doctrine suggest that Russia's nuclear forces are intended for a retaliatory nuclear strike in response to a nuclear strike by an adversary against Russia or its allies.

A second possibility is Russia's first use of nuclear weapons in response to an attack against itself or its allies with the use of chemical, bacteriological or radiological weapons.

Third, nuclear weapons may be used if there is an imminent threat to the very existence of Russia's state as a result of an aggression with the use of conventional armed forces and weapons against Russia (the allies are not mentioned here). This option apparently relates to threats arising from the superiority of the expanded NATO in general-purpose forces and high-precision conventional weapons, as well as to threats posed by the evolution of the strategic situation in the East to the detriment of Russia.

Although being quite reserved the Doctrine might go further in limiting first strike/use options. For instance, it could remove the option of nuclear retaliation in response to an attack with other kinds of WMD, or declare an obligation of no-

fist-use of nuclear strategic weapons against any NPT member state, including nuclear powers.

4. According to the US new doctrine (Nuclear Posture Review), the task of nuclear weapons is to deter nuclear attack against the US, their allies and partners. Washington allegedly would only consider the use of nuclear weapons in extreme circumstances to defend the vital interests of the United States or its allies and partners. The option of a nuclear strike in response to an attack with general-purpose forces or other kinds of WMD is tangibly downgraded, although not fully excluded in view of security guarantees to US allies overseas.

It is proclaimed that the US will not use nuclear weapons against non-nuclear NPT states, but this obligation does not apply to NPT nuclear powers and the states breaching their obligations under the NPT. The latter apparently refers to countries like Iran and North Korea and implies security assurances to Israel, European states, Japan and South Korea. In this particular context the US allegedly retains the option of nuclear retaliation in response to an attack using conventional arms or other WMD. In this regard the protection of Taiwan remains quite a mute issue.

Nevertheless, taking in consideration highly invulnerable geostrategic situation of the United States in terms of traditional threats and their superiority over other powers across the whole range of armed forces and arms (both conventional and nuclear), it appears that the new US nuclear doctrine might go much further. For instance, it could announce the obligation of no-first-use of nuclear weapons against all NPT states, including nuclear-weapon states, as well as the US readiness to withdraw on certain conditions its nuclear assets from Europe. Furthermore, it might be stated that Washington was ready to go for the reduction of their strategic nuclear forces' alert rates (including the patrol rate of the US SSBNs). It might have mentioned that the US was striving to alleviate other great powers' concerns over the development of the US missile defense, long-range high-precision conventional weapons, space weapons systems (including Prompt Global Strike systems), which were not designed against Russia or China. Such initiatives would be in line with the ambitious goals of moving towards nuclear weapons free world, proclaimed by President Barack Obama.

Specific features of nuclear doctrines of other nuclear-weapon states and their alliances (NATO, for one) are shown in the table in Annex 2.

5. New principles and international policy priorities announced by Russia's political leadership of 2010 (globalization and interdependence, modernization partnership, 'reset' of relations, progress towards a world free from nuclear weapons, etc.) implicitly run counter to what was implied by the Russian Military Doctrine and military policy, including the national armament program. The Russian military minds apparently proceed from the traditional assumption that the US and its allies continue to be Russia's potential adversary and have inherently aggressive intentions. Russian foreign policy should not adjust to the above notions of its Military Doctrine after the change of leadership in Russia in 2012. Rather its Doctrine should become more compatible with the foreign policy concept of "reset" and modernization partnership. This depends on efforts of both: Russia and the West.

6. In the top echelons of the Russian military establishment, the military-industrial complex, as well as among the vast majority of the country's expert

community there is an explicit perception of a new and growing threat from the US and their allies. Those are believed to be able to use non-nuclear cruise missiles, ballistic and boost-glide missiles to attack Russia, including a disarming (counterforce) strike against its SNF, early warning systems and command and control sites.

However high-precision weapons cannot be compared with nuclear weapons in terms of effectiveness of a strike at strategic hardened or mobile military targets, let alone urban-industrial centers. A colossal risk of a nuclear escalation triggered by a high-precision conventional weapons attack against a nuclear power would be disproportionate to any expected gains of such an ("ecologically clean") operation even in purely strategic sense. This would be all the more absurd in the present political context two decades after the end of the Cold War, when despite all controversies and disagreements the major powers are moving towards greater economic, social, environmental and security interdependence and are jointly struggling to get out of the world economic crisis.

7. Nevertheless, the fact remains that US high-precision weapons represents certain military and strategic problem for Russia. As long as Russia has considerable nuclear deterrence capability, direct military threat of massive use of high-precision weapons against it should not be exaggerated (neither should the capability of the planned US/NATO BDM to repel Russia's retaliatory nuclear strike).

Yet, the deployment of long-range high-precision non-nuclear weapons would hamper further nuclear disarmament and security cooperation of Russia and the West.

8. If the parties exercise due political will, the problems caused by high-precision weapons can be resolved or alleviated through agreements. This implies, in particular, a ban on basing strike air forces (in addition to non-deployment of nuclear weapons) in the territories of the new NATO members. Russia may assume similar obligations with respect to its CSTO and CIS allies and possible new partners on other continents.

The threat posed by several Ohio SSBNs carrying SLCMs may be considerably diminished if such submarines are based on the US Western coast only (SSBNs patrol in the Pacific and Indian Oceans would leave most of Russian ICBMs bases outside their range, while SSBNs passage to the Arctic Ocean represents operational difficulty).

During further strategic offensive arms negotiations Russia can raise the issue of limiting the retrofitting of SSBNs and HBs for non-nuclear cruise missiles, leaving general purpose submarines, surface ships and tactical strike aircraft for these purposes.

It would also be helpful to introduce confidence-building measures involving the exchange of information on high-precision weapons on ships, submarines and aircraft, on operational principles of their deployment and use in local conflicts, the exchange of visits and observers to attend military exercises. Subsequently, in the longer term, joint air force and navy exercises with the use of high precision weapons in operations of counter-proliferation, peace-enforcement, counter-terrorism and fighting against sea piracy, could be held.

9. Outer space, given its increasing significance in terms of military and peaceful use, may turn into the arena of a new arms race and potential use of force. The US holds absolute leadership in this sphere, as it possesses a wide

range of state-of-the-art space technologies and scientific and technological capacity for the development of land-based and sea-based anti-satellite systems.

10. The submission on February 12, 2008 of the joint Russian-Chinese draft Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects, at the Conference on Disarmament in Geneva, has brought certain positive results of a propaganda nature, rather than in terms of practical disarmament.

More active efforts in this field should be taken. In defining the subject of negotiations, it would be advisable – at least at first stage to narrow the scope of negotiations rather than try to ban all space-to-Earth and space-to-space systems with specifications as unclear as the possibility to verify compliance with such an agreement.

Instead of prohibiting their launch and deployment, initial arrangement could indirectly address this task by banning the tests of anti-satellite systems and space-based strike BMD involving intercept and destruction of real targets in space (i.e. satellites and the reentry vehicles and other elements of ballistic missiles in flight trajectory).

A first step towards preventing the armament of space could consist in an early adoption of the code of space activities of states, enshrining common principles of peaceful and cooperative use of space.

11. If further disarmament process is to be effective, it is essential that a progress is made in regional arms reductions and limitations. The normalization of NATO-Russia relations towards the stable pathways of cooperation and partnership will be an important prerequisite. Developing "special relations" between NATO and Russia towards a genuine strategic partnership (and even a formal NATO-Russia alliance in the long run) may be facilitated by expanding cooperation on Afghanistan and in the fight against catastrophic terrorism. A consistent discussion should be initiated on the terms and conditions of forming alliance relations as soon as possible by specially convened joint expert groups.

12. Tensions around the European missile defense are growing. The proposals put forward by President Obama’s administration to deploy US/NATO BMD in Europe have proven to postpone, rather than prevent, missile defense crisis in the US-Russian relations.

Joint missile threat assessment could contribute to defusing tension in this matter. Cooperation in developing and deploying US/NATO/Russian missile defense should come to replace unilateral actions by the US and their allies, as well as Russia (with its Air-Space program) in this sphere.

Revitalization of the project of establishing a Center for the Exchange of Data from Early Warning Systems should be the first step. Alongside with that, the interrupted series of joint US-NATO-Russian computer TMD exercises should be renewed and expanded beyond the theater scale and to actual firing ranges.

At the next stage, the US and Russian missile attack warning systems could be integrated, rendering the detection of missile launches from threat areas more efficient. In the longer run, deeper cooperation may be established in order to deploy low orbit missile detection and tracking spacecraft. They may be placed in orbits by the converted "heavy" rockets in the framework of Russian-Ukrainian Dnepr project.

Combining the detection, tracking and interception systems of NATO and Russia/CSTO Air-Space Defense in the long run could become the key sphere of politico-military cooperation far beyond the scope of traditional arms limitation.

13. Involving the third nuclear states in possible further US-Russian talks on nuclear arms reduction sooner or later will become necessary as this process advances. It would be helpful if the third nuclear states would take voluntary measures to limit their nuclear arsenals, as has already been done by the United Kingdom and France, which have unilaterally made considerable reductions of their nuclear arsenals and provided some transparency of their forces. Hopefully with some encouragement and strategic incentives China could also take voluntary measures to limit its nuclear forces and make them more transparent. The broad "menu" of such measures is contained in START-I and the new START Treaty provisions.

14. The revival of the idea of nuclear disarmament and progress in SNF reductions has brought attention to the issue of TNW (or sub-strategic nuclear weapons).

With regard to TNW, in the foreseeable future the best solution would be for the US and Russia to agree on the relocation of all tactical nuclear weapons from forward air and naval bases to central storage locations in the national territories (in point of fact, to the status of reserve stockpile). Prior to that, the parties may exchange information on the arms destroyed under unilateral initiatives of 1991-1992, then – on the present available weapons of this class at the air and naval bases. Politically this process would be facilitated by the progress on the BMD issue.

15. Presently the issue of reductions and limitations of conventional armed forces in Europe is at the periphery of Russia-NATO dialogue. The suspended Adaptation CFE Treaty ratification process by NATO states as well as Russia's moratorium on the implementation of the basic CFE Treaty presently obstruct arms control and confidence building in Europe.

Washington’s announcement of partial suspension of fulfilling its Treaty obligations to Russia became an additional negative factor. However, unless the process of limiting conventional arms in Europe continues, further effective steps towards nuclear arms control would hardly be possible.

Sovereignty of Abkhazia and South Ossetia has become an obstacle for the next steps in the CFE Treaty process. However, with regard to the Treaty it might be possible to find a technical solution: "factoring out" the issue of Russian bases in the territories of the two republics and adopting a separate document governing the status of these bases. Restoring the transparency regime throughout the entire area of application of the CFE Treaty could be the first step towards resuming the Adaptation CFE Treaty process. In the more distant future the negotiations on the new treaty should include wider circle of participants, presuppose deeper reductions of conventional forces and greater transparency.

16. The participants in the IMEMO-NTI project strongly believe (and have reconfirmed this conclusion) that a clear interdependence may be traced between nuclear arms limitations and reductions, on the one hand, and nuclear non-proliferation, on the other hand. The fast progress in nuclear (and conventional) disarmament in 1987-1999 has encouraged the enhancement of non-proliferation.

In contrast, a stalemate in nuclear disarmament in 1999-2010 has disrupted all attempts to strengthen the NPT and nuclear non-proliferation regimes.

There are enough reasons to believe that if the next stage of proliferation gains momentum, it would not merely bring about an exponential increase of the threat of use of nuclear weapons, but, as a result of synergy of many risks, will render the use of nuclear weapons (either in a deliberate state action or as an act of terrorism) virtually inevitable in the foreseeable future.

The aim of shutting down proliferation channels may be attained through raising the effectiveness of the IAEA safeguards, improving export controls, strict formalization of the procedure of withdrawal from the Non-Proliferation Treaty and increasing its political significance. Also of great importance would be bringing into force a number of multilateral treaties designed to serve as 'barriers' to violations of the NPT.

17. Specifically this refers to resolving a number of tasks: implementing the new START Treaty; bringing CTMT into force; opening negotiations on further reductions of nuclear arms of the two leading powers and taking into account related issues (BMD, long-range precision-guided conventional weapons, sub-strategic nuclear weapons, etc.); resuming negotiations on cooperation in developing Russian and US/NATO missile defenses; putting the NFC facilities of the five nuclear-weapon states (or at least four of them) under IAEA control (which could facilitate the negotiations on the FMCT and the universalization of the Additional Protocol of 1997); consultations on multilateral nuclear dialogue with a view to involve the UK, France and China in the system of nuclear arms limitation and confidence-building measures.

18. The right to withdraw from the NPT has come to be a serious problem in terms of maintaining the non-proliferation regime. This issue may be helped through the improvement of the IAEA safeguards and the universalization of the 1997 Additional Protocol.

The announcement by a state of its withdrawal from the NPT should be followed by intensive inspections by the IAEA, an Extraordinary Conference of the parties to the Treaty to examine the motivation for the withdrawal. If the motivation is recognized as contradicting Article X paragraph 1 of the NPT and/or the issue cannot be resolved without withdrawing from the Treaty – the issue should be immediately referred to the UNSC for consideration pursuant to Chapter VII Article 41 of the Charter of the United Nations.

19. The proliferation of fissile materials production technologies poses serious risks to the nuclear non-proliferation regime. The existing nuclear fuel cycle services offered by the existing IUEC should be gradually internationalized, preferably, under the auspices of IAEA. Alongside with price incentives, a comprehensive set of technological and commercial incentives for countries foregoing the nuclear fuel cycle, must be developed.

20. Strengthening the non-proliferation regime requires the improvement of all the system of non-proliferation institutions. It appears essential that the effectiveness of collective actions taken by the UNSC in order to enforce non-proliferation is improved. The success of this task will depend on the convergence of interests of the three great powers: China, Russia and the US.

21. A priority task on the way to nuclear disarmament would be to renounce the reliance on nuclear deterrence and the doctrines that underpin it. Twenty years

after the Cold War, there are serious reasons for mutual revision and profound adjustment of the nuclear deterrence concept, at least in the relations between the great powers and their alliances.

Cooperation between Russia and the US/NATO on missile defense development may become one of the major means for the transformation of mutual nuclear deterrence and prevent a new 'missile defense crises' between Russia and the West. With this regard, both parties should strive for such transformation, which still has not entered the realm of the practical policy of the US or Russia.

To progress towards a joint missile defense, the parties should change the subject of the relevant dialogue and foremost discuss the issues of compatibility of Russia's Air-Space Defense and the US/NATO PAA to Missile Defense, rather than Russia's participation in NATO missile defense program. This implies that both NATO program may be adjusted and the Russian Air-Space Defense should be changed significantly.

The latter should be geared towards addressing the threats posed by the third states, rather than the US and NATO. This calls for agreements addressing Russia's perception of the threat of the US “air-space attack” (precision-guided cruise, ballistic and boost-glide missiles).

22. In this respect, making an agreement on joint missile defense a prerequisite for the progress on a number of other key aspects of arms limitations and reductions would bring the negotiating process on all issues to a prolonged stalemate.

For this reason the parties should strive to reach agreements on several tracks in parallel: next START Treaty and limitation of conventional strategic arms; transparency and compatibility of Air-Space Defense and PAA; limitation of tactical (sub-strategic) nuclear weapons; and the revival of the CFE Treaty and regime. Special attention should address the need of increasing the warning and decision-making time on the employment of nuclear and conventional forces in case of crisis, confusing strategic situations, or provocative acts of terrorists.

23. Nuclear disarmament process implies that nuclear war will become an increasingly unlikely option not only in the political, but also in a military strategic sense. This is the rationale behind the transformation of mutual nuclear deterrence into a more constructive form of strategic relations between the powers while comparably large nuclear capabilities continue to be a part of their armed forces.

The next step of negotiations on strategic offensive arms could lead to the reduction of the number of warheads down to about 1,000, after which the parties might on a reciprocal basis opt for verifiable and coordinated lowering the alert rates of their SNF.

24. The first steps in transforming nuclear deterrence postures may be to mutually eliminate the concepts and the forces of a first (counterforce) strike – by reducing appropriate nuclear weapons. As a next step, the US and Russia should agree to eliminate the planning of launches on the basis of information of missile early warning systems – doing away with LOW and LUA planning and capabilities.

Lowering force readiness (alert rates) should consist of a series of coordinated and verifiable organizational and technical measures, rather than merely symbolic acts. The main principle which should be sustained during mutual verifiable lowering of SNF readiness is that counterforce capacity of the two parties should be reduced faster than the strategic forces’ readiness for a retaliatory strike.

25. The establishment of a multilateral transparency regime could contribute greatly to the transformation of nuclear deterrence. Today, certain activities of a nuclear-weapon state may be regarded as a potential threat by other nuclear-weapon states and cause a response, which may lead to the escalation of military tensions. To minimize the likelihood of a nuclear crisis, enhanced transparency is required as regards the postures of nuclear-weapon states.

The most significant measures of a multilateral transparency regime may include ensuring openness of nuclear doctrines, transparency of nuclear capabilities, preliminary notification of certain nuclear forces' activities, observation of these nuclear forces' activities, and mutual inspections to verify the compliance with the transparency regime.

26. Reviving the vision of nuclear disarmament as a final, although a distant, goal of the leading powers' policy lends direction to the rational and useful measures such as the new START Treaty and further nuclear arms reductions.

This opens the way to implementing the CTBT and FMCT, agreements of utmost importance at the intersection of nuclear disarmament and non-proliferation. Besides, this enables the involvement of the third nuclear-weapon states and non-NPT nuclear-weapons states (India, Pakistan and Israel) in this process. Furthermore, this gives a powerful impetus to enhancing the NPT and its regimes, the political settlement of North Korean and Iranian nuclear issues, the internationalization of nuclear fuel cycle and ensuring high international standards of nuclear materials security.

27. In order to improve the attitude towards nuclear disarmament in Russia, the US needs to convincingly demonstrate with real steps in its military and nuclear policy, rather than mere declarations, that it considers nuclear disarmament the means of strengthening international security, but not the way to enhance American superiority in state-of-the-art military technology and systems (missile defense, high precision weapons, space, general purpose forces, etc.).

It appears that it is up to the US, which has created this problem, to take initiative and propose arms limitation, confidence-building measures and measures of cooperation on high-precision weapons, in order to encourage Russia's course towards cooperative BMD, nuclear disarmament and non-proliferation. Such decisions can be agreed at the following stages of negotiations on strategic offensive arms reductions, or in parallel to it.

28. Expansion of the "field of negotiations", on arms reduction and limitation, the transition to real phased nuclear disarmament would give additional powerful impetus and create conditions for consistent course of strengthening the non-proliferation regime.

The new US and Russian presidents should realized this dialectic interdependence after the elections of 2012. Their best start in this field of foreign policies should be adopting a joint document on the need of the above "multi-track" progress in transforming mutual nuclear deterrence and the notion of strategic stability towards a constructive mode of political and military relationship.

ATTACHMENTS

ATTACHMENT 1

ARTICLES OF THE PROMINENT PUBLIC FIGURES OF USA AND RUSSIA

George P. Shultz, William J. Perry, Henry A. Kissinger, Sam Nunn. A World Free of Nuclear Weapons.[243]

Op-eds/Statements

Nuclear weapons today present tremendous dangers, but also an historic opportunity. US leadership will be required to take the world to the next stage – to a solid consensus for reversing reliance on nuclear weapons globally as a vital contribution to preventing their proliferation into potentially dangerous hands, and ultimately ending them as a threat to the world.

Nuclear weapons were essential to maintaining international security during the Cold War because they were a means of deterrence. The end of the Cold War made the doctrine of mutual Soviet-American deterrence obsolete. Deterrence continues to be a relevant consideration for many states with regard to threats from other states. But reliance on nuclear weapons for this purpose is becoming increasingly hazardous and decreasingly effective.

North Korea's recent nuclear test and Iran's refusal to stop its program to enrich uranium – potentially to weapons grade – highlight the fact that the world is now on the precipice of a new and dangerous nuclear era. Most alarmingly, the likelihood that non-state terrorists will get their hands on nuclear weaponry is increasing. In today's war waged on world order by terrorists, nuclear weapons are the ultimate means of mass devastation. And non-state terrorist groups with nuclear weapons are conceptually outside the bounds of a deterrent strategy and present difficult new security challenges.

Apart from the terrorist threat, unless urgent new actions are taken, the US soon will be compelled to enter a new nuclear era that will be more precarious, psychologically disorienting, and economically even more costly than was Cold War deterrence. It is far from certain that we can successfully replicate the old Soviet-American "mutually assured destruction" with an increasing number of potential nuclear enemies world-wide without dramatically increasing the risk that nuclear weapons will be used. New nuclear states do not have the benefit of years of step-by-step safeguards put in effect during the Cold War to prevent nuclear accidents, misjudgments or unauthorized launches. The United States and the Soviet Union learned from mistakes that were less than fatal. Both countries were diligent to ensure that no nuclear weapon was used during the Cold War by design or by accident. Will new nuclear nations and the world be as fortunate in the next 50 years as we were during the Cold War?

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[243] Shultz G.P., Perry W.J., Kissinger H.A., Nunn S. A World Free of Nuclear Weapons / Nuclear Security Project. January 4, 2007 (http://www.nuclearsecurityproject.org/publications/a-world-free-of-nuclear-weapons).

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Leaders addressed this issue in earlier times. In his "Atoms for Peace" address to the United Nations in 1953, Dwight D. Eisenhower pledged America's "determination to help solve the fearful atomic dilemma – to devote its entire heart and mind to find the way by which the miraculous inventiveness of man shall not be dedicated to his death, but consecrated to his life". John F. Kennedy, seeking to peak the logjam on nuclear disarmament, said, "The world was not meant to be a prison in which man awaits his execution".

Rajiv Gandhi, addressing the U.N. General Assembly on June 9, 1988, appealed, "Nuclear war will not mean the death of a hundred million people. Or even a thousand million. It will mean the extinction of four thousand million: the end of life as we know it on our planet earth. We come to the United Nations to seek your support. We seek your support to put a stop to this madness".

Ronald Reagan called for the abolishment of "all nuclear weapons", which he considered to be "totally irrational, totally inhumane, good for nothing but killing, possibly destructive of life on earth and civilization". Mikhail Gorbachev shared this vision, which had also been expressed by previous American presidents.

Although Reagan and Mr. Gorbachev failed at Reykjavik to achieve the goal of an agreement to get rid of all nuclear weapons, they did succeed in turning the arms race on its head. They initiated steps leading to significant reductions in deployed long-and intermediate-range nuclear forces, including the elimination of an entire class of threatening missiles.

What will it take to rekindle the vision shared by Reagan and Mr. Gorbachev? Can a world-wide consensus be forged that defines a series of practical steps leading to major reductions in the nuclear danger? There is an urgent need to address the challenge posed by these two questions.

The Non-Proliferation Treaty (NPT) envisioned the end of all nuclear weapons. It provides (a) that states that did not possess nuclear weapons as of 1967 agree not to obtain them, and (b) that states that do possess them agree to divest themselves of these weapons over time. Every president of both parties since Richard Nixon has reaffirmed these treaty obligations, but non-nuclear weapon states have grown increasingly skeptical of the sincerity of the nuclear powers.

Strong non-proliferation efforts are under way. The Cooperative Threat Reduction program, the Global Threat Reduction Initiative, the Proliferation Security Initiative and the Additional Protocols are innovative approaches that provide powerful new tools for detecting activities that violate the NPT and endanger world security. They deserve full implementation. The negotiations on proliferation of nuclear weapons by North Korea and Iran, involving all the permanent members of the Security Council plus Germany and Japan, are crucially important. They must be energetically pursued.

But by themselves, none of these steps are adequate to the danger. Reagan and General Secretary Gorbachev aspired to accomplish more at their meeting in Reykjavik 20 years ago – the elimination of nuclear weapons altogether. Their vision shocked experts in the doctrine of nuclear deterrence, but galvanized the hopes of people around the world. The leaders of the two countries with the largest arsenals of nuclear weapons discussed the abolition of their most powerful weapons.

What should be done? Can the promise of the NPT and the possibilities envisioned at Reykjavik be brought to fruition? We believe that a major effort should be launched by the United States to produce a positive answer through concrete stages.

* * *

First and foremost is intensive work with leaders of the countries in possession of nuclear weapons to turn the goal of a world without nuclear weapons into a joint enterprise. Such a joint enterprise, by involving changes in the disposition of the states possessing nuclear weapons, would lend additional weight to efforts already under way to avoid the emergence of a nuclear-armed North Korea and Iran.

The program on which agreements should be sought would constitute a series of agreed and urgent steps that would lay the groundwork for a world free of the nuclear threat. Steps would include:

- Changing the Cold War posture of deployed nuclear weapons to increase warning time and thereby reduce the danger of an accidental or unauthorized use of a nuclear weapon.
- Continuing to reduce substantially the size of nuclear forces in all states that possess them.
- Eliminating short-range nuclear weapons designed to be forward-deployed.
- Initiating a bipartisan process with the Senate, including understandings to increase confidence and provide for periodic review, to achieve ratification of the Comprehensive Test Ban Treaty, taking advantage of recent technical advances, and working to secure ratification by other key states.
- Providing the highest possible standards of security for all stocks of weapons, weapons-usable plutonium, and highly enriched uranium everywhere in the world.
- Getting control of the uranium enrichment process, combined with the guarantee that uranium for nuclear power reactors could be obtained at a reasonable price, first from the Nuclear Suppliers Group and then from the International Atomic Energy Agency (IAEA) or other controlled international reserves. It will also be necessary to deal with proliferation issues presented by spent fuel from reactors producing electricity.
- Halting the production of fissile material for weapons globally; phasing out the use of highly enriched uranium in civil commerce and removing weapons-usable uranium from research facilities around the world and rendering the materials safe.
- Redoubling our efforts to resolve regional confrontations and conflicts that give rise to new nuclear powers.

Achieving the goal of a world free of nuclear weapons will also require effective measures to impede or counter any nuclear-related conduct that is potentially threatening to the security of any state or peoples.

Reassertion of the vision of a world free of nuclear weapons and practical measures toward achieving that goal would be, and would be perceived as, a bold initiative consistent with America's moral heritage. The effort could have a profoundly positive impact on the security of future generations. Without the bold vision, the actions will not be perceived as fair or urgent. Without the actions, the vision will not be perceived as realistic or possible.

We endorse setting the goal of a world free of nuclear weapons and working energetically on the actions required to achieve that goal, beginning with the measures outlined above.

Mr. Shultz, a distinguished fellow at the Hoover Institution at Stanford, was secretary of state from 1982 to 1989. Mr. Perry was secretary of defense from 1994 to 1997. Mr. Kissinger, chairman of Kissinger Associates, was secretary of state from 1973 to 1977. Mr. Nunn is former chairman of the Senate Armed Services Committee.

George P. Shultz, William J. Perry, Henry A. Kissinger, Sam Nunn. Toward a Nuclear-Free World.[244]

Op-eds/Statements

The accelerating spread of nuclear weapons, nuclear know-how and nuclear material has brought us to a nuclear tipping point. We face a very real possibility that the deadliest weapons ever invented could fall into dangerous hands.

The steps we are taking now to address these threats are not adequate to the danger. With nuclear weapons more widely available, deterrence is decreasingly effective and increasingly hazardous.

One year ago, in an essay in this paper, we called for a global effort to reduce reliance on nuclear weapons, to prevent their spread into potentially dangerous hands, and ultimately to end them as a threat to the world. The interest, momentum and growing political space that has been created to address these issues over the past year has been extraordinary, with strong positive responses from people all over the world.

Mikhail Gorbachev wrote in January 2007 that, as someone who signed the first treaties on real reductions in nuclear weapons, he thought it his duty to support our call for urgent action: "It is becoming clearer that nuclear weapons are no longer a means of achieving security; in fact, with every passing year they make our security more precarious".

In June, the United Kingdom's foreign secretary, Margaret Beckett, signaled her government's support, stating: "What we need is both a vision – a scenario for a world free of nuclear weapons – and action – progressive steps to reduce warhead numbers and to limit the role of nuclear weapons in security policy. These two strands are separate but they are mutually reinforcing. Both are necessary, but at the moment too weak".

We have also been encouraged by additional indications of general support for this project from other former US officials with extensive experience as secretaries of state and defense and national security advisors. These include: Madeleine Albright, Richard V. Allen, James A. Baker III, Samuel R. Berger, Zbigniew Brzezinski, Frank Carlucci, Warren Christopher, William Cohen, Lawrence Eagleburger, Melvin Laird, Anthony Lake, Robert McFarlane, Robert McNamara and Colin Powell.

Inspired by this reaction, in October 2007, we convened veterans of the past six administrations, along with a number of other experts on nuclear issues, for a conference at Stanford University's Hoover Institution. There was general agreement about the importance of the vision of a world free of nuclear weapons as a guide to our thinking about nuclear policies, and about the importance of a series of steps that will pull us back from the nuclear precipice.

The US and Russia, which possess close to 95% of the world's nuclear warheads, have a special responsibility, obligation and experience to demonstrate leadership, but other nations must join.

Some steps are already in progress, such as the ongoing reductions in the number of nuclear warheads deployed on long-range, or strategic, bombers and missiles. Other near-term steps that the US and Russia could take, beginning in 2008, can in and of themselves dramatically reduce nuclear dangers. They include:

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[244] Shultz G.P., Perry W.J., Kissinger H.A., Nunn S. Toward a Nuclear-Free World // Nuclear Security Project. January 15, 2008.

(http://www.nuclearsecurityproject.org/publications/toward-a-nuclear-free-world).

Extend key provisions of the Strategic Arms Reduction Treaty of 1991. Much has been learned about the vital task of verification from the application of these provisions. The treaty is scheduled to expire on Dec. 5, 2009. The key provisions of this treaty, including their essential monitoring and verification requirements, should be extended, and the further reductions agreed upon in the 2002 Moscow Treaty on Strategic Offensive Reductions should be completed as soon as possible.

Take steps to increase the warning and decision times for the launch of all nuclear-armed ballistic missiles, thereby reducing risks of accidental or unauthorized attacks. Reliance on launch procedures that deny command authorities sufficient time to make careful and prudent decisions is unnecessary and dangerous in today's environment. Furthermore, developments in cyber-warfare pose new threats that could have disastrous consequences if the command-and-control systems of any nuclear-weapons state were compromised by mischievous or hostile hackers. Further steps could be implemented in time, as trust grows in the US-Russian relationship, by introducing mutually agreed and verified physical barriers in the command-and-control sequence.

Discard any existing operational plans for massive attacks that still remain from the Cold War days. Interpreting deterrence as requiring mutual assured destruction (MAD) is an obsolete policy in today's world, with the US and Russia formally having declared that they are allied against terrorism and no longer perceive each other as enemies.

Undertake negotiations toward developing cooperative multilateral ballistic-missile defense and early warning systems, as proposed by Presidents Bush and Putin at their 2002 Moscow summit meeting. This should include agreement on plans for countering missile threats to Europe, Russia and the US from the Middle East, along with completion of work to establish the Joint Data Exchange Center in Moscow. Reducing tensions over missile defense will enhance the possibility of progress on the broader range of nuclear issues so essential to our security. Failure to do so will make broader nuclear cooperation much more difficult.

Dramatically accelerate work to provide the highest possible standards of security for nuclear weapons, as well as for nuclear materials everywhere in the world, to prevent terrorists from acquiring a nuclear bomb. There are nuclear weapons materials in more than 40 countries around the world, and there are recent reports of alleged attempts to smuggle nuclear material in Eastern Europe and the Caucasus. The US, Russia and other nations that have worked with the Nunn-Lugar programs, in cooperation with the International Atomic Energy Agency (IAEA), should play a key role in helping to implement United Nations Security Council Resolution 1540 relating to improving nuclear security – by offering teams to assist jointly any nation in meeting its obligations under this resolution to provide for appropriate, effective security of these materials.

As Gov. Arnold Schwarzenegger put it in his address at our October conference, “Mistakes are made in every other human endeavor. Why should nuclear weapons be exempt”? To underline the governor's point, on Aug. 29-30, 2007, six cruise missiles armed with nuclear warheads were loaded on a US Air Force plane, flown across the country and unloaded. For 36 hours, no one knew where the warheads were, or even that they were missing.

Start a dialogue, including within NATO and with Russia, on consolidating the nuclear weapons designed for forward deployment to enhance their security, and as a first step toward careful accounting for them and their eventual elimination. These smaller and more portable nuclear weapons are, given their characteristics, inviting acquisition targets for terrorist groups.

Strengthen the means of monitoring compliance with the nuclear Non-Proliferation Treaty (NPT) as a counter to the global spread of advanced technologies. More progress in this direction is urgent, and could be achieved through requiring the application of monitoring provisions (Additional Protocols) designed by the IAEA to all signatories of the NPT.

Adopt a process for bringing the Comprehensive Test Ban Treaty (CTBT) into effect, which would strengthen the NPT and aid international monitoring of nuclear activities. This calls for a bipartisan review, first, to examine improvements over the past decade of the international monitoring system to identify and locate explosive underground nuclear tests in violation of the CTBT; and, second, to assess the technical progress made over the past decade in maintaining high confidence in the reliability, safety and effectiveness of the nation's nuclear arsenal under a test ban. The Comprehensive Test Ban Treaty Organization is putting in place new monitoring stations to detect nuclear tests – an effort the U.S should urgently support even prior to ratification.

In parallel with these steps by the US and Russia, the dialogue must broaden on an international scale, including non-nuclear as well as nuclear nations.

Key subjects include turning the goal of a world without nuclear weapons into a practical enterprise among nations, by applying the necessary political will to build an international consensus on priorities. The government of Norway will sponsor a conference in February that will contribute to this process.

Another subject: Developing an international system to manage the risks of the nuclear fuel cycle. With the growing global interest in developing nuclear energy and the potential proliferation of nuclear enrichment capabilities, an international program should be created by advanced nuclear countries and a strengthened IAEA. The purpose should be to provide for reliable supplies of nuclear fuel, reserves of enriched uranium, infrastructure assistance, financing, and spent fuel management – to ensure that the means to make nuclear weapons materials isn't spread around the globe.

There should also be an agreement to undertake further substantial reductions in US and Russian nuclear forces beyond those recorded in the US-Russia Strategic Offensive Reductions Treaty. As the reductions proceed, other nuclear nations would become involved.

President Reagan's maxim of “trust but verify” should be reaffirmed. Completing a verifiable treaty to prevent nations from producing nuclear materials for weapons would contribute to a more rigorous system of accounting and security for nuclear materials.

We should also build an international consensus on ways to deter or, when required, to respond to, secret attempts by countries to peak out of agreements.

Progress must be facilitated by a clear statement of our ultimate goal. Indeed, this is the only way to build the kind of international trust and broad cooperation that will be required to effectively address today's threats. Without the vision of moving toward zero, we will not find the essential cooperation required to stop our downward spiral.

In some respects, the goal of a world free of nuclear weapons is like the top of a very tall mountain. From the vantage point of our troubled world today, we can't even see the top of the mountain, and it is tempting and easy to say we can't get there from here. But the risks from continuing to go down the mountain or standing pat are too real to ignore. We must chart a course to higher ground where the mountaintop becomes more visible.

Mr. Shultz was secretary of state from 1982 to 1989. Mr. Perry was secretary of defense from 1994 to 1997. Mr. Kissinger was secretary of state from 1973 to 1977. Mr. Nunn is former chairman of the Senate Armed Services Committee.

Yevgeny Primakov, Igor Ivanov, Yevgeny Velikhov, Mikhail Moiseev. From Nuclear Deterrence to Universal Security.[245]

The year 2010 has seen important events in the sphere of nuclear disarmament and non-proliferation, bringing a positive impact on global security.

The presidents of Russia and the United States have signed a new Strategic Arms Reduction Treaty in Prague. If ratified by national parliaments, it will make strategic relations between the two nuclear powers more stable, transparent and predictable.

A summit on nuclear security in Washington has also passed resolutions to enhance the safety of nuclear materials worldwide.

The 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) concluded with the signing of the final document on strengthening the treaty, its institutions and regimes.

All of these are certainly very useful steps. So far, however, they have not touched upon the strategic nuclear ideology of mutual deterrence. It is the paradox of nuclear deterrence that it largely addresses the threats of the last century, while in the new global and multi-polar world, any major armed conflicts between great powers and their allies are highly unlikely.

At the same time, nuclear deterrence is not effective against the new threats of the 21st century, including proliferation of weapons of mass destruction and delivery systems, global terrorism, ethnic and religious conflicts, and cross-border crime. Moreover, nuclear deterrence in some cases can provoke proliferation of weapons of mass destruction and rocket technology, hindering co-operation among great powers in their fight against such threats (joint development of anti-ballistic missile systems).

To prevent the negative impact of nuclear deterrence on co-operation among global players, it is necessary to decrease arms levels through agreements based on the principle of minimum sufficiency. Also to promote strategic stability to ensure equal and indivisible security for all and exclude the possibility of nuclear first strike or rocket launch due to technical error or erroneous interpretation of the other party's intentions, or a lack of time for decision-making by political leadership. The new Strategic Arms Reduction Treaty meets all these requirements, but much remains to be done.

The next stage of nuclear disarmament cannot be exclusively bilateral. It will require restrictions and confidence-building measures towards other nuclear countries. Unlike the United States, Russia's geostrategic position makes it accessible to all nuclear countries, which has to be taken into account in the process of further deep disarmament.

The concept of nuclear deterrence has become an insurmountable obstacle on the long and difficult road to global nuclear disarmament. It is no secret that there are not just supporters but also opponents of nuclear disarmament in the United States, Russia and other countries. Some are still guided by Cold War stereotypes, but many voice specific and justified concerns related to the process of disarmament. Their arguments cannot be simply shrugged off, but must be considered seriously in order to remove existing obstacles in the way of further deep nuclear reductions.

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[245] Примаков Е. М., Иванов И. С., Велихов Е. П., Моисеев М. А. От ядерного сдерживания к общей безопасности // Известия. 15 октября 2010 (Primakov Y., Ivanov I., Velikhov Y., Moiseev M. From Nuclear Deterrence to Universal Security // Izvestia, October 15, 2010. (The Russian text of the article is available at http://www.izvestia.ru/politic/article3147325).

For example, there is a widespread belief in Russia that the country's nuclear potential is the main element of Russia's great power status, without which its political interests would not be respected by the United States and other countries.

We are convinced that Russia's foreign image will be largely ensured by its economic modernisation, rising living standards, social and political rights and freedoms, and development of science and culture. However, as long as the threat of "power projection" and its direct application are used in international relations, Russia will have to retain sufficient military, including nuclear, potential to protect itself, its allies and its lawful interests.

Thus, nuclear disarmament requires greater confidence among nations, along with greater international security and stability.

The Barack Obama administration has revised its global security agenda, shifting to a new multilateral approach focusing on strengthening global security regulations and institutions, the use of diplomacy in dispute settlement, and equal partnership with Russia.

It is important that these principles are reflected in the foreign policy of the United States and its allies. This applies to anti-ballistic missile defense, conventional weapons and strategic non-nuclear weapons, as well as space militarisation plans. New far-reaching measures to boost confidence will soon be needed in these and other areas of arms reduction.

Considering the long-term perspective, we came to the conclusion that the world without nuclear weapons is not our existing world minus nuclear weapons. We need an international system based on other principles and institutions. A nuclear-free world shall not become a world free of wars using other weapons of mass destruction, conventional arms, advanced non-nuclear weapons and systems based on undiscovered principles of physics.

It is not just about major wars, but about local conflicts as well. Today, small countries view nuclear weapons as a means to offset the huge advantage of great powers in terms of conventional weapons. It is this idea that provokes nuclear proliferation at the regional level, triggering the threat of nuclear terrorism. To eliminate such threats, it is necessary to build reliable mechanisms for peaceful settlement of both major and local international and border conflicts.

Therefore, nuclear disarmament, which shall remain a strategic goal, necessitates a thorough overhaul of the entire international system.

This will also help solve other key problems of the 21st century relating to the global economy and finance, energy supplies, environment, climate, demography, epidemics, cross-border crime, and religious and ethnic extremism. In this context, nuclear disarmament is not a goal in itself but rather an important area, precondition and method for reorganising international life on more civilised principles and according to the demands of the new century.

Yevgeny Primakov is Russia's former prime minister and minister of foreign affairs.
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ATTACHMENT 2

Table. Variants of military doctrine. Role of nuclear weapons

	Versions of military doctrines Role of nuclear weapons									
State	**Prestige and image**	**Preventing and countering an attack against the state using:**				**Preventing and countering an attack against allied nations with the use of:**				**Bargaining chips**
		nuclear weapons	**other WMD**	**general purpose forces**	**high-precision weapons**	**nuclear weapons**	**other WMD**	**general purpose forces**	**high-precision weapons**	
Russia	+	+	+	+	+	+	+	-	-	+
USA	+	+	-	-	-	+	- (with reservation)	-	-	-
UK	+	+	- (?)	-	-	+ (?)	- (?)	- (?)	-	-
France	+	+	+	-	-	+	+	+ (?)	-	-
China	+	+	-	-	+ (?)	-	-	-	-	-
India	+	+	+	-	-	-	-	-	-	-
Pakistan	+	+	-	+	-	-	-	-	-	-
Israel	- (?)	-	+	+	-	-	-	-	-	+ (?)
DPRK	+	+	-	+	+	-	-	-	-	+

ABBREVIATIONS

ABM Treaty	—	Anti-Ballistic Missile Treaty
ACV	—	armored combat vehicle
ALCM	—	air-launched cruise missile
ANGELS	—	Autonomous Nanosatellite Guardian Evaluation Local Space
ASAT	—	anti-satellite weapons
ASW	—	anti-submarine warfare
BMD	—	ballistic missile defense
BMEWS	—	Ballistic Missile Early Warning System
BTWC	—	Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and Their Destruction, 1972
CD	—	Conference on Disarmament in Geneva
CFE	—	Treaty on Conventional Armed Forces in Europe
CIS	—	Commonwealth of Independent States
CSTO	—	Collective Security Treaty Organization
CTBT	—	Comprehensive Nuclear-Test-Ban Treaty
PrepCom	—	Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization
CWC	—	Convention on the Prohibition of the Development, Production, stockpiling and Use of Chemical Weapons and on their Destruction, 1993
DEW	—	directed-energy weapons
DPRK	—	Democratic People's Republic of Korea
EASI	—	Euro-Atlantic Security Initiative
EMERCOM	—	Emergency Control Ministry of Russia
EPAA	—	Phased Adaptive Approach to missile defense in Europe
ESDP	—	European Security and Defense Policy
EST	—	European Security Treaty
EU	—	European Union
EurAsEC	—	Eurasian Economic Community
FMCT	—	Fissile Material Cut-Off Treaty
FOBS	—	Fractional Orbital Bombardment System

GBI	—	ground-based interceptor
GCI	—	Global Communications Infrastructure
GCS	—	Global Control System
GDP	—	gross domestic product
GICNT	—	Global Initiative to Combat Nuclear Terrorism
GLBM	—	ground-launched ballistic missile
GLCM	—	ground-launched cruise missile
GNEP	—	Global Nuclear Energy Project
GUMO	—	Main Directorate of the Ministry of Defense
HB	—	heavy bomber
HEU	—	Highly enriched uranium
IAEA	—	International Atomic Energy Agency
ICBM	—	intercontinental ballistic missile
ICOC	—	International Code of Conduct against Ballistic Missile Proliferation
IDC	—	International Data Center
IMEMO RAN	—	Institute of World Economy and International Relations Russian Academy of Sciences
IMS	—	International Monitoring System
INF Treaty	—	Treaty between the USA and the USSR on the Elimination of their Intermediate-Range and Shorter-Range Missiles (Intermediate-Range Nuclear Forces Treaty), 1987
INPRO	—	International Project on Innovative Nuclear Reactors and Fuel Cycles
IRBM	—	intermediate-range ballistic missile
IS	—	Istrebitel Sputnikov (satellite destroyer)
ISAF	—	International Security Assistance Force
IUEC	—	International Uranium Enrichment Center
JDEC	—	Joint Data Exchange Center
KANUPP	—	Karachi Nuclear Power Plant
KE ASAT	—	Kinetic Energy Anti-Satellite program
KEDO	—	Korean Peninsula Energy Development Organization
LEP	—	Life Extension Program
LEU	—	Low-enriched uranium

LOW	—	launch on warning
LUA	—	launch under attack
MD	—	military doctrine
MIRV	—	multiple independently targeted reentry vehicle
MoD	—	Ministry of Defense
MoU	—	memorandum of understanding
MRBM	—	medium-range ballistic missile
MSC	—	Military Staff Committee (of the UN)
MTCR	—	Missile Technology Control Regime
NATO	—	North Atlantic Treaty Organization
NDC	—	National Data Center
New START Treaty	—	Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms (Prague, April 8, 2010)
NFC	—	nuclear fuel cycle
NPR	—	Nuclear Posture Review
NPT	—	Treaty on the Non-Proliferation of Nuclear Weapons
NRC	—	NATO-Russia Council
NSG	—	Nuclear Suppliers Group
NSNW	—	Non-Strategic Nuclear Weapons
NSP	—	Nuclear Security Project of the Nuclear Threat Initiative
NTI	—	“Nuclear Threat Initiative, Inc.”
NTMs	—	national technical means of verification
OAE	—	Operation Active Endeavour
OSCE	—	Organization for Security and Co-operation in Europe
OSI	—	on-site inspections
PAA	—	Phased Adaptive Approach (to European missile defense)
PGS	—	Prompt Global Strike
PIDC	—	prototype IDC
PPWT	—	Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects
PR	—	public relations
PRC	—	People's Republic of China
PSI	—	Proliferation Security Initiative

PTS	—	Provisional Technical Secretariat
R&D	—	Research and Development
RRW	—	Reliable Replacement Warhead
SAINT	—	Satellite Inspection Technique
SALT-I	—	Interim Agreement between the United States of America and the Union of Soviet Socialist Republics on Certain Measures with Respect to the Limitation of Strategic Offensive Arms, 1972
SALT-II	—	Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Strategic Offensive Arms, 1979
SAM	—	Surface-to-Air Missile
SBGV	—	Space-Based Gliding Vehicle
SCO	—	Shanghai Cooperation Organization
SDI	—	Strategic Defense Initiative
SLBM	—	submarine-launched ballistic missile
SLCM	—	sea-launched cruise missile
SLV	—	space launch vehicle
SMV	—	space maneuvering vehicle
SNF	—	strategic nuclear forces
SORT Treaty	—	Treaty Between the United States of America and the Russian Federation on Strategic Offensive Reductions (Moscow, May 24, 2002),
SOSUS	—	sound surveillance system
SSBN	—	nuclear-powered ballistic missile submarine
SSF	—	Space Security Framework
START-I	—	Treaty between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms, 1991
START-II	—	Treaty between the United States of America and the Russian Federation on Further Reduction and Limitation of Strategic Offensive Arms, 1993
START-III	—	Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms (Prague, April 8, 2010)
STSS	—	Space Tracking and Surveillance System
SV	—	space vehicle

SWU	—	Separation work unit
TC	—	territorial ceiling
THAAD	—	Theater High-Altitude Area Defense
TLAM-N	—	nuclear-armed sea-launched cruise missile
TLE	—	Treaty-limited equipment
TMD	—	theatre missile defense
TNT	—	trinitrotoluene
TNW	—	tactical nuclear weapons
TRR	—	Tehran Research Reactor
UAV	—	unmanned air vehicle
UN	—	United Nations
UNF	—	used nuclear fuel
UN SC	—	United Nations Security Council
VNIIA	—	All-Russia Research Institute of Automatics
VNIIEF	—	All-Russian Research Institute of Experimental Physics
VNIITF	—	All-Russian Institute of Technical Physics
WGNM	—	weapons-grade nuclear material
WMD	—	weapons of mass destruction

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