**INSTITUTE OF WORLD ECONOMY AND INTERNATIONAL RELATIONS**
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**NUCLEAR THREAT INITIATIVE**

# PROSPECTS FOR THE TRANSFORMATION OF NUCLEAR DETERRENCE

**Foreword**
**by Academician Alexander A. Dynkin at the Conference**
**"Prospects for the Transformation of Nuclear Deterrence"**

**Edited by**
**Alexei Arbatov, Vladimir Dvorkin and Sergey Oznobishchev**

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Prospects for the Transformation of Nuclear Deterrence

This is the fifth publication of the series titled "Russia and the Deep Nuclear Disarmament", which is to be issued in the framework of joint project implemented by the Institute of World Economy and International Relations (IMEMO) and the Nuclear Threat Initiative, Inc. (NTI). It is based on the discussions at the conference held on April 18, 2011.

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## FOREWORD

**by Academician Alexander A. Dynkin, Director of the Institute of World Economy and International Relations (IMEMO) of the Russian Academy of Sciences**

Esteemed participants in the Conference,

First of all I would like to thank you for accepting our invitation. Special thanks go to our foreign counterparts for coming to Moscow to partake in this event.

Our today's session will be devoted to a fundamental issue – the transformation of nuclear deterrence. It comes within the general topic "Russia and Deep Nuclear Disarmament". This program is implemented as part of the second yearly cycle of the joint project by IMEMO RAN and the US Nuclear Threat Initiative co-chaired by Ted Turner and Sam Nunn. In this conference room, there seems little point in giving a profile of these two persons universally renowned for their contribution to international security.

This is the second of this year's four meetings. In early February IMEMO RAN hosted a strictly confidential US-Russia meeting on strategic stability. The list of participants in the meeting included experts from the two countries' academic communities as well as from military and foreign policy government agencies.

Later in 2011, we are to hold two more meetings featuring, among others, Sam Nunn, Yevgeny Primakov and Igor Ivanov. We look forward to your active contribution to these meetings.

The disaster involving the civilian reactors in Japan is but a trifling event compared to the inevitable consequences of a hypothetical nuclear war. However, the said disaster is an ominous reminder of what may happen if nuclear energy goes out of control.

Can we expect that in the context of mutual deterrence such control will be maintained just as it has been (as controversial as it was) the preceding half of the century? The more so, in a globalized, polycentric world where nuclear material and technologies are proliferated and international terrorism is raging?

A world free from nuclear weapons and consequently from nuclear deterrence could at best be attained only in the distant future. Meanwhile, joint effort by the nuclear powers to address common security threats

(including the development of cooperative missile defense) is a pressing issue that needs to be tackled in the current decade. How do we transform the relations between Russia and the United States (NATO) that have so far rested on mutual deterrence, to open a gate for such cooperation?

I feel hopeful that our discussion today will outline the ways to deeply restructure the strategic relations between the two states in order to give them a more constructive turn. In this regard, we must also be realistic, mindful of the present actual environment, the existing difficulties and the requisites to practical implementation of this project.

I wish the participants in the Conference a successful and challenging discussion.

## SUMMARY

To achieve transformation of nuclear deterrence, let alone to renounce it, a wide range of measures needs to be implemented. The Cold War's most dangerous, substantial and tangible legacy is that mutual deterrence relations still dominate the concept documents, deployment of forces and operational plans of Russia and the US (NATO). This legacy is extremely hard to do away with. Neither the fact itself that the Cold War has ended, nor the powers' efforts to move to partnership relations were enough to put an end to mutual nuclear deterrence and its material resources, despite the fact that the number of nuclear weapons has been reduced by an order of magnitude over the past two decades, which has been achieved through treaties and unilateral decisions of the states concerned. Moreover, while mutual deterrence persists, every next step towards disarmament is increasingly difficult and marginal. Indeed, the actual state of the nuclear powers' military relations repeatedly causes outbreaks of mistrust and enmity in the spirit of the Cold War, obstructing deeper partnership between the countries for addressing new threats and challenges of the 21st century.

Putting the idea of a joint US-NATO-Russia missile defense into life might become the line of cooperation that in the foreseeable future could upgrade the relations between the West and Russia to the level of close strategic cooperation. The development of joint missile defense would in fact mean a transition to allied relations which in its turn would contribute to transforming mutual nuclear deterrence into a more constructive model of relations resting on mutual defense and security even if relatively substantial nuclear capabilities are maintained. In this booklet, priority is given to issues related to the development of joint missile defense.

Reducing the readiness levels of strategic nuclear forces could be another option to ensure deep transformation of mutual nuclear deterrence. We believe that the START process may be continued with another treaty signed by the US and Russia in a traditional format (reduction down to a level of about 1,000 warheads). However, the parties could further choose to reduce their readiness levels instead of achieving reduction through follow-on physical elimination of nuclear assets. This publication analyses various nuclear deterrence concepts, in particular, the

launch-under-attack concept. The latter needs to be reconsidered, given the change in the nature of Western-Russian political relations and the departure from the Cold War paradigm. The booklet examines the options to reduce the readiness levels of strategic forces and makes specific proposals regarding the technical measures to reduce the readiness.

The said measures – assuming that large enough non-operationally deployed forces are retained – alongside with the integration of missile early warning systems and the development of a cooperative limited missile defense to protect against third nuclear-weapon states would signify a profound transformation of nuclear arsenals and the policy of mutual US-Russia nuclear deterrence towards cooperation and mutual defense.

The establishment of a multilateral transparency regime could also give a good impetus to the transformation of nuclear deterrence. Without such a regime, certain activities of a nuclear-weapon state may be regarded as a potential threat by other nuclear-weapon states and cause a response which would lead to the escalation of military tensions. This publication offers a set of measures regarded as the most relevant in terms of establishing a multilateral transparency regime.

Having analyzed the provisions of the new START Treaty, the authors of this booklet find that the Treaty was a necessary step forward to resume the treaty-based reductions and regulation of the two states' strategic nuclear forces (SNF). At the same time, the Treaty was a follow-up of the traditional policy aimed at reinforcing mutual nuclear deterrence while lowering force levels. Despite the favorable climate in the recent US-Russia relations, this Cold War legacy has prevailed in practical activity on arms reduction and limitation.

The climate of mistrust that has persisted in the relations between the West and Russia, the powerful domestic resistance to cooperation and partnership in each of the parties concerned contributes to this state of affairs. The inconsistencies in the foreign policy priorities and military doctrines declared by Russia and the United States, as well as in the two countries' arms programs also play an important role in this respect.

The spreading ideas of a denuclearized world sets one thinking of the long-term possibilities of ensuring peace and stability with minimum nuclear arsenals and, subsequently, in a world free of nuclear weapons. This publication reviews the issues and dilemmas of maintaining sustainable security while the world moves towards this goal, and also when the goal is hypothetically achieved.

## INTRODUCTION

This is the fifth publication under the joint IMEMO-NTI project "Russia and Deep Nuclear Disarmament". It reviews major options for the transformation of nuclear deterrence.

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 their deployed nuclear forces and arms programs.

It is however evident that at the present stage nuclear deterrence has become increasingly anachronistic as the Western states and Russia declare partnership, and 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 final 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 to come. Meanwhile, in the near future, an entire set of measures may be outlined 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.

Cooperation between the US/NATO and Russia in the development of joint missile defense may constitute a breakthrough in the transformation of nuclear deterrence. The development of joint missile defense would in fact mean a transition to a kind of allied relations in a number of key aspects of national security providing a basis for the transformation and, subsequently, total rejection of mutual nuclear deterrence. The UN operation in Afghanistan currently relies on this specific model of mutually beneficial and selective cooperation.

The participants in the IMEMO-NTI project and the authors of this publication have formed a fairly clear opinion on the architecture of the potential joint European missile defense and the priority steps required. At the first stages, such cooperation may be effected through the integration of missile warning systems of the US and Russia. Reviving the Center for the Exchange of Data from Early Warning Systems and Notifications of Missile Launchers and resuming the series of joint US-Russian and

NATO-Russian computer TMD exercises can be the first steps in this direction.

Lowering the operational readiness of nuclear forces may be another important measure to reduce the reliance on mutual deterrence. The essence of transforming mutual nuclear deterrence into a more constructive model of strategic relations between the nuclear states implies that reduction and limitation of nuclear weapons will make their use increasingly unlikely, both in the political and the military sense. Unconditional pledge of no-first-use of nuclear weapons by the US and Russia followed by the renunciation of the launch-under-attack concept should be first and second steps in this respect.

Keeping a large part of the missile forces in the state of a one-minute readiness for a strike against each other's territory poses a latent threat of a nuclear exchange following a malfunction of the missile early warning system, or due to a political blunder of one of the nuclear powers' leaderships, or a response to a provocative launch by a third state or a nuclear terrorist act by extremists. In addition, adherence of the parties to the concept of launch-under-attack and maintaining the relevant forces is a great obstacle for the two nuclear states' cooperation to address the common new security threats, in particular, the proliferation of weapons of mass destruction (WMD) and their delivery means, international terrorism and the terrorists' efforts to get access to nuclear weapons. Nuclear deterrence with forces maintaining 'hair-trigger readiness' is incompatible with the joint missile warning system, let alone joint missile defense. In this respect, reducing the launch readiness should not be a token step. Instead, it should come as agreed and verifiable organizational and technical measures aimed at a balanced, phased 'deactivation' of SNF, rendering an ever increasing part of them non-operationally deployed, basing on the precedent set by the new START Treaty.

Finally, such levels could be achieved that would actually eliminate the counterforce threat for the two parties and therefore render senseless the planning of a launch-under-attack. The two states' forces that would remain combat-ready would only ensure the capability of a deep retaliatory strike with limited though sufficient means, in maximum conformity with the principles of strategic stability.

Establishing a multilateral transparency regime is yet another area of focus in terms of transforming nuclear deterrence. Many activities of a country's nuclear forces are perceived as a potential threat by its non-allies provoking their response which may lead to the escalation of tensions across the world. This was exactly the case during the Cuban

missile crisis of 1962, when the covert deployment of medium-range missiles in Cuba by the Soviet Union (based on a sound strategic rationale) made the world teeter on a brink of a nuclear catastrophe.

The primary objective of a multilateral transparency regime in terms of transforming nuclear deterrence is to minimize the effect of uncertainty existing in this sphere through confidence-building measures for the participants in the regime.

The most significant measures of a multilateral transparency regime may include ensuring openness of nuclear doctrines and transparency of nuclear capabilities, preliminary notification of the regime participants of certain nuclear forces' activities, observation of some nuclear forces' activities and mutual inspections to verify the compliance with the transparency regime.

Regrettably, despite the fact that during the presidency of Barack Obama and Dmitry Medvedev the US-Russia relations have had the highest cooperation opportunity in the many years of their history, no significant progress has been made in the transformation of mutual nuclear deterrence with a view to achieving its complete rejection. The START Treaty that has entered into force was a necessary step forward for strengthening stability while reducing the force levels and promoting mutual security; however, it had no effect on the principle of mutual nuclear deterrence. The same applies to NATO's new Strategic Concept.

Increased focus on nuclear deterrence can be observed in the most recent 2010 version of Russia's Military Doctrine and other national security documents. Nuclear deterrence and defense against "air-space attacks" as the necessary precautions mainly aimed at the US (and NATO) are given top priority in the said documents. This to a certain extent contradicts the declared goals of Russia's foreign policy: "partnership through modernization' and establishing 'modernization alliances' with the US and the European Union.

It is clear that at this point there is no prospect for total (and especially unilateral) rejection of nuclear deterrence or renunciation of aerospace defense for the sake of establishing 'partnership through modernization' between Russia and the West. However, the increased reliance on the drivers of military confrontation with the US and its allies seems equally unjustified, if the military, the foreign and the economic policies of the state are to be aimed at the same direction.

A number of Russia's new weapon programs illustrate that in practice the Russian military leadership still regards the US as the country's main potential adversary. It means that the factors for

maintaining the relations based on mutual nuclear deterrence remain very strong. Apparently, similar factors to a great extent prevail in the US (NATO), though due to their overall military superiority over Russia and their diversion to other threats and conflicts, this anachronism is not so pronounced, at least not at the level of official declarations.

Gradually renouncing nuclear deterrence and transforming it into a more constructive model of strategic relations will be impossible if the states' leaders keep pretending that the said factors do not exist, as has so far been the case with negotiations on joint missile defense: this approach quite logically brought them to a deadlock. To achieve progress in this area in fact, not in word, the parties should be straightforward about the aspects of military standoff, mutual mistrust and the destabilizing uncertainty that prevail in their relations and eliminate them one after another through agreements and unilateral decisions.

In the long term, to move closer to a world free from nuclear weapons, there will be the need for agreements on unprecedented transparency as regards nuclear weapons, coordination by different countries of their nuclear capabilities to the point of joint management, establishing a regime of internationalization of nuclear power industries, nuclear materials and technology. In a world free from nuclear weapons there should be exceptionally reliable guarantees against nuclear weapons covertly or openly making a comeback to the nations' armed forces, or falling into the hands of extremist organizations.

# 1. MISSILE DEFENSE COOPERATION AS A PATH TO TRANSFORMING NUCLEAR DETERRENCE

**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 obstacles to 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.

## 2. LOWERING THE OPERATIONAL READINESS OF STRATEGIC NUCLEAR FORCES

**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[1].

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 killing) 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

[1] In Russian they are referred to, correspondingly, as *vstrechniy udar* and *otvetno-vestrechniy udar.*

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)[2].

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[3]) and even of terrorist attacks 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;

[2] 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.

[3] 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.

– 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 delivery 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 cooperation 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.

## 3. INCREASING TRANSPARENCY TO ACHIEVE TRANSFORMATION OF NUCLEAR DETERRENCE

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.

## 4. 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 information 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 on-going 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[4]. 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.

[4] See: Perry W., Shultz G. How to Build on the START Treaty // The New York Times. April 10, 2010.

## 5. NUCLEAR DETERRENCE, RUSSIAN AND US FOREIGN AND MILITARY POLICIES

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»[5].

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:

[5] Speech at Meeting with Russian Ambassadors and Permanent Representatives in International Organizations // President of Russia. July 12, 2010. (http://eng.kremlin.ru/transcripts/610).

«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 nuclear-missile sphere, and the militarization of outer space and the deployment of strategic non-nuclear high-precision weapons»[6].

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.[7]

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.»[8]

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-

[6] Decree by the President of the Russian Federation No. 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).

[7] Ibid.

[8] Ibid.

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».[9]

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»[10] 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».[11]

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[12], with which Russia set a course towards Partnership for Modernization at the 2010 EU-Russia Summit in Rostov-on-Don.

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,

[9] Ibid.

[10] Ibid.

[11] Presidential Address to the Federal Assembly of the Russian Federation// President of Russia. November 30, 2010 (http://eng.kremlin.ru/news/1384).

[12] Speech at Meeting with Russian Ambassadors and Permanent Representatives in International Organizations // President of Russia. July 12, 2010. (http://eng.kremlin.ru/transcripts/610).

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».[13]

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.[14] 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 U.S. nuclear weapons…is to deter nuclear attack on the United States, our allies, and partners. « (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 U.S. ICBMs and submarine-launched ballistic missiles (SLBMs). The missile submarine patrol rate will also be

[13] Decree by the President of the Russian Federation No. 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).

[14] Nuclear Posture Review Report. April 2010. Wash., DC., 2010. (http://www.defense.gov/npr/docs/2010%20nuclear%20posture%20review%20report.pdf

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 U.S. 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 U.S. BMD capability could undermine Russia’s potential for strategic retaliation, and that U.S. strategic conventional precision-guided weapons (cruise, boost-glide and ballistic missiles) have a growing counterforce capability. These new assets of U.S. 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 difficulties 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[15]. 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»[16] as top-priority tasks.

[15] See: My ne mozjem pozvolit sebe zakupat plohoe vooruzhenie (We cannot afford buying poor weapons) // Voyenno-Promyshlenny Kurier. 2011. March 2–8. No. 8. p. 6; Nezavisimoye Voyenne Obozrenie. 2011. March 11−17. No. 9. p. 8−9.

[16] The 2010 Military Doctrine of the Russian Federation.

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»[17].

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.

*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.

[17] Speech at Expanded Meeting of the Defense Ministry Board// President of the Russian Federation. March 18, 2011. (http://eng.pda.kremlin.ru/news/1926)

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 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.

## 6. ENSURING PEACE AND STABILITY WITH MINIMUM NUCLEAR ARSENALS AND IN A WORLD FREE FROM NUCLEAR WEAPONS

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 *inter*national, *trans*national and *supra*national 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 Evgeni Primakov, Igor Ivanov, Evgeni Velikhov and Mikhail Moiseev[18]. 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.

[18] Primakov E., Ivanov I., Velikhov E., Moiseev M. Ot yadernogo sderzhivaniya k obshchei bezopasnosti (From Nuclear Deterrence to Universal Security) // Izvestia. October 15, 2010.

## CONCLUSIONS

1. Nuclear deterrence, as a key factor of ensuring security will continue providing the conceptual basis for the nuclear-weapon states' military doctrines and operational planning, forces and armament programs long enough. However, today, 20 years after the Cold War ended, there are serious reasons for mutual profound adjustment and transformation of the nuclear deterrence concepts, at least in the relations between the great powers and their alliances.

2. The US plans to deploy global missile defense, including its components in Europe and adjacent seas, can pose no military threat to Russia's nuclear deterrence capability in the next 10-20 years. However, unilateral deployment of this program by NATO would cause a serious political crisis in US-Russian relations and thus disrupt further nuclear arms limitation and reduction process, as well as hinder their cooperation against proliferation and other new threats of the XXI century.

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 USA or Russia.

At the first stages, the cooperation in developing joint missile defense may be effected through the integration of missile warning systems of the USA and Russia. This cooperation should start with the immediate revival of the Center for the Exchange of Data from Early Warning Systems and Notifications of Missile Launchers, the decision on which was adopted by US and Russian presidents in 1999-2000, but has never been put to practice. In conjunction with that, the suspended series of joint US/NATO-Russia TMD computer exercises should be resumed with a prospect to moving these exercises to test ranges and extending them beyond the theatre of operations.

The development of a joint missile defense or a missile defense with shared elements would in the longer term transcend the mutual deterrence relationship to the relations of mutual defense and security, even if significant nuclear capabilities are retained. The reverse is also true, as has been demonstrated by recent consultations on BMD

cooperation: if the powers do not intend to transform nuclear deterrence as a basis of their military relations, the missile defense cooperation will meet with serious obstacles even regarding such obviously useful and minimally 'revolutionary' projects, as JDEC and joint missile defense exercises.

The systems, programs of development and plans of use of missile defenses of the US and Russia (in latter case – as part of aerospace defense) cannot be isolated from other aspects of the powers' military relations that are still in many respects aimed against each other. This in particular refers to their strategic and tactical (non-strategic) nuclear forces, Russia's aerospace defense program intended to hold the 'air and space attack' of the US and NATO, allegedly with long-range high-precision conventional weapons, including ballistic and cruise missiles and boost-glide systems).

This is especially true for Russia: it cannot develop the BMD as a part of aerospace defense against the USA and at the same time participate in the development of the missile defense in Europe together with the USA. Moscow cannot seriously propose to NATO a “sectoral” missile defense concept, implying mutual protection against the missiles of the third countries, while perceiving the USA and NATO as a source of main military threats to 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 aerospace defense and the US (NATO) PAA to missile defense, rather than Russia's participation in NATO's missile defense program. This implies that both NATO program may be adjusted and the Russian aerospace defense should be changed significantly. The latter should be geared towards addressing the threats posed by the third countries.

This calls for agreements addressing Russia's perception of the threat of the US 'air and space attack'. The parties embarked on this track by signing the Prague START Treaty (that envisages counting conventional warheads of ballistic missiles alongside with the nuclear ones). They should pursue this course in the framework of subsequent START treaties or in parallel to them. NATO links those to limiting tactical nuclear weapons, while Russia raises the issue of reviving the CFE system and regime.

3. 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: new START Treaty and limitation of conventional strategic arms, compatibility of aerospace defense and PAA to missile defense, limitation of tactical nuclear weapons and revival of the CFE Treaty system and regime.

If the US and Russian presidents realized this dialectic interdependence before the elections of 2012 and adopted a joint document on the need of 'multi-track' progress in transforming mutual nuclear deterrence, - it would become, in addition to the Prague START Treaty, their major contribution to strengthening mutual security and provide a groundwork for the next administrations to pursue this course.

4. Nuclear disarmament 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 imply the reduction of the number of warheads down to about 1,000, after which the parties might on a reciprocal basis opt for lowering the readiness of their SNF rather than go on physically reducing their strategic arms. The new START Treaty has set a useful precedent by dividing SNF arms into operationally deployed and non-deployed. Basically, lowering the readiness may consist in reducing operationally deployed forces and transferring an increasing part of them to non-deployed status. In this way, while retaining around 1,000 warheads altogether, both nations might go down to 500, 200 and eventually even to zero deployed (combat-ready) warheads in their SNF.

5. The first steps to transforming nuclear deterrence postures may be to mutually eliminate the concepts and the forces of a first (counterforce) strike – by reducing appropriate nuclear weapons while strengthening strategic stability, since the latter implies that there is neither a motivation nor the possibility for a first strike. 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 readiness implies a series of coordinated and verifiable organizational and technical measures, rather than a merely symbolic act. A number of such technical measures were discussed in the 1990’s by experts while elaborating the measures to prepare for the implementation

of the START-II Treaty – in the form of early deactivation of delivery means to be eliminated under the Treaty.

All strategic weapons may be used with varying effectiveness for both: first and second (retaliatory) strike. Some (land-based ICBMs and Russian SLBMs on submarines at bases) may be used both: for a first strike and launch-under-attack. 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. This requires that remaining deployed combat-ready forces have high survivability and diminished counterforce potential against each other.

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 then to the development of a shared limited missile defense against the third nuclear-weapon states - would signify a profound transformation of the mutual US-Russian nuclear deterrence towards cooperative mutual strategic defense.

6. Establishing a multilateral transparency regime could give a good impetus 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.

7. The signing of the new START Treaty was a result of considerable good will of the parties, including the efforts to overcome domestic opposition to strategic dialogue between them. The new Treaty has become a much needed step forward that has paved the way to further arms reduction and limitation.

Unlike during the Cold War, the relations between Washington and Moscow, including the START process, are one of many 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 subject of world affairs. As a consequence, the approach to agreements on strategic offensive reductions has become less rigid and exacting, and a number of

issues and differences between the parties have been relegated to the background or postponed.

Besides, the new Treaty has demonstrated a pivotal coincidence of Moscow's and Washington's nuclear policies: despite declarations of allegiance to the goal of non-nuclear world, there is no intentions to engage in real reductions of their strategic arms significantly below the levels, set forth as far back as in the 2002 Moscow SORT Treaty. Despite all its novelties, the new START Treaty builds on the traditional nuclear deterrence pattern. Thus, the practice has shown that even after the greatest window of opportunity for cooperation in the history of the US-Russian relations, opened during the presidency of Barack Obama and Dmitry Medvedev, the two countries cannot depart from the concept of mutual nuclear deterrence.

8. The priorities of Russian and US military policies often diverge from, or even run counter to, those of foreign policies: strategic partnership, resetting, cooperation on fighting against new threats to mutual security. The priorities of Russia's defense and military reform: nuclear deterrence and protection against aerospace attack - are primarily aimed against the USA and NATO.

Practical military policy sometimes runs counter even to the Military Doctrine. By way of example, the armament program provides for the development of a new silo-based heavy liquid-fuelled ICBM with multiple reentry vehicles. This would contradict the principles of strategic stability and hamper further negotiations on missile defense and strategic offensive arms. US stance and tactics during START talks and ratification debates, its positions on further arms control process provide plenty of arguments to the proponents of a new heavy ICBM system in Russia and opponents of follow-on agreements.

9. The US military policy related to both defensive and offensive arms (especially the newest high-precision non-nuclear and boost-glide systems) is far from being consistent with the spirit of partnership with Russia and the imperative of taking in consideration its reasonable concerns, as well as the goals of nuclear disarmament announced by the leaders of the two powers.

10. The transition to a world free from nuclear weapons would require present political and military functions, assigned by states to nuclear arms (status and prestige, deterrence, protection of allies etc.), to be performed by other military or political instruments. Otherwise such functions would be revised of cancelled altogether.

Moving to such world would necessitate agreements on unprecedented transparency of nuclear weapons of all states and eventually on coordinated management of such capabilities, as well as on internationalization of nuclear infrastructures and atomic energy in general.

A world free from nuclear weapons should not make wars with other arms more probable and feasible. Hence it would call for vigorous measures at replacing armed force with a non-military means of resolving conflicts of interest. In effect, it non-nuclear world is a matter of organizing an international political system, that 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 is pivotal that in the world free from nuclear weapons there are powerful assurances against the 'comeback' of nuclear weapons to the states' arsenals. These should be ensured at least in three directions: as intrusive controls as possible 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; and a system of pertinent decisions by a special non-national or supranational institution, rather than by a consensus of states.

Therefore, the world free from nuclear weapons is not just a present world minus nuclear arms, but a world base on quite different system of governance, adjustment of conflicting interests and conflict resolution. Moving towards this goal may be necessary anyway, in view of the problems and challenges facing mankind in the XXI century. Hence, fail-safe nuclear disarmament and nonproliferation, together will all associated changes of traditional modes of state behavior, may be considered not as the principle and final goal, but rather as one of the motives and avenues of implementing this essential transformation.

## ANNEX 1

## Abbreviations

| | |
|---|---|
| ALCM | Air-launched cruise missile |
| CFE | (Treaty on) Conventional Armed Forces in Europe |
| CSTO | Collective Security Treaty Organization |
| EASI | Euro-Atlantic Security Initiative |
| EU | European Union |
| HB | Heavy bomber |
| IAEA | International Atomic Energy Agency |
| ICBM | Intercontinental ballistic missile |
| IMEMO RAN | Institute of World Economy and International Relations of the Russian Academy of Sciences |
| JDEC | Joint Data Exchange Center |
| MIRV | Multiple independently targeted reentry vehicles |
| NATO | North Atlantic Treaty Organization |
| NPT | Treaty on the Non-Proliferation of Nuclear Weapons |
| NSP | Nuclear Security Project |
| NTI | Nuclear Threat Initiative |
| OSCE | Organization for Security and Cooperation in Europe |
| PAA | Phased Adaptive Approach (to European missile defense) |
| 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 |
| SALT-II | Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Strategic Offensive Arms |
| SAM | Surface-to-air missile |
| SLBM | submarine-launched ballistic missile |
| SLCM | Sea-launched cruise missile |
| SNF | Strategic nuclear forces |
| SSBN | Nuclear-powered ballistic missile submarine |
| 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) |
| THAAD | Theater High-Altitude Area Defense |
| TMD | Theater missile defense |
| TNW | Tactical nuclear weapons |
| UN | United Nations |
| UNSC | United Nations Security Council |
| WMD | Weapons of mass destruction |

## ANNEX 2

## List of Participants in the Conference Held on April 18, 2011, at IMEMO RAN

1. Alexander A. Dynkin, Academician Secretary of the Section of Global Issues and International Relations of the Russian Academy o Sciences and Director of IMEMO RAN, Academician of the Russian Academy of Sciences.
2. Alexey G. Arbatov, Head of Center for International Security of IMEMO RAN, Corresponding Member of the Russian Academy of Sciences.
3. Ildar A. Akhtamzyan, Associate Professor, Department of International Relations and Foreign Policy of Russia, Moscow State Institute of International Relations (University) of the Ministry of Foreign Affairs of Russia.
4. Vladimir G. Baranovsky, Deputy Director, IMEMO RAN, Corresponding Member of the Russian Academy of Sciences.
5. Michael Gerson, Research Analyst, Center for Naval Analyses (USA).
6. Alexander M. Golts, Military Observer, First Deputy Editor of «Yezhednevny Zhurnal».
7. Vladimir Z. Dvorkin, Chief Researcher, Center for International Security, IMEMO RAN, Major-General (rtd.).
8. Anatoly S. Dyakov, Director, Center for Arms Control, Energy and Environmental Studies, Moscow Institute of Physics and Technology (University).
9. Vladimir V. Evseev, Senior Researcher, Center for International Security, IMEMO RAN.
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11. Raymond Jeanloz, Professor, University of California (USA).
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13. Vyacheslav M. Ivanov, Associate Editor, Interfax-Military News Agency.
14. Valery N. Ignatiev, Principal Adviser, Defense Committee, State Duma, Captain First Rank (rtd.).
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29. Victor S. Slipchenko, former expert to assist the work of the UN Security Council Committee established pursuant to resolution 1540.
30. Vladimir I. Sotnikov, Senior Researcher, Center for International Security, IMEMO RAN.
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38. Malcolm Chalmers, Professorial Fellow, Royal United Services Institute for Defence and Security Studies (UK).
39. Gennady I. Chufrin, Corresponding Member of the Russian Academy of Sciences, Adviser to the Russian Academy of Sciences.
40. Tatiana A. Shakleina, Head of the Department of Applied Analysis of International Issues, Moscow State Institute of International Relations (MGIMO University) of the Ministry of Foreign Affairs of the Russian Federation.
41. James Acton, Associate, Non-Proliferation Program, Carnegie Endowment for International Peace (USA).
42. Yuri K. Shiyan, Chief Expert on arms control and non-proliferation of weapons of mass destruction, Presidium of the Russian Academy of Sciences.