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**INTERCONNECTION BETWEEN NUCLEAR  
DISARMAMENT AND NON-PROLIFERATION: REALITY OR  
MYTH?**

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

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Interconnection between nuclear disarmament and non-proliferation:  
reality or myth?

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## SUMMARY

Despite the unique character of the NPT in terms of the list of member-states, in the first decade of the 21st century the prospects for non-proliferation have caused increasing concerns of the global community and policy-makers in most of the world's countries.

The states that have remained outside the NPT are located in the world's most unstable regions and are embroiled in conflicts that could escalate to the point where nuclear weapons may be used. Further, there has been a growing black market in nuclear technology, materials and expertise that has included even the activities of certain states-parties to the NPT. If these issues are not dealt with in a constructive manner, the possibility of further nuclear proliferation and operational use of nuclear weapons will increase. Likewise, the threat will grow of nuclear materials and devices falling in the hands of extremist and criminal (terrorist) organizations.

Strengthening the non-proliferation regime and mechanisms logically comprises two components: non-proliferation as applied to states and non-proliferation as applied to extremist and criminal (terrorist) organizations.

Regarding the first danger, with the exception of four nations, all the world's countries are now states-parties to the NPT. Since the four countries outside the NPT already possess nuclear weapons, further proliferation would imply secretly violating the NPT or openly withdrawing from it, as provided for by its Article X, followed by the development of nuclear weapons. Hence the key ways to shut down the proliferation channels are explored in this study.

As for the second threat - extremist organizations may acquire nuclear devices primarily from unstable or irresponsible regimes that possess nuclear weapons. If the proliferation of nuclear arms continues unhindered, the number of the latter will grow. Therefore, the first objective – to curb proliferation of nuclear weapons among nations – is in itself a major way to prevent extremist entities from gaining access to nuclear weapons. Another option for extremists is to develop a nuclear explosive device by themselves, though this can prove a much more difficult task. The challenge of preventing this course of events includes the following components: fighting international terrorism and extremism

as such and suppressing the black market in nuclear materials, technology and expertise that the terrorist entities may use for the development of a nuclear device.

For more than 50 years, the IAEA has been a specialized highly qualified international institution preventing nuclear proliferation. The IAEA safeguards have been the major instrument in this respect. In 1997, a Model Additional Protocol was approved (adopted by 111 nations out of 189 states parties to the NPT) as a standard for additional protocols to comprehensive safeguards agreements. However, the critical developments in Iranian and North Korean nuclear programmes suggests there is a need to increase efforts on improving the effectiveness of the IAEA safeguards to make sure there are no further attempts to circumvent this non-proliferation mechanism.

Article X paragraph 1 of the NPT has lately become a serious issue in terms of maintaining the NPT and all the non-proliferation regimes, though the right to withdraw from the NPT (or any other disarmament treaty) has been perceived as an integral component of a member state's sovereignty. Nonetheless, withdrawal from the NPT should not be an arbitrary or routine action, as was the case with North Korea. The North Korean precedent is all the more dangerous, taking into account that in 1993 Pyongyang's first step to withdraw from the Treaty was most probably driven by an attempt to conceal the preceding violations of the IAEA safeguards. To resolve such issues – as well as any other issues related to maintaining and strengthening of the non-proliferation regime – within the scope of international law requires a comprehensive approach and coordinated policy of the major powers, all nations that are committed to the NPT, the United Nations Security Council, the IAEA and other institutions and organizations.

There is currently a shared understanding that proliferation of fissile material production technologies poses serious risks to the nuclear non-proliferation regime. The North Korean case study strongly indicates that a nation possessing technologies of uranium enrichment or/and reprocessing of used nuclear fuel (UNF) is potentially capable of quickly producing nuclear weapons, even if it is a party to the NPT and its production facilities are under the IAEA safeguards.

Between 2004 and 2007, over a dozen proposals were made by various countries to prevent the proliferation of sensitive SNF technology, assure nuclear fuel supply and create international centers to provide

nuclear fuel cycle services. Neither of these proposals offered a decisive solution to the problem. Therefore, the development of technology, norms and conditions to harness peaceful nuclear power while ensuring the prevention of proliferation of dual-use nuclear technology and materials through the fuel cycle is still very much on the agenda.

The NPT does not provide for an internal mechanism to respond to violations of the Treaty provisions. The violations are referred to the IAEA Board of Governors that is authorized to inform the United Nations Security Council (UNSC) on the developments that affect international peace and security. In other words, there is a bloated and reticent system of institutions and procedures intended to ensure resolution of the emerging non-proliferation issues.

The experience of applying sanctions has highlighted the need to tighten the accountability for serious violations of the international legal non-proliferation norm, increase the effectiveness and sustainability of the NPT regime eliminating its obvious loopholes and inconsistencies. For the UN sanctions to be successful, it is of key importance to maintain the unanimity of the UNSC member states, primarily its permanent members, and ensure broad international support of the UN sanctions.

Since the end of the Cold War and bipolarity, maintaining nuclear deterrence as the basis of strategic relations between the nations and the cornerstone of international security has spawned a growing threat of nuclear proliferation in a global polycentric world where the countries are increasingly interdependent. The practice and philosophy of nuclear deterrence is more and more impeding further reduction of nuclear weapons, as well as the prevention and reversion of their proliferation.

Failure of the states to meet their obligations under Article VI of the NPT (as regards disarmament), absence of agreed and unconditional security assurances to non-nuclear-weapon states parties to the NPT from the official members of the nuclear club and arbitrary use of force against a number of countries (Yugoslavia, Iraq, Libya) have served as a motivation for several non-nuclear-weapon states to pursue nuclear weapons to ensure national security or uphold their image and external ambitions. By contrast, every step towards nuclear disarmament and the clampdown on the arbitrary behavior throughout the world contribute to the strengthening of the non-proliferation regimes and mechanisms.

The analysis in this study relies on analytical research and the discussions of the issue in question at the series of conferences and

workshops held under the joint IMEMO-NTI (Nuclear Threat Initiative, Inc.) project. The basic idea of this brochure is to demonstrate the intrinsic interaction between nuclear disarmament and non-proliferation, the persistent link that is very complex and by no way linear. The increased popularity of the nuclear disarmament ideal in 2007-2011 has given a considerable impetus to resuming the negotiation process on a wide range of issues related to the reduction and limitation of nuclear weapons as well as to the strengthening of the nuclear non-proliferation regime.

## INTRODUCTION

This is the sixth of a series of brochures in Russian and English exploring the range of problems under the general topic "Russia and the Deep Nuclear Disarmament" as part of the project by IMEMO RAN and Nuclear Threat Initiative. This brochure is to be presented for the discussion at the concluding conference under the above project that is scheduled for 27 December 2011. This study explores in detail the topic that has so far not been thoroughly analyzed in other renowned Russian and Western studies – the interaction between the limitation/reduction of nuclear weapons and non-proliferation.

The long-lasting standstill in nuclear disarmament resulted in the failure of the efforts to strengthen the NPT and non-proliferation regimes. This was vividly manifested in the failure of the NPT Review Conference in 2005. Although the method of resolving the issue by force brought some tactical gains (as Israel's strike against Syria's nuclear facility in 2008), it only resulted in the strategic defeat during the US military operation in Iraq and in the attempts to put pressure on Iran and North Korea regarding their nuclear programmes.

Furthermore, the preference of use of force that has been typical of the US and, to a certain extent, NATO against "rogue states" is becoming an argument for acquisition of nuclear weapons. As far back as late 1990s quite a few wondered if NATO could use force against Yugoslavia if the latter had possessed nuclear weapons. The politicians and experts are asking a similar question following the military operations by the US and its allies in Iraq and Libya. It is not impossible that the military interventions of the recent years have become another incentive for proliferation.

On the whole, the rationale behind a government's decision to develop nuclear weapons may be to ensure national security and the international prestige, maintain the public image across the nation or obtain external political concessions from other countries in exchange for limiting one's own nuclear programme.

In 2000-2008, the explicit refusal by the great powers to continue the negotiations on nuclear disarmament was an unprecedented violation



of the spirit of Article VI of the NPT. Their increased reliance on nuclear weapons in ensuring one's own security and the withdrawal from a number of previous agreements also violated the spirit of the Treaty.

The persisting nuclear deterrence is one of the strongest negative factors that are a direct legacy of the times of the Cold War and the acute confrontation of the superpowers. Nuclear deterrence has been the largest obstacle on the path of deeper security cooperation between the great nuclear powers and a tangible proliferation incentive.

The specialized literature gives insufficient attention to the dialectic between disarmament and proliferation. This study presents a detailed analysis of the major aspects and issues related to such dialectic interactions. The authors focused on the systemic approach to non-proliferation which enabled them to arrive at comprehensive and practically relevant conclusions. The study sets forward a consistent set of measures aimed at strengthening the non-proliferation regime, including the intensification of the negotiations process on the nuclear arms reduction and limitation.

The new slowdown, let alone the suspension of the arms reduction and limitation process would, as has invariably been the case, provide new incentives for proliferation. In terms of building a world free of nuclear weapons in the distant future, disarmament is currently a worthwhile process in itself that paves the way toward peaceful coexistence of nations and makes it possible to minimize the threat of nuclear weapons proliferation and subsequently reverse nuclear proliferation by political means or – if need may be – through collective and legitimate use of force.

## 1. NON-PROLIFERATION: THE EXPERIENCE OF SYSTEM ANALYSIS

For more than 40 years the Treaty on the Non-Proliferation of Nuclear Weapons has been the key international document in this sphere with the most universal character. As of now, its membership includes 189 UN states, while only four nations (Israel, India, Pakistan and the DPRK) are outside the Treaty.

**Major threats in the sphere of proliferation.** Despite the unique character of the NPT in terms of the number of its state-parties, in the first decade of the 21st century the prospects for non-proliferation have caused increasing concerns of the global community and policy-makers of the world's leading nations.

The states outside the NPT are located in the world's most unstable regions and are involved in conflicts that in case of war are likely to escalate to nuclear weapons' use. The cases of Iraq, Iran, DPRK, Libya and a number of other states have demonstrated insufficient effectiveness of international control, primarily the safeguards of International Atomic Energy Agency (IAEA), over the movement of nuclear materials and technology under the NPT provisions (Article III).

There has been a growing black market in nuclear materials, technology and expertise that has involved certain states-parties to the NPT (specifically Libya, Iran, Iraq, DPRK before its withdrawal, Saudi Arabia, Algeria, Egypt and Indonesia). Specifically it was initiated by persons and organizations from the countries that are bound neither by the Treaty nor by the associated export restrictions and control mechanisms (Pakistan).

The aggravation of the problems associated with climate change, as well as the anticipated shortage of hydrocarbon resources predetermine the absolute growth of global nuclear power industry in the coming decades, including the proliferation of critical nuclear fuel cycle (NFC) technologies and nuclear materials.

If the issues outlined above are not dealt with in a constructive manner, the probability of further nuclear proliferation and operational use of nuclear weapons will increase. In addition, the threat of nuclear

materials or devices falling into the hands of terrorist organizations and of ensuing nuclear terrorist attacks will also grow.

Huge quantities of uranium with considerably high enrichment levels, as well as of plutonium stockpiled for energy, military and scientific purposes (estimated at up to 1,700 tons of uranium and 460 tons of plutonium) is a matter of special concern. Nuclear-weapon states, threshold countries and non-nuclear-weapon states use various kinds of reporting forms with respect to these stockpiles under NPT, and the existing safety measures to prevent the stockpiles from being stolen or sold to malefactors are not always dependable. The specialized Nuclear Security Summit in Washington in April 2010 became the driver for expanding international cooperation in nuclear materials security and safety.

There are serious reasons to claim that the next stage in proliferation, provided that it gains momentum, will not only cause exponential growth of the nuclear threat, but will make, as a result of the synergy of many factors, the use of nuclear weapons by states or extremists in the foreseeable future virtually inevitable.

**Non-proliferation policy: a system of measures.** One of the major issues related to the strengthening of non-proliferation regimes is the fact that there is no systemic approach to the challenge. Meanwhile, the task of strengthening the non-proliferation regime and mechanisms may be divided in two parts: non-proliferation as applied to states and non-proliferation as applied to extremist and criminal (terrorist) entities. The first component is closely linked with the second, since the terrorists may gain access to nuclear materials or devices primarily through some existing and new states in possession of nuclear weapons or nuclear weapon-grade materials.

With regard to proliferation among states, it is of critical importance that all countries of the world except four are parties to the Treaty on the Non-Proliferation of Nuclear Weapons, and that the four nations outside the Treaty already possess nuclear weapons. This means that further proliferation is only possible through secretly violating the NPT or openly withdrawing from it, as provided for in Article X of the NPT, and then developing nuclear weapons. The first option was chosen by the DPRK, Iran, Iraq, Libya and most probably Syria, with the DPRK also going for the second way out.

Therefore, the main directions of measures in terms of shutting down the above proliferation options logically may be presented as follows.

The *first* implies increasing the effectiveness of the IAEA safeguards:

- It is essential to achieve accession to the 1997 Additional Protocol on safeguards of all states, primarily the ones that conduct nuclear activities. In the 14 years since acceptance of the Protocol only 111 of 189 states have committed themselves to adhere to the Additional Protocol, so the current state of affairs is far from satisfactory;

- To facilitate the process the Nuclear Suppliers Group (NSG) should introduce a general rule stating that the accession to the Additional Protocol will be the essential condition for obtaining imported nuclear materials, equipment and technology for peaceful purposes;

- It is essential to significantly improve the research and technology facilities, and, consequently, the financial base of the IAEA activities in relation to safeguards.

The *second area* in terms of strengthening the NPT norms and mechanisms is associated with improving the export controls system:

- It is important to harmonize the national export controls systems, involve China, India and Pakistan in this process, incorporate the “catch-all” clause of the NSG guidelines (of 2004) into the national legislations of all states contributing to the global nuclear cooperation. The international documents that have already been adopted should be used more efficiently, in particular, Resolution 1540, specifically as regards its enforcement.

The *third area* implies strict formalization of the procedure of withdrawal from the Treaty and increasing its political significance:

- An announcement by a state of its future withdrawal from the NPT should cause intensive inspections by IAEA to reveal possible past violations of the Treaty or safeguards agreements. An extraordinary conference of states parties to the Treaty should be convened to consider the motivation of a state for withdrawing from the Treaty. If the motivation offered by the state in question is not in conformity with the letter of Article X or if the issue cannot be resolved without withdrawing from the Treaty, the case should be without delay referred to the UNSC for consideration in line with Article 41 of the UN Charter;

– All materials and technology existing in the state in question as of the date of its withdrawal from the NPT, regardless of their origin, should be used solely for peaceful purposes and remain under IAEA’s safeguards;

– By a decision of the UNSC, a withdrawal from or a violation of the NPT by a state in order to divert its nuclear materials and technology from peaceful purposes may be regarded as a reason for the use of force by way of responding to an international security threat in line with Article 42 of the UN Charter;

– The threat of withdrawal from the NPT and rapid development of nuclear weapons will be significantly reduced if the spread of nuclear fuel technology is curbed and the concept of multilateral uranium enrichment and plutonium separation centers is implemented and expanded.

The *fourth area* of strengthening the NPT implies concluding additional multilateral agreements intended as ‘barriers’ to make more difficult violation of or withdrawal from the Treaty. In particular, this applies to the following two agreements:

– The Comprehensive Nuclear-Test-Ban Treaty (CTBT) as the key link between the “vertical” and “horizontal” nuclear disarmament should be ratified by the United States and the People’s Republic of China . This step would encourage India, Pakistan and Israel to accede to CTBT, which would set some limitation for the states already possessing nuclear weapons in terms of further refining them. In addition, this would set a tangible obstacle for the development of nuclear weapons by known or alleged threshold countries;

– The Fissile Material Cut-off Treaty (FMCT) prohibiting the production of fissile materials for military purposes – primarily weapons-grade uranium – should be concluded as soon as possible and its scope should be extended on a phased basis, providing for relevant control mechanisms for nuclear and non-nuclear weapons states parties to the NPT. The three states that have never signed the treaty (Israel, India and Pakistan) as well as PDRK should be encouraged to join it.

Obviously, such measures are feasible only provided that there is unanimity among the great powers and the UNSC members. Since the steps outlined above suggest an even more rigid non-proliferation regime for non-nuclear-weapon states, the five nuclear powers should achieve

continuous progress in fulfilling their obligations under Article VI of the NPT on nuclear disarmament.

Thus, the *fifth area* of focus is as follows:

- Strict observance of the new START Treaty and resolution of controversial issues (such as the deployment limitations on the new partially orbital boost-glide systems) in a constructive manner;

- Negotiations on further nuclear arms reductions between the two leading powers taking into account the related issues (long-range precision-guided conventional weapons, non-strategic nuclear weapons, etc.);

- Arrangements on the predictability of the US and NATO's missile defense programs, in particular as regards Europe, and the resumption of negotiations on the cooperative development of Russia-US/NATO missile defense system;

- Putting the NFC facilities of the five nuclear-weapon states (or at least four of them) under IAEA safeguards . This could expedite the negotiations on a Fissile Material Cut-off Treaty (FMCT) and the universalization of the Additional Protocol of 1997;

- Opening of negotiations on the code of conduct for outer space activities and subsequently on the treaties for the prevention of a space arms race;

- Consultations on multilateral nuclear dialogue with a view to involve the UK, France and China in the process of nuclear arms reductions and induce them to adopt a number of confidence-building measures.

All the above appears feasible provided that NATO's eastward expansion is brought to a halt, the Russia-NATO cooperation on Afghanistan and on fighting international terrorism continues and if there are further improvements to the US-Russia relations that have still have to stand the test of the 2012 presidential elections in the two countries.

The *sixth area* is the development of an economic incentive for the NPT states parties, first and foremost in the form of ensuring guaranteed access to supplies and services of the international NFC centers as well as involving these states in the programmes of safe, secure and peaceful nuclear technology and materials of the next generation. The attraction of the multilateral enrichment center initiated by Russia may significantly increase if it also included (in addition to enrichment) the services related to fuel production and spent fuel management.

It is too late to try to resolve the nuclear-related problems of Iran and DPRK through the above NPT strengthening ways and means. The two cases require tailored ad-hoc approaches and the unanimity of the great powers in the United Nations Security Council. In return for their renunciation of nuclear weapons, these countries must obtain security guarantees, as well as political and economic benefits, including the opportunities to develop peaceful nuclear energy. In this light, the Libyan precedent might have a negative effect: indeed, in 2003 the country renounced its nuclear programme only to become a target of the 2011 NATO military intervention aimed at regime change. Offsetting these negative effects will require considerable extra efforts of the great powers.

The abovementioned ways and measures that may be applied to states will in themselves significantly decrease the possibility of terrorists gaining access to nuclear materials or weapons. However, joint effort of the great powers aimed at directly suppressing terrorist organizations will also be indispensable.

The international documents that have so far been adopted, in particular resolution 1540 and the International Convention for the Suppression of Acts of Nuclear Terrorism (2005) should be used more effectively. Further, international programmes to introduce common standards of physical protection, accounting and control of nuclear materials on a global basis need to be developed. This process was initiated at the Nuclear Security Summit in Washington, D.C. in April 2010.

**Cooperation areas for the great powers.** Even during the Cold War there were areas of shared interests and cooperation between the Soviet Union and the United States, including non-proliferation of nuclear weapons which led to the Treaty on the Non-Proliferation of Nuclear Weapons. However, at the time proper and large-scale cooperation was obstructed by the two superpowers' confrontation and global rivalry that dominated over certain cooperation areas.

Basically, the end of the Cold War eliminated the key obstacle to the two countries' cooperation. However, the widening economic, political and military asymmetry between them, new global centers of power, regional actors claiming independence and non-state actors coming to the front, as well as expanding nuclear black market have given rise to crucial new proliferation-related issues.

The level of cooperation that met the needs of the Cold War era is insufficient at this moment: both the new threats and new possibilities press for a qualitatively higher degree of cooperation, the one that would equal and in certain spheres exceed the scope of allied relations that existed within the NATO (including joint activities of secret services, shared missile defense systems, cooperation under the Proliferation Security Initiative (PSI)).

Clearly, the great powers will treat their regional allies/partners and opponents differently, since in addition to proliferation the real-world international politics include other important issues. However, the problem is that in many cases one state's partners are another state's opponents; to make matters worse, the parties may sooner or later swap places.

A deep transformation of military and political relations of the great powers may improve this situation. In addition, it would be practical to enhance in deed and not in word the priority ranking of WMD non-proliferation and joint efforts on countering catastrophic terrorism. This has to be done in the framework of the UN Security Council, G8, NATO-Russia Council and other international mechanisms.

In applying a certain approach to specific nuclear proliferation cases great powers should not be guided by their relations with regional states; rather, the 'track record' of a 'problem' country in this sphere should determine the relations the great powers maintain with them. It will minimize double standards and the lack of unanimity among the great powers.

Universalizing the non-proliferation regime through the measures of a centralized bi- and multilateral nuclear disarmament, extending the capabilities and powers of the IAEA, elaborating the NPT provisions, strengthening export controls, regulating and consolidating the supplies of nuclear materials and technology will not guarantee that the proliferation of nuclear weapons will be curbed, let alone reversed.

At the same time, fully switching to targeted approach as regards 'problem' countries and proliferation cases appears even less likely to succeed, since the said approach is often subjective and rests on double standards.

No doubt, the legitimacy of any targeted action – especially of the use of force, is indispensable for the unanimity and cooperation of the great powers and their regional partners.





## **2. IAEA SAFEGUARDS AS AN INSTRUMENT OF NON-PROLIFERATION**

For more than half a century, the IAEA international safeguards have served the purposes of nuclear non-proliferation. The making and the progression of the safeguards system were to a large extent the result of the constructive cooperation of the two major nuclear powers – the United States and the Soviet Union/Russia. The cooperation of the two great powers on strengthening the safeguards has continued to the present day.

**The development of key methods and procedures of the safeguards.** The safeguards system rests on the IAEA Statute. The practical application of the safeguards has been largely based on bilateral or multilateral agreements between the Agency and supplier countries or recipient states of nuclear materials, equipment and technology under the document INFCIRC/66/Rev.2 adopted in 1965–1968. While this safeguards document stipulates the procedures for the control of nuclear facilities, it does not cover nuclear activities at large. The document is currently used in countries that have not acceded to the NPT. Meanwhile, its major advantage is that control will be exercised in perpetuity, unlike the NPT safeguards which cease to apply if a state decides to withdraw from the Treaty, as was the case with the DPRK.

The NPT has established an international legal norm of mandatory application of the IAEA safeguards to "all source and special fissionable materials in its current and future peaceful nuclear activities" in the territories of the NPT states parties that do not possess nuclear weapons, performed under their jurisdiction or under their control regardless of the place. When the Treaty entered into force, a model agreement on comprehensive safeguards for non-nuclear-weapon states parties to the NPT was developed.

In line with the established procedures and under the model agreement, the system of comprehensive safeguards rests on the following basic principles and provisions:

- The aim of the safeguards is to prevent the diversion of nuclear power from peaceful purposes to the production of nuclear weapons or of other nuclear explosive devices. This implies timely detection of diversion of significant quantities<sup>1</sup> of nuclear material to the manufacture of nuclear weapons or other nuclear explosive devices;

- Each state shall establish and maintain its national system of accounting and control of all nuclear material subject to safeguards and shall submit to the Agency an initial report on all the nuclear material subject to safeguards, as well as on the design of nuclear facilities related to the placing of such material under IAEA safeguards. The Agency shall in its turn carry out inspections to verify the information contained in the report to ascertain the completeness and accuracy of the state's report on the available nuclear material;

- In accordance with the established criteria (the amount of nuclear material, isotopic composition of the nuclear material, the sensitivity of the nuclear facility in terms of non-proliferation, etc.), the international inspectors shall conduct periodic inspections of such facilities to verify the nuclear material inventory and inventory changes, including on-site measuring of the nuclear material and sampling for further laboratory tests at the Agency's headquarters;

- The technical means of verification, such as containment and surveillance are widely used;

- The Agency may carry out *special inspections*, if it considers that the information provided by a state is insufficient. IAEA may have access to any location where nuclear material is present;

- If a safeguards agreement is violated, the IAEA Director General presents a report to the IAEA Board of Governors which may, if required, refer the case to the UN Security Council.

However, the implementation practice of the safeguards system has revealed its drawbacks, especially as regards undeclared nuclear activities of the states. In 1991, after the Gulf War, it was discovered that Iraq (a state party to the NPT with a safeguards agreement) had been involved in clandestine activities on the development of nuclear weapons.

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<sup>1</sup> Significant quantity means 8 kg for weapon-grade plutonium and 25 kg for highly enriched uranium (with an enrichment level of over 20 percent of uranium 235).

The new developments required that the international community implement a number of measures to strengthen the safeguards system. In 1997, a Model Additional Protocol was adopted as a standard for additional protocols to comprehensive safeguards agreements. The IAEA Board of Governors also suggested that negotiations be held on the signing of a protocol to the safeguards agreements with nuclear-weapon states (naturally adjusted to their specific features) as well as with other states outside the NPT.

The measures provided for in the Additional Protocol include:

- Gathering information about, and the access of inspectors to, all aspects of states' nuclear fuel cycle, from uranium mines to nuclear waste storage sites and any other locations where nuclear material is present;
- Gathering information about nuclear fuel cycle-related research and development;
- Gathering information on, and short-notice inspector access to, all buildings on a nuclear site;
- Obtaining general plans of development of the nuclear fuel cycle, including planned nuclear fuel cycle-related research and development activities for the succeeding ten-year period;
- Gathering information on the production and export of sensitive nuclear-related technologies;
- Collecting environmental samples beyond declared locations when deemed necessary by the IAEA;
- Administrative arrangements that improve the process of designating inspectors, issuance of multi-entry visas and IAEA access to modern means of communication.

On the whole, these measures were a significant and a qualitative step forward in terms of strengthening the international safeguards system. However, there was a major drawback: the Additional Protocol is not a mandatory international and legal rule and the accession to it is voluntary, i.e. it is left at the discretion of the NPT states parties and the non-NPT states.

While 111 states have their Additional Protocols in force, a whole number of nuclear-weapon states and threshold countries have so far remained outside its scope. Those include Argentina, Brazil, the DPRK, Egypt, Israel, India, Pakistan and many others. Although Iran did sign the

Protocol, it has not ratified it. For a while the country observed the Protocol on a voluntary basis until it refused to do so in 2006.

The NPT states parties that have only small quantities of or do not have any nuclear material will sign safeguards agreements together with Small Quantities Protocols (SQPs)<sup>2</sup>. Meanwhile, it has become obvious that the amount of nuclear material and the number of various kinds of facilities in these countries has been increasing, which clearly implies there is a need to enhance the safeguards-related activities.

Seeing that there were various safeguards agreements and the Additional Protocol, the Agency set to perfecting the entire system aiming to integrate the existing instruments with a view to optimize the safeguards-related activities. An individual approach to the application of integrated safeguards was developed for each state. The process includes taking into account the specific features of a state, adjusting the standard approaches to the application of safeguards to specific facilities, developing a plan of ensuring the access to sites and other locations where nuclear material is present.

The integrated safeguards are applied in a number of states, including Australia, Austria, Bulgaria, Canada, the Czech Republic, Ecuador, Ghana, Greece, Hungary, Indonesia, Ireland, Japan, Latvia, Lithuania, Mali, Norway, Peru, Poland, Portugal, Romania, Slovenia and Uzbekistan<sup>3</sup>. Importantly, the list includes Canada and Japan – the countries with massive NFC. In January 2010 an agreement on introducing integrated safeguards in all non-nuclear-weapon states of the European Union was concluded.

As can be seen from above, the positive factor is certainly that in broad terms the IAEA has a fairly wide framework for implementing its safeguards and is improving it on a continuing basis. The Agency has concluded safeguards agreements with 175 states, its annual safeguards budget amounts to 116.1 million Euros in terms of the regular budget (over a third of the entire budget) with additional 18.2 million Euros from extra-budgetary funds<sup>4</sup>.

However, there are still quite a few issues – mostly through no fault of the Agency itself – in terms of ensuring the level of safeguards system

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<sup>2</sup> See IAEA document GOV/2005/33.

<sup>3</sup> See IAEA Annual Report 2010. P. V.

<sup>4</sup> Ibid.

performance that would fully meet the requirements of adequate monitoring of the international nuclear non-proliferation regime.

**Iran.** As the IAEA inspection missions revealed as far back as 2003, in the preceding 18 years Iran had pursued an undeclared nuclear programme aimed at converting its natural uranium into uranium hexafluoride for further enrichment<sup>5</sup>. Starting 1991, Iran had failed to inform the IAEA on the importation of natural uranium. The report of IAEA Director General to the Board of Governors stated that Iran failed to observe a number of provisions of the safeguard agreement and that the country's nuclear activities "raised concerns". The statement that was unanimously adopted by the Board of Governors supported the Director General's appeal to Iran to accede to the Additional Protocol and encouraged Iran, as a confidence building measure, "not to introduce nuclear material into its pilot enrichment facility".

The above facts, as well as the statements by Iranian officials, make it clear that Iran is involved in the development of a complete nuclear fuel cycle infrastructure. Even the most unprejudiced observers cannot help wondering if the Iranian leadership has decided upon a full-scale nuclear programme.

In 2003, on the insistence of the IAEA, Iran signed the Additional Protocol to the safeguards agreement. Although the Protocol was not ratified, Iran pledged to act as if the agreement were in force. However, as noted above, in 2006 the country recanted its promise and has not conformed to the rules stipulated in the Protocol.

According to the IAEA's reports, starting March 2007, Iran has failed to fulfill its obligation on the timely provision of information on the design of its nuclear facilities. A number of issues related to the "potential military aspects of Iran's nuclear programme" has remained unresolved. The Agency's report of 16 November 2009<sup>6</sup> informed that Iran has commenced the construction of a new pilot enrichment plant near the city of Qom (up to 5 percent uranium 235 enrichment). The Agency's inspectors inspected the facility designed to house 3,000 centrifuges. According to Tehran, the decision to build a new facility came as the result of the "augmentation of the threats of military attacks against Iran".

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<sup>5</sup> See IAEA document GOV/2003/40.

<sup>6</sup> See document GOV/2009/74.

The Agency informed the inspected party on the remaining issues as regards the intended use of the new fuel enrichment facility.

In November 2009 the Board of Governors examined the report by the IAEA Director General concerning the fact that Iran had approached the IAEA asking for assistance in the supply of fuel for the Tehran Research Reactor (TRR) mainly involved in the production of isotopes for medical purposes. The Agency drafted an agreement on transferring Iran's low-enriched uranium (LEU) to Russia for further enrichment and subsequent production of fuel in France under the IAEA safeguards. The draft agreement was approved by Russia, France and the US, but Iran did not agree to the plan. The IAEA Board of Governors expressed "grave concerns" in relation to Iran's building a uranium enrichment plant near Qom and called on Tehran to confirm that it has not "taken a decision to construct any other undeclared nuclear facility". It was noted that the country's delay in informing the IAEA on the construction of a uranium plant near Qom reduced the level of confidence in the absence of other undeclared nuclear facilities<sup>7</sup>.

The Agency's report of 18 February 2010 once again emphasized that Iran had not provided "the necessary cooperation to permit the Agency to confirm that all nuclear material in Iran is in peaceful activities". It was also noted that Iran should "cooperate fully with the IAEA on all outstanding issues, particularly those which give rise to concerns about the possible military dimensions of the Iranian nuclear programme"<sup>8</sup>.

In 2011 the Agency's annual report stated that the IAEA remained unable to provide credible assurance about the absence of undeclared nuclear material and activities in Iran and that contrary to the resolutions of the Board of Governors, Iran did not implement the provisions of its Additional Protocol and a number of other rules, and that it did not suspend its enrichment related activities<sup>9</sup>.

Another report by the Director General to the Board of Governors of 8 November 2011 particularly focused on the "potential military aspects" of Iran's nuclear programme. The report said that starting 2002, the Agency has become "increasingly concerned" about the possible

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<sup>7</sup> See GOV/2009/82.

<sup>8</sup> GOV/2010/10.

<sup>9</sup> See GC(55)/2. P. 82.

existence in Iran of undisclosed nuclear related activities, including activities related to the "development of a nuclear payload for a missile" about which the Agency has "regularly received new information" and that the information "indicates that prior to the end of 2003, these activities took place under a structured programme, and that some activities may still be ongoing"<sup>10</sup>. At the Board meeting on 17 November Director General reported that he had approached the Iranian leadership with a proposal to send a special high-level mission to Iran to seek "clarifications regarding possible military dimensions" to its nuclear programme. The Board adopted a compromise resolution prepared by the Iran Six – a group of international mediators on Iran's nuclear dossier (Russia, the US, the UK, France, Germany and China) expressing deep and increasing concerns about the unresolved issues related to the country's nuclear programme, including its "possible military dimensions" and stressing the need to "intensify the dialogue" between Iran and the IAEA to achieve urgent resolution of all outstanding issues<sup>11</sup>.

**Syria.** In September 2007 the Israeli aircraft destroyed a site at Al Kibar near the Syrian Deir ez-Zor. In view of the information received by the IAEA in 2008 that the target had been a nuclear reactor under construction, an inspection was carried out detecting uranium particles not included in Syria's reported inventory. The tests done by IAEA showed that the uranium particles had been chemically processed. Meanwhile, the Syrian authorities maintained that the Deir ez-Zor site was a military and not a nuclear facility. The Agency's attempts to get cooperation from Syria in clarifying the picture have so far been unsuccessful. In his statement at the Board meeting in March 2010, IAEA Director General Yukiya Amano pointed out once again that Syria had not cooperated with the Agency in connection with unresolved issues. In its Annual Report in 2011, the IAEA noted Syria's refusal to cooperate with the Agency<sup>12</sup>.

**The DPRK.** The Agency's verification activity in the DPRK was suspended in 2002 at the request of North Korea. In 2003 Pyongyang announced its withdrawal from the NPT thus terminating the comprehensive safeguards agreement.

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<sup>10</sup> GOV/2011/65.

<sup>11</sup> See <http://www.iaea.org>

<sup>12</sup> See GC(55)/2. P. 82.



Later on, owing to an understanding achieved at the six-party talks with the participation of the DPRK, the IAEA was enabled to inspect the condition of four facilities in Yongbyon, including a chemical processing facility, and one facility in Taechon. However, in September 2008 North Korean authorities informed the inspectors that the access to reprocessing facility was prohibited. In 2008 the DPRK alternately authorized and prohibited the inspectors' access to the facilities in Yongbyon, until in April 2009 it required that all IAEA inspectors leave the country and announced that the operation of all the nuclear facilities would be resumed<sup>13</sup>. In May 2009 North Korea announced that it had conducted a second nuclear test.

At the Board meeting in June 2009, Director General expressed concerns about the nuclear test conducted by the DPRK. In his statement at the meeting of the Board of Governors in March 2010, Yukiya Amano called for resuming the six-party talks on the North Korean issue. In his annual report in 2011, Mr. Amano said that the IAEA still believed the DPRK's nuclear issue as well as its nuclear tests were "a serious threat to the international non-proliferation regime".<sup>14</sup>

The IAEA safeguards in **India** are a special case in the history and practice of IAEA verification activities. The international legal framework of nuclear export control rests on the NPT provision obliging the states not to provide nuclear materials and any relevant equipment to any non-nuclear-weapon state for peaceful purposes, unless they shall be subject to the IAEA safeguards (Article III paragraph 2). Therefore, this obligation also applies to non-NPT countries, such as India. The Nuclear Suppliers Group (NSG) reached a decision on the so-called comprehensive safeguards. These imply that all nuclear activities in such countries should be placed under the safeguards before any nuclear materials, relevant equipment or technology is provided to them.

Yet, in July 2005 the US Administration (pursuing its own interests, as many experts believe<sup>15</sup>), made arrangements with India on the exports

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<sup>13</sup> See GOV/2009/45-GC(53)/13.

<sup>14</sup> See GC(55)/2. P. 82.

<sup>15</sup> US experts on non-proliferation and arms limitation Fred McGoldrick, Harold Bengelsdorf, and Lawrence Scheinman believe that the arrangement between the US and India "was clearly motivated by and reflects the mutual interests of both states in counterbalancing the rise of Chinese power (See McGoldric Fred,

of nuclear equipment and technology in return for certain commitments to be undertaken by India. Basically, the issue of involving such non-NPT states as India, Pakistan and Israel in the international nuclear non-proliferation regime has been on the agenda for quite a while and no doubt deserves attention. However, any solution must meet the main objective – overall strengthening of the regime and its steady and continuous universalization<sup>16</sup>.

At any rate, the Nuclear Suppliers Group, at the suit of the United States and by consent of the Russian Federation and other NSG members, arrived at the decision to give India a special status in the export controls, and the IAEA Board of Governors adopted the safeguards agreement based on the said terms. Meanwhile, having signed the Additional Protocol on safeguards, India has not ratified it so far.

**The ways to strengthen the IAEA safeguards system.** In view of the threats to the NPT regime that keep emerging, including the threat of nuclear terrorism, the international community is confronted with the task to strengthen the international safeguards in every possible way to prevent the diversion of peaceful nuclear energy to military uses. In this light, the International Atomic Energy Agency, the major nuclear-weapon states and the entire international community need to spare no effort to constantly strengthen the effectiveness of the safeguards.

The Agency could achieve more in this respect if it had all the resources required for its verification activities at its disposal. As the former Director General Mohamed ElBaradei said at the meeting of the United Nations General Assembly in November 2009, "our ability to detect possible clandestine nuclear material and activities depends on the extent to which we are given the necessary legal authority, technology

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Bengelsdorf Harold and Scheinman Lawrence. The U.S.-India Nuclear Deal: Taking Stock // Arms Control Today. Vol. 35. № 8. October 2005. P. 6–12.)

<sup>16</sup> The idea of finding a mutually acceptable solution to the issue of the three countries that would strengthen the non-proliferation regime instead of weakening it, was supported, among others, by Ambassador Thomas Graham, Jr., a US expert, former Special Representative of the President for Arms Control, Nonproliferation and Disarmament (during Bill Clinton's presidency), and Avner Cohen, an Israeli expert, author of "Israel and the Bomb" who is currently working in the US. As he previously mentioned in his publication in the IAEA magazine (See Roland Timerbaev "What Next for the NPT? Facing the Moment of Truth" // IAEA Bulletin. Vol. 46. № 2. March 2005. P. 4–7), this approach is shared by the author of this Chapter.

and resources. Regrettably, we face continuing major shortcomings in all three areas, which, if not addressed, could put the entire non-proliferation regime at risk."<sup>17</sup>.

In his statement of 9 December 2009, the current IAEA Director General Yukiya Amano basically reiterated the above cited assessment of the situation as regards safeguards implementation and voiced a similar wish concerning the ways to strengthen the safeguards system<sup>18</sup>.

In this respect, quite a few valuable proposals were formulated in the report "Reinforcing the Global Nuclear Order for Peace and Prosperity: The Role of the IAEA to 2020 and Beyond" prepared in May 2008 by prominent experts headed by former President of Mexico Ernesto Zedillo<sup>19</sup>, and in the report "Eliminating Nuclear Threats. A Practical Agenda for Global Policymakers" prepared by an independent international commission chaired by Gareth Evans and Yoriko Kawaguchi in December 2009<sup>20</sup>.

In view of the above, it would be reasonable to take the following measures to strengthen the safeguards system with a view to increasing the effectiveness of the international nuclear non-proliferation regime:

1. The most important and pressing task is to achieve accession to the Additional Protocol on safeguards of 1997 of all the states that have sizeable or less sizeable nuclear activities. In the 14 years only 111 states have committed themselves to adhere to the Protocol (while almost 190 states are parties to the NPT), so the current state of affairs is far from satisfactory. A pretty good example as regards the Protocol was set by the major nuclear powers, Russia and the US, by acceding to it. However, while the provisions of the Protocol apply to the international nuclear cooperation of the two powers, they do not apply to the countries' facilities and materials. The Additional Protocol should be a universal and mandatory standard to ensure the states' compliance with their obligations on nuclear non-proliferation. It would be useful if the UN Security

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<sup>17</sup> Statement by the IAEA Director General in the UN General Assembly on November 2, 2009 (<http://www.iaea.org>).

<sup>18</sup> See Director General's Remarks, 9 December 2009 (<http://www.iaea.org>).

<sup>19</sup> See "Reinforcing the Global Nuclear Order for Peace and Prosperity: The Role of the IAEA to 2020 and Beyond". May 2008.

<sup>20</sup> See "Eliminating Nuclear Threats. A Practical Agenda for Global Policymakers". December 2009.

Council passed a resolution in line with its powers under Chapter VII of the Charter of the United Nations obliging the states that have so far failed to do so to sign and ratify the Additional Protocol.

2. The IAEA should continue its vigorous efforts on introducing the so-called integrated safeguards into its safeguards practice in relation to as many of the states that have comprehensive safeguards agreements with the Agency and have acceded to the Additional Protocol, as possible. The said integrated safeguards help raise the effectiveness of the safeguards while ensuring increased efficiency.

3. Given the fact that in recent years an increased number of countries has shown interest in acquiring uranium enrichment technology (which is fraught with the risk of nuclear proliferation), the idea of creating multilateral nuclear fuel cycle centers under the IAEA safeguards similar to those in Angarsk (Russia) and bank(s) of fuel for nuclear power plants should be further promoted. The IAEA would be the guarantor of fuel supply for the countries requiring the fuel.

4. With due account of the justified remarks made by the IAEA executives, it is essential to explore the possibility to significantly increase the safeguards budget to provide the Agency with first-rate analytical equipment and other technical capabilities so that it can perform its safeguards-related tasks independently and adequately.

The IAEA should have its own framework for research and development in the sphere of safeguards without being dependent on technology owners. The Agency should be able to perform remote monitoring and explore the possibility of transforming the currently used approach to safeguards application (which is mainly based on safeguards criteria) into an approach based on analyzing the information from public and other additional sources of information (information driven safeguards).

5. In recent years certain steps have been taken to convert research reactors to low-enrichment reactors and withdraw the fresh highly enriched uranium (HEU) and spent nuclear fuel to the countries that initially supplied such reactors, in particular, to Russia. Meanwhile, over 100 research reactors still use uranium with an enrichment level of 90 percent and more. Further effort should be made to implement these measures.

6. In addition, it would be advisable for the UN Security Council with the assistance of the IAEA to develop measures that would

be mandatory for all the states to be used as a guide on the consequences of a withdrawal from the Treaty on the Non-Proliferation of Nuclear Weapons specifying the steps that may be taken by the UNSC to prevent future withdrawals from the NPT under Article X paragraph 1 or to minimize their negative effects (in particular, by retaining the nuclear activities dating back to the period when the state in question was a party to the NPT ad infinitum under IAEA's safeguards).

7. The governments and international organizations such as the United Nations and IAEA can and should play a major role in promoting the culture and mentality of non-proliferation of weapons of mass destruction on the global scale. The efforts of non-governmental organizations (NGOs) are also most important.

**The IAEA safeguards applied to verifying the nuclear disarmament measures.** The long and on the whole fruitful years of the IAEA safeguards experience makes it possible to deduce that the said experience may be used to deal with broader issues related not only to preventing the proliferation of nuclear weapons but also *to halt the production of weapon grade nuclear materials and nuclear weapons* and, possibly, to advance towards a world free from nuclear weapons. In this respect, an important precedent was set in 1993, when the IAEA verified South Africa's abandonment of its nuclear programme.

In 1996–2002 Russia, the US and the IAEA were involved in the development of a trilateral initiative for the control of nuclear materials the three parties had declared to be excess. However, the initiative was never launched, as the US and Russian governments interrupted the negotiations. This idea should be revisited.

The IAEA safeguards-related experience may be fully demanded if an agreement is reached on the prohibition of fissile materials production for nuclear weapons both in the nuclear-weapon states and in all the countries involved in uranium enrichment, spent nuclear fuel processing and plutonium separation. Signing a robust Fissile Material Cut-off Treaty will make a difference only if all nuclear-weapon states accede to it regardless of the fact whether they are parties to the NPT, and if other countries do the same, especially those that possess nuclear technology and industrial capabilities.

Russia and the United States should take on a leading role in this process as they possess the largest stockpiles in weapon-grade fissile materials.

### 3. THE RIGHT TO WITHDRAW FROM THE NPT

It came as a surprise to the founding fathers of the Treaty on the Non-Proliferation of Nuclear Weapons that its Article X paragraph 1 turned to be a serious problem in terms of maintaining the NPT and all the non-proliferation regimes. After the Treaty came into force in 1970, the main objective as regards the strengthening of the non-proliferation regime was to expand its membership in every possible way, to increase the effectiveness of the IAEA safeguards and the export controls on nuclear materials and technology. However, with mass accession to the NPT by new states, the Treaty became almost universal, and it was the issue of withdrawal from the NPT that rose to the top of the agenda. All the four countries that currently stand outside the Treaty (Israel, India, the US and the DPRK) are nuclear-weapon states. Therefore, the danger of further proliferation of nuclear weapons among states may only be possible through clandestine development of nuclear weapons in violation of the NPT or/and if a current non-nuclear-weapon state party decides to withdraw from the Treaty and openly pursue nuclear weapons<sup>21</sup>.

True, it appears that before announcing its withdrawal from the NPT, the DPRK was involved in clandestine activities in violation of the NPT, and Iran's past activities allegedly violated the IAEA safeguards<sup>22</sup>. However, pursuant to Article X paragraph 1, without even violating the Treaty, a state theoretically has the right to withdraw from the Treaty with three months' notice after having legally used the NPT to acquire nuclear materials, technology and experts.

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<sup>21</sup> The threat may also come from young nations, if they decide to acquire nuclear weapons. However, this category will not be reviewed in this study.

<sup>22</sup> See *Nuclear Proliferation in Northeast Asia* (in Russian), edited by Alexei Arbatov and Vasily Mikheev. Carnegie Moscow Center, 2005; *Threats to the Nuclear Weapons Non-proliferation Regime in the Greater Middle East* (in Russian), edited by Alexei Arbatov and Vitaly Naumkin. Carnegie Moscow Center, 2005.

This threat is exacerbated by the non-nuclear-weapon states' developing the components of the nuclear fuel cycle, primarily the capacities for natural uranium enrichment (the more so if there are natural uranium deposits in the said states) and spent nuclear fuel (SNF) reprocessing to recover plutonium<sup>23</sup>. Such technologies make it possible to significantly shorten the interval between withdrawing from the Treaty and accumulating a sufficient amount of weapon-grade nuclear materials to produce a certain number of nuclear devices.

**Withdrawing from treaties.** The right to withdraw from the NPT, as well as from any other treaty, particularly in the sphere of non-proliferation, is an indispensable attribute of the sovereignty of the state that is party to the treaty in question. On the other hand, withdrawal from the NPT may not be regarded as a routine, formal or an entirely arbitrary action. Article X paragraph 1 implies that the decision to withdraw from the Treaty should rest on strong reasons. Justifying such reasons should not be a legal formality; however, it does logically imply certain procedures. In terms of the irresistible logic of the NPT spirit, the entire expert community currently shares the opinion that there are several essential prerequisites<sup>24</sup>.

First, it is unacceptable that by virtue of the Treaty a state can make use of the advantages of international cooperation in peaceful nuclear energy and then withdraw from the NPT to use these benefits for military purposes. Such an opportunity would turn the treaty against its own goals.

Second, a state's withdrawal from the NPT to cover up the violations of the Treaty that took place when the state in question was an NPT state party is also unacceptable.

Third, the motivation for the withdrawal may on no account be regarded as a formality; it should fully comply with the letter and intent of the NPT and be a criterion to estimate the actual reasons of a state's

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<sup>23</sup> See "Nuclear Weapons After the Cold War", edited by Alexei Arbatov and Vladimir Dvorkin. Russian Political Encyclopedia (ROSSPEN), 2006. P. 37–362.

<sup>24</sup> Some of these principles are reviewed in an article by George Bunn and Roland Timerbaev, two of the world's most renowned experts in this field (See George Bunn, Roland Timerbaev "The Right to Withdraw from the Nuclear Non-Proliferation Treaty (NPT): The Views of Two NPT Negotiators", *Yaderny Kontrol*. PIR Center. 2005. No.3).

withdrawal from the NPT and the state's further intentions, as well as to decide on the adequate response of the international community.

Fourth, the motivation for the withdrawal shall be reviewed for compliance with the provisions of Article X paragraph 1. This should be done by all the NPT states and the United Nations Security Council, not by one or several nations at their own discretion.

Sixth, it is the United Nations Security Council that has the exclusive power to recognize the justifiability of a state's reasons for the withdrawal from the NPT, to decide on imposing sanctions or using force (if the withdrawal is ill-founded or if the IAEA reveals previous secret violations of the Treaty). Indeed, in 1992 the UNSC member states recognized that the spread of weapons of mass destruction constituted a "threat to international peace and security, within the meaning of Chapter VII of the UN Charter"<sup>25</sup>, i.e. it falls within the scope of Articles 41 and 42 of the Charter. The history of the crises over North Korea's and Iran's nuclear programmes showcases the violation of almost all of the fundamental considerations outlined above.

**The motives for withdrawal and the notice period.** It is known that the DPRK acceded to the NPT in 1985 at the suit of the USSR with a view to open the door to cooperation between the two countries in the peaceful uses of nuclear energy in accordance with Article IV of the NPT. However, it took Pyongyang 5 years (till 1992) to sign the safeguards agreement with the IAEA that is supposed to be signed within 18 months. This fact alone was a major violation of Article III paragraph 4 of the NPT that was supposed to be thoroughly examined by the IAEA or the UNSC.

When the safeguards agreement was finally signed, the first IAEA inspections revealed serious discrepancies between the information provided by Pyongyang and the facts discovered by the Agency. The IAEA's inspectors were authorized to carry out a special inspection beyond the facilities declared by North Korea (at the nuclear waste storage facilities at Yongbyong) to fix the discrepancies, but Pyongyang refused to let them inspect the said facilities. Then in 1993 the DPRK announced its decision to withdraw from the NPT. In support of this decision, Pyongyang produced two reasons: the Team Spirit military exercise carried out by the US and South Korea and the "lack of

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<sup>25</sup> Ibid. P. 41.



impartiality” on the part of the IAEA inspectors who requested the permission for a special inspection<sup>26</sup>.

The declared motives for the withdrawal did not in the least comply with the provisions of Article X paragraph 1, since neither the military exercises (which had been the regular practice), nor the ‘partiality’ of the IAEA inspectors could be qualified as ‘extraordinary events’ that had ‘jeopardized the supreme interests’ of the country – the only possible ground for withdrawal from the Treaty.

Therefore, the DPRK needed to denounce the Treaty to conceal the previous violations that took place during the country’s membership in the NPT, which was unacceptable and had to be followed by an adequate response from the UNSC. However, this supreme international institution stood still despite the fact that early 1990s saw an unprecedented unanimity among most of its members brought about by the end of the Cold War. China was on the point of putting a veto on the sanctions proposed by the United States. This was why the Security Council only adopted an appeal to the DPRK calling on it to allow the IAEA to carry out the special inspection, which Pyongyang refused.

Instead of discussing the possible sanctions, including military measures, within the UNSC, the issue was considered in the Democratic Administration in Washington. However, the proposed measures were never adopted, since in the course of his visit to the DPRK former US President Jimmy Carter agreed with the DPRK leader Kim Il Sung that North Korea would reverse its decision to withdraw from the NPT. In return, the US, Japan and South Korea put forward a package of proposals that later was crystallized as the Agreed Framework and a project of the KEDO (Korean Peninsula Energy Development Organization) of 1994. Pyongyang revoked its decision to withdraw from the NPT one day before the expiration of the three-months’ notice period stipulated by Article X paragraph 1. The North Korean nuclear facilities were placed under the IAEA safeguards and their operations were frozen.

Given the overall elation over the newly negotiated agreement, no investigation of alleged NPT violations in 1985-1992 was carried out. The

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<sup>26</sup> See Joseph Cirincione, Jon B Wolfsthal, Miriam Rajkumar “Deadly Arsenals: Tracking Weapons of Mass Destruction”. Washington, Carnegie Endowment for International Peace, 2002. P. 241–254.

insufficiency of the motivation for the withdrawal of the Treaty announced in 1993 did not have any legal or political consequences.

Another withdrawal from the NPT by the DPRK took place when George W. Bush Republican Administration was in power. The Bush administration got tough with its policy on North Korea, including the DPRK within the “axis of evil” category and strongly criticizing the previous administration for flirting with the ‘rogue states’.

It is well-known that the occasion for the withdrawal presented itself in October 2002, when the US accused North Korea of carrying out a clandestine uranium enrichment programme that had not been placed under the IAEA safeguards. According to the US, the existence of such a programme was acknowledged (though according to Pyongyang it was not) by North Korean authorities. Following this statement, the US stopped its oil supplies to the North Korean power plants that were stipulated by the package of agreements of 1994. When the talks in January 2003 ended in a deadlock, Pyongyang sent a notice to the UNSC announcing its withdrawal from the NPT “under the grave situation where our state’s supreme interests are most seriously threatened”<sup>27</sup>. Notably, referring to its withdrawal notice of 1993 that was withdrawn one day before the expiration of the three-months’ notice period, the DPRK declared that its current withdrawal was to be effective in one day, i.e. immediately<sup>28</sup>.

No doubt, this was an outrage on the NPT, since the motivation for the withdrawal in 1993 was ill-founded and therefore could neither be regarded as justifiable ten years afterwards. Both the motivation for the withdrawal and the notice period contradicted the letter of the NPT and could potentially justify the UNSC decisions on imposing sanctions on the DPRK. However, neither Russia nor China supported the sanctions, insisting on further negotiations. Indeed, the negotiations were soon opened in a six-party format, but only to end in a deadlock. On 9 October 2006 the DPRK carried out a nuclear test and became the world’s ninth nuclear-weapon state.

Apparently, the US power politics since 2000 and its violation of the 1993 agreement strengthened Pyongyang’s incentive to develop

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<sup>27</sup> George Bunn, Roland Timerbaev. “The Right to Withdraw from the Nuclear Non-Proliferation Treaty (NPT): The Views of Two NPT Negotiators”, *Yaderny Kontrol*. PIR Center. 2005. No.3. P. 35.

<sup>28</sup> *Ibid.*

nuclear weapons and provided a pretext for withdrawing from the NPT. Moreover, the fact that the US itself withdrew from the ABM Treaty in 2002 and refused to ratify the CTBT was in fact a political indulgence for North Korea's withdrawal from the NPT and the subsequent nuclear test<sup>29</sup>. In addition, both the lack of unanimity within the Security Council and the disregard by the NPT and UNSC states of a blatant violation of the provisions on withdrawal contained in Article X paragraph 1 had a particularly negative effect.

Unlike the North Korean nuclear epic, Iran's nuclear programme and the policy around it is at an earlier stage of development. Tehran has insisted that its nuclear programme is exclusively peaceful and pledged its commitment to the NPT. However, there are omens of future cataclysms. For example, in 2005-2006 Iran followed North Korea's lead and more than once warned that if the IAEA referred the Iranian case to the UNSC, Iran would stop observing the 1997 Additional Protocol that it had signed but never ratified. This was exactly what Iran did. Further, Iran threatened to discontinue its cooperation with the IAEA and as much as withdraw from the NPT, if the UNSC decided to impose sanctions on the country.

Meanwhile, examining the issue by the UNSC and even imposing sanctions due to violations of the IAEA safeguards may not be recognized as a justifiable motive for the withdrawal under its Article X paragraph 1 ("extraordinary events, related to the subject matter of this Treaty" that have "jeopardized the supreme interests" of the country). Otherwise a vicious circle can be created: a violation must not be punished for fear that there would be an even greater violation. Nevertheless, the great powers failed to deliver a strong response to Iran's provocative course of action.

Due to the disunity of the great powers in the UNSC, Iran has used the observance of the IAEA safeguards under the NPT and its membership in the Treaty itself as a means of blackmail to gain political concessions from other countries. Instead of having a restrictive effect on the nuclear policies of the states, some NPT mechanisms are turning into

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<sup>29</sup> It should be specified that in the legal sense the US withdrawal from the ABM Treaty was not equal to the DPRK withdrawal from the NPT, since the US has not been accused of previous violations of the ABM Treaty. The US met the six-months' notice period and provided a legitimate (though strategically disputable) motivation. Besides, Article XV paragraph 2 of the ABM Treaty does not require notifying the UNSC and does not imply that this issue has to be examined.

backchannel pressure instrument by the countries that violate or would potentially violate the NPT. This pressure may use against the IAEA and the United Nations Security Council who strive to preserve the Treaty.

The issue of motivating the withdrawal from the NPT was discussed at the NPT Review Conference in 2005. Many participants in the Review Conference, including Russia and the Western states advocated a more rigorous approach to assessing the validity of the declared motivation for compliance with the letter and intent of Article X paragraph 1 of the Treaty. Notably, the US, by contrast, vigorously defended the ‘sovereign right’ to withdraw for any reason<sup>30</sup>. It seems that in doing so the US was trying to avoid criticism for its own denunciation of the ABM Treaty in 2002.

**Withdrawal from the NPT as a means of concealing violations.**

There is every likelihood that Pyongyang’s step towards withdrawing from the Treaty in 1993 that was suspended a day before the expiration of the three-months’ notice period was directly linked to an attempt to conceal the violations of the IAEA safeguards. However, both the states parties and the UNSC failed to properly gauge this situation. It is more difficult to find an obvious link between the second and final withdrawal of North Korea from the NPT in 2003 and its alleged attempts to conceal the violations, despite the fact that there were suspicions as to its clandestine uranium enrichment programme.

The fact that in 2005 Tehran discontinued the observance of the Additional Protocol of 1997 because Iran’s dossier was referred to the UNSC, and threatened to withdraw from the NPT if sanctions were imposed, arouses serious suspicion as to whether it was an attempt to conceal the previous violations of the Treaty. Meanwhile, the non-observance of the Additional Protocol appears to be a more dangerous step than resuming a uranium enrichment programme despite the fact that the Protocol has not been ratified. In theory, Iran’s threats could give ground for the IAEA and the UNSC to take a harder position, if it was not for the fact that the two organizations were focused on stopping the uranium enrichment (which is technically allowed under the NPT) rather than on ensuring the observance of the Additional Protocol.

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<sup>30</sup> George Bunn, Roland Timerbaev. “The Right to Withdraw from the Nuclear Non-Proliferation Treaty (NPT): The Views of Two NPT Negotiators”, *Yaderny Kontrol*. PIR Center. 2005. No.3. P. 42.

In 2004 in the report by the High-level Panel on Threats, Challenges and Change, appointed by the UN Secretary General and comprising 12 reputable former state officials from across the world, it was proposed that the UNSC make the states withdrawing from the NPT liable for violations that took place when the state in question was party to the NPT, with the approval of the UNSC, if required. One year later, at the NPT Review Conference in 2005, the same proposals were put forward by the US, the EU, Japan, Australia and New Zealand<sup>31</sup>. Russia was more vague in its statements – the country called for increasing the responsibility of the states deciding to withdraw from the NPT as provided for in its Article X and agreeing a number of political measures and procedures while opposing the revision of the Treaty’s provisions<sup>32</sup>.

**Using the ‘peaceful atom’ for military purposes.** A variety of measures have been proposed with the aim to prevent this scenario. For example, at the NPT Review Conference in 2005 the European Union and a number of other states proposed that a rule be adopted according to which all the materials developed for peaceful purposes, of a state party to the NPT would remain, in case of withdrawal from the Treaty, restricted to peaceful uses only and as a consequence would have to remain subject to the IAEA safeguards. It was proposed that an even harsher approach be applied to all materials and technology obtained from a third party due to the state’s participation in the Treaty prior to withdrawal: a State withdrawing from the Treaty should, under UNSC sanctions threat, freeze such materials and technology with a view to having them dismantled or returned to the supplier state, under IAEA control<sup>33</sup>. However, these, as well as other proposals were never implemented due to the failure of the 2005 Review Conference.

The practical implementation of the above measures present severe difficulties, even as regards retaining the materials and technology under the IAEA safeguards. The DPRK experience has shown that the IAEA inspectors may at any moment be driven out together with their equipment, provided that the inspected state is indifferent to sanctions, even if military sanctions are implied. Such behavior will be even more likely, if the state in question had succeeded in the development of

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<sup>31</sup> Ibid. P. 44.

<sup>32</sup> Ibid.

<sup>33</sup> Ibid. P. 44.

nuclear weapons, an explosive device or at least in creating a convincing impression of possessing them. From this perspective, the measures related to the dismantling and returning the materials and technology, primarily those that have dual use (uranium enrichment, plutonium separation) are still harder to apply. It appears that these measures should be implemented without delay as soon as a state withdraws from the NPT, without waiting for it to develop nuclear weapons. Expanding the IAEA safeguards in the non-nuclear-weapon states parties of the NPT is aimed at ensuring the longest possible interval between a state's withdrawal from the Treaty and the creation of nuclear weapons – by making sure no nuclear weapons have been secretly developed before the date of withdrawal<sup>34</sup>.

However, the most stringent measure – the elimination and return of technology and material creates the biggest problems legally, financially and technically: i.e. the reimbursement for the materials and technology acquired and obtained under contracts, practically removing the fuel and dismantling the reactors or other facilities<sup>35</sup>. It is even more important that if the state in question objects to such measures, this option can only be realized by military occupation. However, a military occupation (which is very likely to be preceded by an armed attack) most likely implies a regime change. When that objective is accomplished, it will be easy to ensure the return of the country to the NPT and elimination of its nuclear programme which would remove the issue of dismantling and return of materials and technology from the agenda.

**A possible approach to the issue of withdrawing from the NPT.**

It appears that the resolution of these issues requires a comprehensive approach and coordinated policy of the great powers and all states committed to the NPT, the United Nations Security Council, the IAEA and other institutions and organizations. The analysis of the historical experience of the North Korean and Iranian issues makes it possible to formulate the following key proposals.

Improving the IAEA safeguards and universalizing the Additional Protocol of 1997 will ensure that there are no secret violations of the NPT

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<sup>34</sup> For detailed information, see Chapter 2 of this brochure.

<sup>35</sup> See “Universal Compliance: A Strategy for Nuclear Security. Carnegie Endowment for International Peace. Washington, 2004. (<http://wmd.ceip.matrixgroup.net/UniversalCompliance.pdf> of 14 January 2005).

and take the issue of withdrawing from the Treaty to conceal previous violations off the table.

The announcement by a state of its withdrawal from the NPT should be followed by (1) intensive inspections by the IAEA to reveal possible past violations of the Treaty or the safeguards agreement; (2) an Extraordinary Conference of the parties to the Treaty on the Non-Proliferation of Nuclear Weapon to examine the motivation for the withdrawal; (3) if the motivation is recognized as contradicting Article X paragraph 1 of the NPT the issue should be immediately referred to the UNSC for consideration pursuant to Article 41 of the Charter of the United Nations.

Resisting the IAEA inspections or non-observance of the pre-notification period clause should immediately bring about a decision by the UNSC to impose sanctions.

All materials and technology existing in the state on the date of its withdrawal from the NPT, regardless of their origin, should be used exclusively for peaceful purposes and should remain under the IAEA safeguards.

All dual-use technologies and materials (uranium enrichment, plutonium separation) obtained from third parties or created by the state when it was party to the NPT should be frozen and subsequently dismantled or returned to the supplier states under the IAEA control. This particularly applies to materials and technology acquired in the above period from non-NPT parties, i.e. in violation of the NPT and the IAEA safeguards.

The refusal to comply with the two last-mentioned requirements should result in a UNSC decision to impose sanctions, including the use of military force in line with the Article 42 of the UN Charter.

Clearly, even the radical measures outlined above do not entirely guarantee that there will be no withdrawals from the NPT. However, these measures may serve as a powerful deterrent against such a step and a means to reduce the damage to international security in case there is a withdrawal. It is also evident that these conditions should be legalized by the relevant decisions of the states parties to the NPT and the UN international legal acts.

For example, the NSG could include a mandatory provision on return or dismantling in every future contract for the supply of the relevant technology under Article IV of the Treaty.

#### **4. NUCLEAR FUEL CYCLE AS A LOOPHOLE IN THE NON-PROLIFERATION REGIME**

The proliferation of fissile materials production technologies poses serious risks to the nuclear non-proliferation regime. The North Korean case study strongly indicates that a nation possessing technologies of uranium enrichment or/and reprocessing of spent nuclear fuel is potentially capable of quickly producing nuclear weapons, even if it is a state party to the Treaty on the Non-Proliferation of Nuclear Weapons and its facilities are under IAEA safeguards. As former Director General of IAEA Mohamed ElBaradei put it, nuclear fuel cycle is the "Achilles' heel" of the nuclear non-proliferation regime"<sup>36</sup>.

The fact that the non-proliferation regime has a loophole in the form of the right to develop the nuclear fuel cycle raises questions about whether the NPT can adequately protect international security against new threats.

##### **Outlook for the development of atomic energy and its prospects.**

It is forecasted that by 2030, the world's demand for electric energy will double as compared to those of 2007 and may reach 22,000GWt<sup>37</sup>. In order to meet this growing energy demand, countries use atomic energy as an alternative energy source. The interest in atomic energy is also encouraged by the fact that hydrocarbon resources are limited and their price grows, as well as by the necessity to reduce emissions causing climate change, as well as by considerable advancement of reactor technologies.

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<sup>36</sup> See Multilateral Approaches to the Nuclear Fuel Cycle: Expert Group Report submitted to the Director General of the International Atomic Energy Agency, INFCIRC/640, 28 April 2005.

<sup>37</sup> See Report on Proliferation Implications of the Global Expansion of Civil Nuclear Power, International Security Advisory Board, 7 April, 2008  
International Energy Outlook 2006. U.S. Department of Energy, Wash., DC, June 2006 ([www.eia.doe.gov/oiaf/ieo/index/html](http://www.eia.doe.gov/oiaf/ieo/index/html)).



At the moment, 433 nuclear power reactors are operate around the world with an aggregate installed capacity of about 366.6 GWt, and 65 more reactors are under construction.<sup>38</sup> Before the accident at the Fukushima nuclear power plant, IAEA forecasted that the aggregate capacity of all nuclear power plants around the world was expected to reach 748 GWt by 2030<sup>39</sup>. The share of nuclear power plants in energy production will grow even after the Fukushima accident, although at a lower speed than it was previously expected.

The development of nuclear energy is particularly intensive in South Asia and the Pacific. China, India, and South Korea are all carrying out large-scale nuclear energy development programs. It is worth noting that of the 17 reactors brought into service in the recent five years, 14 are situated in Asia, and 40 of the 50 reactors currently under construction around the world are also located there<sup>40</sup>. Other countries of the region — Vietnam, Indonesia, Thailand, the Philippines and Malaysia — have also expressed interest in this source of energy.

Some European countries, as well as countries from the Near and Middle East are also interested in developing nuclear energy. Belarus, Bangladesh, United Arab Emirates and Turkey have confirmed their plans to build nuclear power reactors, while Bahrain, Kuwait, Saudi Arabia, Libya, Kazakhstan Poland, Algeria, Egypt, Morocco, Tunisia Oman, Israel and others have announced of their intention to develop nuclear energy.<sup>41</sup> It is expected that by 2020, Belarus, Vietnam, Turkey, Iran and United Arab Emirates will have joined countries possessing nuclear energy programmes, while as IAEA Director General Yukiya Amano says, by 2030 the number of such countries will increase by 10-25 more<sup>42</sup>.

The expected expansion of the number of countries developing nuclear energy programmes gives rise to concerns. Those are explained by potential risk for nuclear non-proliferation regime as a result of sharing such sensitive nuclear fuel cycle technologies as natural uranium enrichment and reprocessing of spent nuclear fuel.

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<sup>38</sup> See <http://www.iaea.or.at/programmes/a2/>

<sup>39</sup> See International Status and Prospects of Nuclear Power, Report by the Director General, GOV/INF/2008/10-GC(52)/INF/6, 12 August 2008.

<sup>40</sup> See <http://www/iaea/org/cgi-bin/db/page/pl/pris/reaucct.htm>.

<sup>41</sup> See <http://www.iaea.org/NewsCenter/News/2006/newcountries.html>.

<sup>42</sup> See <http://www.iaea.org/NewsCenter/Statements/2010/amsp2010n002.html>.

**The nuclear fuel cycle.** Most of the modern nuclear power reactors use fuel comprising uranium-235 as its main component. Besides uranium fuel some European countries, France, for one, produce and use MOX fuel containing plutonium as fissile material.

Natural uranium contains about 0.7 percent of uranium-235, that is, uranium isotope with a mass number of 235, and 99.3 percent of uranium-238. Uranium containing over 20 percent of uranium-235 is considered direct-use material as defined by IAEA and can be used to create a relatively compact explosive device. Uranium enriched to more than 90 percent in uranium-235 is considered to be weapon-grade material and is used in nuclear weapons. In order to obtain uranium with a concentration of uranium-235 exceeding the natural one, one needs a sophisticated enough isotope separation technology.

Plutonium cannot be found in nature, and is a completely artificial element. Nuclear power reactors using natural or low-enriched uranium fuel is the most appropriate installation for plutonium production.

The nuclear fuel cycle is commonly divided into two stages: front-end and back-end. The former begins with the extraction of uranium ore and the production of uranium concentrate  $U_3O_8$ . After the conversion at combine works the product of enrichment goes to facilities to be converted to uranium oxide  $UO_2$ , which in its turn is used to produce nuclear fuel. The fuel for commercial nuclear power thermal reactors usually uses uranium enriched to a maximum of 5 percent.

Spent nuclear fuel contains mainly uranium enriched to about 1 percent, plutonium and fission products. Normally, a ton of spent nuclear fuel contains from 5 to 8 kilograms of plutonium. One of the final stages of the nuclear fuel cycle involves holding the spent nuclear fuel in a cooling pond. After three to five years' storage, depending on the handling scheme, the spent nuclear fuel is either reprocessed chemically or is sent to permanent storage facilities. During reprocessing the spent nuclear fuel is separated into uranium, plutonium and high-level radioactive waste. The latter are buried, while uranium and plutonium may be reused for the production of nuclear fuel.

It should be noted that the front-end of uranium fuel cycle and the technology of production of weapon-grade uranium involve the same elements. However, not all of the NFC elements are equally critical in terms of the non-proliferation regime. The most sensitive ones include uranium enrichment and SNF reprocessing.

There are currently two generic commercial methods employed internationally for enrichment: gaseous diffusion and isotope separation in gas centrifuges. To compare the efficiency of different techniques and describe the performance of uranium enrichment facilities, a special term has been devised, separation work unit, SWU. For example, to produce one kilogram of weapon-grade uranium about 200 SWU are required, while the production of one kilogram of fuel uranium enriched to 5 percent requires 7-8 SWU.

Countries possessing uranium enrichment facilities are listed in Table 1.

Table 1.

<b>Country</b>	<b>Enrichment method</b>	<b>Capacity (1000 SWU a year)</b>
Brazil	GC (under construction)	120 (200)
UK (Urenco)*)	GC	4200
Germany (Urenco)*)	GC	4500
India	GC	4-10
Iran	GC	100-250
China	GC	1500 (2000)
The Netherlands (Urenco)*)	GC	3500
Pakistan	GC	15-20 (170)
Russia	GC	24000 (30000)
USA	GD Laser (under construction)	11300 (3500-6000)

	GC (under construction)	(6500)
France	GD	8500
	GC	(7500)
Japan	GC	1050 (1500)

\*) In the UK, Germany and the Netherlands uranium enrichment facilities belong to URENCO international company.

Notes:

1. GC – isotope separation with the help of gas centrifuges, Laser – laser enrichment technique, GD – gaseous diffusion enrichment technique.

2. Numbers in parentheses show capacity after the completion of the planned expansion.

The most efficient gas centrifuge enrichment technique has become the most common enrichment technique in the world. It should be noted that due to some technological features this particular enrichment technique poses the most serious threat to nuclear non-proliferation regime. Firstly, it has a sufficiently high enrichment ratio per a cycle (about 1.3-1.7). About 15 enrichment cycles are necessary to obtain fuel uranium, and about 40 cycles to obtain weapon-grade one. As a result, an enrichment facility can easily be converted from low-enriched to high-enriched uranium, which allows a country's 'breakout' from the NPT, quickly converting civilian technology for military purposes. Secondly, covert centrifuge enrichment facilities are hard to detect. Meanwhile, a relatively small plant can produce enough HEU for one or two nuclear explosive devices in one year. Gas centrifuge facilities consume comparable amounts of energy for enrichment purposes and lighting of the facility (about 50KWth per SWU).

The back-end of the nuclear fuel cycle also poses serious threat to nuclear non-proliferation regime, as reprocessing of spent nuclear fuel involves separation of plutonium.

**The security of the nuclear fuel cycle.** Apparently, as the use of nuclear energy is expected to grow, to retain nuclear non-proliferation regime, one will have to prevent proliferation of sensitive nuclear technologies, on the one hand, and to provide the interested countries with a guaranteed access to peaceful nuclear energy, on the other hand.

At the moment nuclear energy mostly builds on light-water-moderated reactors accounting for 88 percent of the installed capacity. This type of nuclear reactors uses low-enriched uranium fuel. It appears that transition to innovative nuclear energy ensuring sustainability of the nuclear non-proliferation regime thanks to its immanent physical and technological characteristics could provide a durable solution to the problem. This calls for the development of new types of power reactors and their fuel cycles. The relevant work is underway in the framework of several international projects (Generation IV, INPRO), however one can expect such innovative nuclear technologies to be developed and used only in the distant future.

In the next several decades the development of nuclear energy will build on existing nuclear fuel cycle technologies. For this reason, the solution to the non-proliferation issues linked to prospective expansion of the number of countries running nuclear energy programmes today should be sought through the creation of institutional, economic and political barriers that would not prevent the countries from developing and using nuclear energy yet encourage them to voluntarily forego nuclear fuel cycle technologies at the same time.

The main reasons for which countries strive to get access to nuclear fuel cycle technologies are most commonly considered to include:

- Ensuring national security and building up their national prestige due to acquiring capabilities for the production of nuclear weapons;
- Ensuring their energy independence and security;
- Gaining economic profit.

The countries developing NFC technologies mainly for the first two reasons include Iran and Brazil. In these cases both reasons may be cited in various combinations or the second reason can be officially cited to conceal the first one.

As for economic gains, in most cases it appears to be unjustified. The influence of the cost of nuclear fuel, including the cost of uranium and the enrichment on the energy generation by nuclear power plants is

almost negligible. Therefore, the reasoning in favor of acquiring enrichment technologies in order to securing economic gains due to energy generation at nuclear power plants is unconvincing.

As for acquiring NFC technologies in order to ensure national security, this is a really valid reason. In order to respond to it, one needs to study whether the world market is capable of providing guaranteed and reliable supplies of all the products and services of the civilian nuclear fuel cycle, primarily the supplies of uranium and enrichment services. Without such guarantees, one can hardly expect that states (especially those commonly viewed as 'problem' ones) should be willing to renounce their national enrichment facilities.

Presently, annual world demand for natural uranium ( $U_3O_8$ ) required to operate all the 433 reactors, reaches about 73.7 thousand tons, while only 63.3 thousand tons are extracted annually<sup>43</sup>. The gap between the consumption and the production is bridged mainly with the stocks accumulated earlier. In the future, taking into account the forecasted expansion of nuclear energy, annual extraction of natural uranium should scale up to 120 thousand tons. This would necessitate a considerable buildup of the uranium extraction capacities which are currently confined to 60 thousand tons.

World demand for enrichment services in 2010 amounted to about 49 million SWU<sup>44</sup>. In case nuclear energy develops at a moderate pace (680 GWt by 2030) annual demand on these services, assuming that only light-water-moderated reactors are in operation, will go up to 82 million SWU. At the moment, there are four major providers of uranium enrichment services at the world market. Those are EURODIF (a multinational company with the participation of France, Italy, Spain, Belgium and Iran), Urenco (Germany, UK and the Netherlands), USEC (US) and TENEX (Russia), which meet 95 percent of the demand for enrichment.

Taking in consideration the activity and capabilities of the enrichment services suppliers present in the market, it can be guaranteed that the market will be technologically and economically able to meet the demand for these services irrespective of the way world nuclear energy develops.

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<sup>43</sup> See <http://www.world-nuclear.org/info/inf23.html>.

<sup>44</sup> See <http://www.world-nuclear.org/info/inf28.html>.

However, the risk of the consumer being denied nuclear fuel cycle services on the market still remains, and can be explained mainly by political reasons. Hence, conditions should be created in order to provide every consumer complying with their non-proliferation obligations with reliable guarantees of access to the nuclear fuel cycle services. This goal may be attained by developing and establishing a multilateral nuclear fuel cycle mechanism.

**Opportunities for the provision of nuclear fuel cycle services.** In order to establish such mechanism, a set of measures should be devised and implemented both enhancing the existing market of the nuclear fuel cycle services and guaranteeing every country that uses nuclear energy and has foregone sensitive nuclear technologies, the possibility to purchase these services at favorable prices on the international market. The discovery in 2003 of a clandestine network supplying nuclear technologies and equipment established by a Pakistani nuclear scientist A.Q.Khan has boosted several initiatives to address this issue.

In his address to the UN General Assembly on 3 November 2003, IAEA Director General suggested that uranium enrichment and reprocessing of spent nuclear fuel should be performed exclusively at facilities placed under international control<sup>45</sup>. To examine possible approaches to and stimuli for the involvement of states in establishing a multilateral nuclear fuel cycle, IAEA Director General formed an international group of experts. In their report they proposed the following measures: international nuclear fuel supply guarantees for nuclear power reactors, converting existing national facilities of the nuclear fuel cycle to multilateral arrangements and the establishment of multinational regional MNAs based on joint ownership<sup>46</sup>.

At the same time, the report noted that present legal framework did not oblige countries to participate in guaranteed supplies of nuclear fuel cycle services.

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<sup>45</sup> See Statement by the IAEA Director General Dr. Mohammed El Baradei, to the 58<sup>th</sup> Regular Session of the U.N. General Assembly, November 3, 2003.

<sup>46</sup> Multilateral Approaches to the Nuclear Fuel Cycle: Expert Group Report submitted to the Director General of the International Atomic Energy Agency, INFCIRC/640, 28 April 2005.

In 2006-2007 many countries and organizations proposed over 12 different initiatives aimed at guaranteeing the supply of nuclear fuel cycle services<sup>47</sup>. Some of them have been put to practice.

In 2006, the US proposed the Global Nuclear Energy Partnership (GNEP) aimed at reducing the risk of nuclear proliferation. However, the complexity of the GNEP programme and the doubts as to its ability to address the issue of non-proliferation of nuclear technologies, criticism on the part of non-governmental experts, especially of the programme internal component envisaging reprocessing of spent nuclear fuel, made the government give up this programme within the US<sup>48</sup>. The international component of the GNEP programme is currently revised.

In 2006 the President of Russia suggested that an international center should be established in cooperation with other countries in order to provide nuclear fuel cycle services, including uranium enrichment. The International Uranium Enrichment Center (IUEC) was established on the site of the Angarsk Electrolysis Chemicals Complex in 2007. Any country intending to develop civilian nuclear energy without acceding to sensitive nuclear technologies can conclude an intergovernmental agreement with Russia and become a full member of IUEC, that is, its shareholder. One of the key principles of the center is that its facilities are places under IAEA safeguards.

In June 2006, six countries operating enrichment facilities, namely France, Germany, the Netherlands, Russia, the US and the UK tabled a draft document envisaging "guaranteed" supplies of low-enriched uranium for nuclear fuel to the countries which forego national enrichment facilities and conclude comprehensive safeguards agreements with IAEA, including Additional Protocol of 1997.

In September 2006 the US non-governmental organization Nuclear Threat Initiative (NTI) announced the allocation of \$50 million to form a LEU stockpile belonging to IAEA<sup>49</sup>. IAEA could dispose of this stockpile to ensure guaranteed fuel supplies without discrimination and political

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<sup>47</sup> See Yudin Yuri. Multilateralization of the Nuclear Fuel Cycle, UNIDIR, 2010.

<sup>48</sup> See Amerikanskaya initsiativa GNEP umerla [The US GNEP initiative is dead] // Agentstvo atomnykh novostei. 16 April 2009 (<http://atominfo.ru/news/air6332.htm>).

<sup>49</sup> Nuclear Threat Initiative Commits \$50million to Create IAEA Nuclear Fuel Bank, International Atomic Energy Agency Press Release, September 19, 2006. ([http://www.nti.org/c\\_press/release\\_IAEA\\_FuelBank\\_091906.pdf](http://www.nti.org/c_press/release_IAEA_FuelBank_091906.pdf))



requirements to the states foregoing enrichment. However, IAEA could only make use of this amount on condition that one or several of its members allocate an additional amount of \$100 million. The necessary amount was accumulated only in March 2009, and in December 2010 IAEA Board of Governors decided to implement the NTI initiative and establish a bank of LEU at the Agency. It is planned that the stockpile of 60 tons of LEU will be stored in one or several IAEA members' facilities, however, the choice has not yet been made<sup>50</sup>.

Russia supported the initiative of a nuclear fuel bank. In June 2007 it announced that a reserve of 120 tons of LEU would be accumulated at the IUEC in Angarsk. The uranium from this reserve can be provided upon IAEA request to its member having difficulties with supplies of nuclear fuel for nuclear power plants for reasons other than commercial or technical ones. In March 2010 Russia and IAEA concluded an agreement establishing such reserve.

**The problems of internationalization of nuclear fuel cycle services.** As it has already been noted, the present legal framework does not oblige nuclear fuel consumer countries to participate in multinational nuclear fuel cycle arrangements. What is more, as the discussion of the relevant initiatives has shown, the majority of countries make it clear that no plan envisaging the segregation of countries into fuel suppliers and fuel recipients will be supported. Many view the recent advances towards international approaches to nuclear fuel cycle as undermining the NPT pillars. The Treaty has no ban on uranium enrichment, and the third world countries do not intend to give up this right. Biases against initiatives to internationalize fuel cycle became manifest when IAEA members voted on Russia's proposal to establish the nuclear fuel bank. A number of the third world countries voted against this proposal or abstained<sup>51</sup>.

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<sup>50</sup> Yudin Yuri. Multilateralization ...op.cit.

<sup>51</sup> Argentina, Brazil, Venezuela, Egypt, Cuba, Malaysia, Pakistan and South Africa voted against while India, Kenya and Turkey abstained from vote. (See <http://www.atominfo.ru/news/air8549.htm>).

This means that the success of such initiatives depends mostly on the recipient countries and their choice in favor of the services supplied by the world market or multilateral enrichment centers rather than developing national nuclear fuel cycle facilities. Apparently, the only incentive to opt for the former would be reliable guarantee of supplies and more favorable prices.

The option of creating (preferably under IAEA control) multilateral enrichment centers, banks of LEU and nuclear fuel and providing relevant supplies at special discounted prices to those foregoing national nuclear fuel cycles appears extremely promising. However, despite all its attraction and brilliant simplicity of the main idea, the devil is in details, and there are much more questions than answers with regard to this proposal.

First of all, what is implied by guaranteed supplies of nuclear materials and fuel? Will such materials and fuel be still supplied unconditionally to a state foregoing national nuclear fuel cycle (and complying with all NPT provisions) even if the state in question breaches other legal norms, which may result in the UN sanctions? In other words, should the supplies of enriched uranium and nuclear fuel present an exception from any sanctions? To cite but one example, is it possible to imagine continued nuclear supplies to Libya in the height of the civil war and NATO bombing, taking in consideration that in 2003 the ruling regime gave up nuclear programme and theoretically speaking could then have concluded an agreement on the supplies of enriched uranium and fuel in exchange for obligation not to develop national nuclear fuel cycle.

Furthermore, there is a question of who will pay the operation of multilateral uranium enrichment and fuel production centers and at what price. If nuclear materials are supplied to 'trustworthy' consumers at a discounted price, who will pay the difference between the market and the discounted price so that the enterprises remained profitable and the investors could receive their interest?

The establishment of international enrichment centers also raises broader issues of what will become of the world market of nuclear materials after the cartel price is fixed for the LEU due to the supplies of these centers? Is there a way to ensure that the cartel price is really the lowest one and thus to encourage importers from developing national fuel cycle? What can be done to preclude the possibility that the recipient countries, seeking ever greater discounts and privileges in nuclear

cooperation in accordance with Article IV of the NPT, could use the concept of ‘guaranteed LEU supplies’ as an instrument for blackmail? After all, any country in theory could demand supplies under such preferential conditions (and perhaps also supplies of prefabricated fuel), saying that otherwise it will develop its own nuclear fuel cycle.

The establishment of multilateral nuclear fuel cycle centers would also entail many economic, technical and legal difficulties. Will individual countries’ rights to receive LEU or nuclear fuel depend on their share of investment in the international center, or will it depend only on their renunciation of their own nuclear fuel cycle, with the price and amount of services determined by a world market mechanism? In other words, if a country does not wish to invest in an international fuel cycle center abroad, will it have the right to guaranteed supplies solely in return for giving up its own nuclear fuel cycle? What kind of economic relations will the international fuel cycle centers have with the national companies operating on the export market, especially if one and the same country is participating in the international centers and also has national companies that export fuel cycle services? Does this mean that the international centers with their guaranteed supplies will eventually squeeze the national uranium enrichment companies into working only with countries that possess the nuclear fuel cycle? Who will provide compensation to the companies working within the international centers for the losses arising from guaranteed LEU supplies at lower prices? Which members of the international centers will take on the commitment of bringing spent nuclear fuel from importer countries into their own territory for further reprocessing and storage?

Another issue to consider is that if the international centers monopolize the key phases in the nuclear fuel cycle (uranium enrichment and spent fuel reprocessing), this could have a negative impact on the market for the other phases in the fuel cycle – the production of uranium concentrate, uranium hexafluoride and fuel assemblies for reactors. This is particularly true of fuel assemblies because, as a rule, the supply of certified fresh assemblies and the removal and reprocessing of irradiated assemblies is technically and commercially closely linked to the supply of the reactors themselves.

Finally, the success of the initiatives to gradually internationalize the fuel cycle, proposed by the IAEA will largely depend on progress in ending the production of fissile materials for military purposes. All of the

countries that do not have nuclear fuel cycle facilities can hardly be expected to agree to tie their nuclear energy needs once and for all to the international centers unless countries that possess fissile material production technology, including the five NPT and four non-NPT nuclear-weapon states, reach an agreement banning the production of fissile materials for military use and place their enrichment and spent fuel reprocessing facilities under IAEA supervision. This issue could in principle be resolved through negotiations on the Fissile Material Cut-Off Treaty (FMCT) at the Conference on Disarmament in Geneva, but for several years now these negotiations have been stuck firmly in a dead-end because of the parties' military, strategic, technical, and political differences.

All of these issues require thorough and competent study. One should also analyze current practical solutions aimed at addressing the issue of proliferation of nuclear fuel cycle technologies. In this respect, the construction of a nuclear power plant in Iran by the Russian company Atomstroyexport is noteworthy. In accordance with an intergovernmental agreement, Russia undertook to supply fresh fuel and take back the spent fuel for the entire period of operation of the nuclear power plant in Bushehr. If all countries developing nuclear power adhere to this practice, it would help make the nuclear fuel cycle safer. This practice is also attractive for recipient countries because it frees them from the problem of spent nuclear fuel management. Thus, this removes a serious barrier for developing national nuclear power programs. But the Iranian example also shows that these kinds of bilateral agreements do not rule out countries' interest in developing their own nuclear fuel cycle.

The current interest in nuclear fuel cycle issues grew above all out of the protracted crisis over the Iranian and North Korean nuclear programs. At the same time, new nuclear fuel cycle concepts are unlikely to make any serious contribution to resolving the issue of the nuclear programmes of these two countries. For each of these two cases, ad-hoc multilateral negotiations are underway discussing specific solutions for each of them. The most that can be hoped for is that some form of guaranteed supplies of LEU or nuclear fuel will be part of such agreements to be reached. However, even if solutions are found to the Iranian and North Korean issues, the idea of internationalizing the nuclear fuel cycle must not be allowed to slip from the agenda; otherwise the dangers and complications in this area will almost inevitably resurface.

Overall, it will be possible to develop nuclear energy on a broader scale while preventing the spread of sensitive nuclear technology through the nuclear fuel cycle only if the following basic conditions are met:

- Parties to the NPT need to recognize the necessity of foregoing the construction of new national enrichment facilities, including small-capacity ones;
- Countries that already have enrichment technology need to cooperate in this area aiming at a full transition to international uranium enrichment centers in the longer term;
- The existing nuclear fuel cycles will be gradually internationalized in appropriate forms and under the auspices of IAEA;
- Efforts must be made to strengthen the existing nuclear services market through long-term contracts and enhanced transparency thereof, and to provide, on a guaranteed and non-discriminatory manner, nuclear fuel cycle services to states-parties to the NPT foregoing the development of national uranium enrichment and spent fuel reprocessing technologies;
- Alongside with price incentives, a comprehensive set of technological and commercial incentives for countries foregoing the nuclear fuel cycle, must be developed;
- Beginner countries will receive nuclear technologies suppliers' assistance in developing national nuclear energy only after accession to Additional Protocol of 1997;
- Eventual transition to international uranium enrichment centers under the auspices of the IAEA must be accompanied by the extension of the 1997 Additional Protocol to the entire civilian nuclear infrastructure of the nuclear-weapon states and, if the FMCT is concluded, to all of their uranium enrichment and spent fuel reprocessing facilities.

## 5. THE EFFICIENCY OF THE NON-PROLIFERATION INSTITUTIONS

The Treaty on the Non-Proliferation of Nuclear Weapons and its global international legal regime has recently been subjected to especially rigid tests<sup>52</sup>. The NPT provides no internal mechanism for responding to the breaches of its provisions. Such cases are referred to the Board of Governors of IAEA which is authorized to inform the UN Security Council of the facts affecting international peace and security.

The drawbacks of the enforcement mechanism under the NPT have become especially visible in the recent years. In 2008-2009, international discussion on the matter centered on the nuclear programmes of the two states, Iran and North Korea, on which the UN Security Council imposed sanctions for their breaches of their non-proliferation obligations.

The application of sanctions has highlighted the necessity to introduce harsher penalties for breaching international legal non-proliferation norms, render the NPT regime more effective and eliminate obvious loopholes in it. Furthermore, more effective means and instruments of suppressing prohibited activities are needed.

**UN Security Council: enforcement opportunities.** The UN Security Council has a broad mandate and hence legal grounds to act quickly and decisively. In accordance with Article 39 of the Charter of the United Nations, the organization may use enforcement measures in case

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<sup>52</sup> As it has been noted above, at the moment there are 438 nuclear power reactors functioning around the world. According to the forecast of the World Nuclear Association, their number may almost double by 2030 and reach 800. About 30 countries that currently have no nuclear power plants (with some situated in instability zones) are considering their construction. There is immense risk linked to the proliferation of sensitive nuclear technologies, mainly those for the production of weapon-grade uranium and plutonium. This may result in the increased amount of nuclear materials that can be used for destructive purposes. (See *Eliminating Nuclear Weapons: a Practical Agenda for Global Policymakers*: International Commission on Nuclear Non-proliferation and Disarmament Report. Canberra; Tokyo, November. 2009. P. 48.)

of "any threat to the peace, breach of the peace, or act of aggression". Chapter VII of the Charter "Action with Respect to Threats to the Peace, Breaches of the Peace and Acts of Aggression" provides for a clear set of enforcement measures aimed at maintaining international peace and security. The authority and obligation to apply such measures within the United Nations are concentrated in the hands of the Security Council - the main body responsible for maintaining international peace and security, which is for this end vested with exceptional powers, including to use enforcement measures<sup>53</sup>.

The Security Council that has the power to determine (with the assistance of IAEA) whether a proliferation activity poses threat to international peace and security and to decide which enforcement measures should be taken in order to prevent and suppress it. Acting on behalf of all UN members it can decide on economic, political, and other enforcement measures (Article 41), as well as enforcement measures involving armed force (Article 42). In 1992, the UNSC qualified proliferation of any weapons of mass destruction as a "threat to international peace and security"<sup>54</sup>, and have repeatedly taken enforcement measures to respond to serious challenges to non-proliferation regime, when usual soft political and diplomatic means proved insufficient.

Nevertheless, the Security Council has never directly used its enforcement capability to strengthen non-proliferation regime. In this context, the experience of the UN sanctions imposed against Iran and DPRK, is notable.

**Crisis around Iran's nuclear programme and sanctions.** In accordance with NPT and the Safeguards Agreement between the Islamic Republic of Iran and IAEA (1974)<sup>55</sup>, Iran undertook not to acquire

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<sup>53</sup> Powers of the Security Council as the main UN body responsible for maintaining international peace and security are set forth in Chapters VI, VII, VIII and XII of the Charter of the United Nations.

<sup>54</sup> Statement by the Chairman of the United Nations Security Council. UN Document S/PV.3046 (31 January 1992).

<sup>55</sup> In compliance with the NPT IAEA safeguards must be applied to "all source or special fissionable material in all peaceful nuclear activities" within the territory of non-nuclear-weapon states parties to the NPT, under their jurisdiction, or carried out under its control anywhere. IAEA safeguards are designed for the exclusive purpose of verification of the fulfillment of its obligation concerning non-diversion of nuclear materials to nuclear weapons (Article III). Under the

nuclear weapons and place its nuclear activities under international controls.

However, in late 1980-s - early 2000-s Iran engaged in undeclared nuclear activities, including clandestine acquisition of dual-use technologies (those that can be used for both civilian and military purposes) from illicit nuclear suppliers networks<sup>56</sup>. There is unquestionable evidence that the underground network for trafficking in nuclear materials and technologies headed by Pakistani nuclear scientist A.Q. Khan was involved in Iran's nuclear efforts<sup>57</sup>.

In February 2006, IAEA Director General submitted a report to the UN Security Council informing it that IAEA Board of Governors required Iran to take a number of specific steps in order to restore international confidence in exclusively peaceful nature of its nuclear activities. IAEA Board of Governors urged Iran to suspend fully all uranium enrichment-related and reprocessing activities.

At this first stage, the Security Council confined itself to supporting the decision of the Board of Governors, urging Iranian leadership to meet this requirement<sup>58</sup>. However Tehran disregarded this call which

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NPT, IAEA is responsible for preventing in a timely manner the diversion of fissile material and nuclear activities for military purposes.

<sup>56</sup> Iran's nuclear facilities that were not declared on time include facilities for the conversion of natural uranium in uranium hexafluoride (UF<sub>6</sub>), its subsequent enrichment, nuclear fuel production, etc. The NPT does not prevent non-nuclear-weapon states parties from creating such facilities, if they are obligatorily declared to IAEA and placed under its safeguards (controls). Having infringed this provision, Iranian leadership committed an offense raising the doubts of the international community as to exclusively peaceful nature of Iran's nuclear programme.

<sup>57</sup> In 2004, A.Q. Khan acknowledged that he transferred nuclear technologies and information to Iran. As the investigation into the activities of this network has shown, a number of European companies were breaking the rules governing national and international export controls and assisted to A.Q. Khan. Although Khan's network has been defeated, many of his accomplices fled justice. International export controls of nuclear materials do have their weaknesses.

<sup>58</sup> The consolidated position of the members of the UN Security Council after the consideration of the report of IAEA Director General on Iran's nuclear programme is expressed in the Statement by the President of the Security Council of 29 March 2006 and in the Resolution 1696 of the Security Council of 31 July 2006 (See UN documents S/PRST/2006/15 and S/RES /1696/2006). These documents stress that the IAEA is unable to conclude that there are no undeclared nuclear materials in Iran. They note that the IAEA is unable to make progress in



compelled the UNSC to impose sanctions in late 2006. On 23 December 2006, the UN Security Council unanimously adopted Resolution 1737 which on the basis of Article 41 of Chapter VII of the Charter of the United Nations<sup>59</sup> imposed sanctions against Iran's uranium enrichment activities, as well as its heavy water-related projects and the production of delivery vehicles for weapons of mass destruction.

Two subsequent UNSC Resolutions on Iran – 1747 (24 March 2007)<sup>60</sup> and 1803 (3 March 2008)<sup>61</sup> – expanded the scope of sanctions, as Tehran had failed to comply with the earlier UNSC resolutions concerning its nuclear programme.

At the same time, the sanctions were of a limited nature. They were linked to the aspects posing direct threat to the NPT regime. The sanctions had no bearing either on the nuclear power plant constructed in Bushehr, or the IAEA assistance to Iran in civilian nuclear energy projects, and proved insufficient to make Tehran implement the measures required by the UNSC and IAEA<sup>62</sup>.

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its efforts to provide assurances about the absence of undeclared nuclear material and activities in Iran, and expressed concern over the proliferation risks presented by the Iranian nuclear programme. Resolution 1696 was adopted based on Article 40 of the Charter of the United Nations concerning provisional measures taken by the Security Council to prevent the aggravation of the situation. The Resolution called on Tehran to take the steps required by the IAEA Board of Governors and provided for no enforcement measures. Tehran's failure to comply with it was taken account of during further consideration of the issue of Iranian nuclear programme by the Security Council and adoption of enforcement measures.

<sup>59</sup> See UN document S/RES 1737 (2006).

<sup>60</sup> See UN document S/RES 1747 (2007).

<sup>61</sup> See UN document S/RES 1803 (2008).

<sup>62</sup> It should be noted that Iranian agencies, industrial, trade, financial and transportation and other institutions sometimes take successful attempts to circumvent prohibitions and restrictions imposed by the Security Council using illicit international trade. For example, in 2008 the UK Customs accused a number of British businessmen in illicit supplies of nuclear components of weapons, navigation equipment and nuclear components to Iran (See British Dealers Supply Arms to Iran//The Observer. 20 April 2008).

Russia adopted a special regulation in the context of sanctions the UN Security Council imposed against Iran, the Decree No.682 by the President of Russia, of 5 May 2008 "On Measures to Implement Resolution 1803 of the Security Council of the United Nations of 3 March 2008". This Presidential Decree prohibits in particular all government institutions, enterprises and individuals under Russian

On 27 September 2008, following a report from the IAEA Director General, Mohammad ElBaradei, that Iran had made significant progress with its centrifuge enrichment programme, the UN Security Council unanimously adopted Resolution 1835<sup>63</sup>, calling on Iran to 'comply fully and without delay with its obligations' set out in the earlier resolutions of the Security Council, and to meet the requirements of the IAEA Board of Governors. However, due to the difficulty of reaching a consolidated position by the permanent members of the Security Council, it provided for no additional sanctions, confining itself to reaffirming its previous resolutions on the matter and the dual-track approach to Iranian nuclear programme.

Dual-track approach is a combination of sanctions (aimed at preventing Iran from transition to the production of nuclear weapons) and 'positive incentives' intended to raise Tehran's interest in cooperation with IAEA and complying with obligations stemming from NPT and membership in IAEA and the UN<sup>64</sup>. Resolution 1835 came amid signs of growing divisions among the P5 states over how to implement its dual-track strategy with respect to Iran.

Russia and China, while supporting the need to ensure reliable guarantees as to exclusively peaceful nature of Iranian nuclear programme and strengthening the NPT regime, emphasize the resolution

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jurisdiction to export to Iran any items that can be used for the production of nuclear and missile weapons.

<sup>63</sup> See UN document S/RES 1835 (2008).

<sup>64</sup> To interact with Iran, a special informal negotiating mechanism was established consisting of five permanent members of the UN Security Council (the UK, China, Russia, the US, and France) and Germany, known as P5+1. It proposed Iran a real chance to end its international isolation. In 2008, P5+1 offered Iran a revised incentives package. It outlined potential cooperation with Iran in peaceful nuclear energy, regional security and international trade and investments, in which the P5+1 states were prepared to engage in case Iran had complied with the above resolutions of the UNSC and, most importantly, had suspended uranium enrichment. Iran denied to make any concessions and suspend uranium enrichment. In early April 2009 P5+1 offered Iran to come back to the table of negotiations in order to discuss its nuclear programme. On 9 September, Tehran presented its proposals to P5+1 states. The negotiators of P5+1 and Iran met in Geneva on 1 October 2009. They reached a preliminary agreement that that a second round of negotiations would be held before the end of October. However, it has never taken place as Iranian leadership denied to discuss the country's nuclear programme.

of the issue through negotiations using incentives and inducements rather than penalties. In their opinion, sanctions should be adequate to the threat to the NPT regime. It should be noted that China has close economic relations with Iran and is dependent on its energy supplies, this inevitably influencing its position on Iranian nuclear programme. Russia is also economically and politically interested in maintaining friendly terms with Iran.

The UK, France, Germany and other members of the European Union on the whole act in line with the dual-track approach advocating enhanced pressure on Iran.

Non-allied non-permanent members of the UN Security Council (Brazil, Nigeria, etc.) show reserve as to sanctions, stressing the need for incentives.

As for the US, the Republican Administration of George W. Bush focused on isolation of Iran, pressure and penalties and had almost no contacts with Tehran on Iranian nuclear programme. In 2009, the Administration of President Obama announced a new approach to Iran, saying Washington was prepared to engage in negotiations with Iranian leadership without any prerequisites and to make active use of diplomatic means in order to settle Iranian nuclear issue.

In 2009 Tehran lost the opportunity to restore international confidence in the exclusively peaceful nature of its nuclear programme, after it virtually torpedoed IAEA proposal to export Iranian LEU for further enrichment and production of nuclear fuel needed for the Tehran Research Reactor for the production of medical isotopes<sup>65</sup>.

In its resolution of 27 November 2009 the IAEA Board of Governors expressed serious concern over the fact that in defiance of the

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<sup>65</sup> Iranian negotiators gave provisional consent to this scheme during the talks with P5+1 in Geneva on 1 October 2009. Under this scheme, in 2009 Iran was to ship about 1.2 tonnes of its LEU (about 75 percent of the country's LEU stockpiles) to Russia to be further enriched to 20 percent in U-235 and subsequently be converted to nuclear fuel for TRR, in France. Iranian authorities denied this plan. They insisted on staged exchange of nuclear material exclusively on their national territory. The efforts to search for mutually acceptable options of the IAEA-proposed project of fuel supplies for TRR failed to result in specific agreement. If that project had been implemented, it would provide a good example of cooperation between Iran and IAEA and a real step towards restoring international confidence in the exclusively peaceful nature of Iranian nuclear programme.

calls of the Board of Governors and the requirements of the UN Security Council Iran failed to comply with the Additional Protocol to its Safeguards Agreement and cooperate with the Agency with regard to outstanding issues of concern that needed to be clarified in order to exclude the possibility that Iranian nuclear programme may have military components.

Tehran responded to the resolution of the Board of Governors in a most defiant manner. On 29 November Iranian government announced plans to construct ten new uranium enrichment facilities, the construction of five of which was to commence in the following two months. Some Iranian MPs called to scale down cooperation with IAEA, deny international observers access to nuclear facilities and even to withdraw from the NPT.

Iranian leadership took no constructive steps to settle the situation through political and diplomatic means. For this reason, on 9 June 2010 the UN Security Council adopted Resolution 1929 strengthening sanctions against the Islamic Republic of Iran

In order to improve the implementation of measures under that resolution, the UN Security Council established a Panel of Experts to gather, examine and analyze information from States, relevant international organizations, and to advise the Security Council. Resolution 1984 of 9 June 2011 extended the mandate of the Panel of Experts till 9 June 2012. By the expiration of the mandate, the Panel of Experts is to present a concluding report containing its findings and recommendations.

In Russia, the sanctions imposed by Resolution 1929 of the UN Security Council are applied based on the Decree "On Measures to Implement Resolution 1929 of the United Nations Security Council of 9 June 2010" signed by President Medvedev on 22 September 2010. The Decree prohibits, in particular, the transit through the territory of Russia (including by air), export from the territory of Russia to Iran and transfer to Iran outside Russia's territory using Russian national flag vessels or aircraft of battle tanks, armored combat vehicles, large caliber artillery systems, combat aircraft, attack helicopters, warships, missiles or missile systems as defined for the purpose of the United Nations Register on Conventional Arms, S-300 air defense missile systems, or related materiel including spare parts. It also prohibits the location of Iranian investments in any commercial activities in the territory of the Russian Federation,

related to uranium extraction, the production or use of nuclear materials and technologies on the control list of nuclear materials, specially designed or prepared equipment, special non-nuclear material and related technologies, which are subjected to export control. The Decree also prohibits entry in the territory of Russia of Iranian nationals involved in the nuclear programme.

If the sanctions imposed by the UN against the Iranian nuclear programme are to succeed, it is of vital importance that the members of the UN Security Council, especially its permanent members, remain united and continue their concerted efforts, seek wide international support to the UN sanctions and renounce separate actions. This may prove decisive if Iran chooses to cross the weaponization “red line” (commencing the production of weapon-grade nuclear materials, prevents IAEA from fulfilling its verification functions and announces withdrawal from the NPT). In this case the UN Security Council should be prepared to immediately apply more rigid enforcement measures provided for by Chapter VII of the Charter of the United Nations.

So far, the sanctions imposed by the Security Council have affected but a small part of Iran's economy. For one, the UNSC have not applied broad financial sanctions, complete embargo on arms transfers and meaningful investment and trade restrictions, including in oil and gas and insurance sectors.

The main goal on this track is to improve the efficiency of the sanctions regime and ensure strict compliance with it. It is possible to address Iranian nuclear problem through the scheme under which the existing Iran's uranium enrichment capabilities are to be preserved and operated, yet are not to be further built up, while the stockpiles of LEU not suitable for peaceful uses are to be transported abroad, intrusive controls are introduced by IAEA and the Additional Protocol is to be fully complied with. Iran's opposition to this compromise would justify more rigid sanctions provided for by Articles 41 and 42 of the Charter of the United Nations, necessitating complete unanimity of the permanent members of the Security Council.

**Sanctions against the DPRK.** The strong reaction of the UN Security Council to the violation of the NPT regime committed by the Democratic People's Republic of Korea (DPRK) came too late<sup>66</sup>. In 2003

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<sup>66</sup> As far back as in 1993 the IAEA Board of Governors informed the Security

DPRK withdrew from the NPT<sup>67</sup>, while in early 2005 it announced that it possessed nuclear weapons. The proliferation of nuclear weapons became a fact, but as the great powers failed to reach a consensus, the UN Security Council could not use its powers and apply enforcement measures against a state that had committed an unprecedented violation of the NPT, in 2003.

NPT advocates tried to make North Korea dismantle its nuclear weapons programme through diplomatic negotiations. In 2003, a special negotiating mechanism, six-party talks with the participation of DPRK, Republic of Korea, China, Russia, the US, and Japan, was established. However, the six-party talks not backed with sufficiently rigid enforcement measures failed to achieve its goal<sup>68</sup>.

On 5 July 2006, Pyongyang launched ballistic missiles of different ranges, and on 6 October 2006 it tested a nuclear explosive device. In its Resolution 1695 of 25 July 2006, the Security Council demanded that the DPRK suspended all activities related to its ballistic missile programme, strongly urged the DPRK to return immediately to the Six-Party Talks without precondition, to abandon all nuclear weapons programmes, and to return at an early date to the Treaty on Non-Proliferation of Nuclear Weapons and International Atomic Energy Agency safeguards.

After North Korea tested nuclear explosive device, the UN Security Council took new steps to make it return to the NPT. In its Resolution

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Council that the DPRK failed to comply with its obligations under the Safeguards Agreement and that the Agency was unable to verify whether nuclear materials had been diverted for the production of nuclear weapons. However the UN Security Council did not apply any rigid enforcement measures to coerce North Korean authorities into complying with the Safeguards Agreement at that time. In 16 years North Korea came to possess nuclear weapons in addition to having undeclared stocks of plutonium.

<sup>67</sup> The rationale for withdrawing from the NPT ran counter to Article X paragraph 1 of the Treaty. The situation affected peace and security and was subject to consideration by the Security Council. However the Security Council did not manage to properly respond to DPRK's defiant actions.

<sup>68</sup> In April 2009 DPRK withdrew from the six-party talks. In the course of negotiations Pyongyang promised (in 2005) to forego nuclear weapons and dismantle the pertinent programme in exchange for normalized relations with the US, South Korea and Japan and economic assistance, but the talks reached an impasse. North Korean leadership proved to use the talks to camouflage their efforts to build up nuclear missile capabilities.

1718<sup>69</sup>, adopted unanimously on 14 October 2006, it set forth the sanctions regime against DPRK. However the reference to Chapter VII of the Charter of the United Nations is limited by Article 41 providing for exclusively non-military enforcement measures (economic, financial, diplomatic, political, etc.). The Security Council demanded that the DPRK not conduct any further nuclear test, abandon all nuclear weapons and existing nuclear WMD and ballistic missiles programmes. It also prohibited Pyongyang to launch ballistic missiles.

Resolution 1718 of the Security Council established Committee consisting of all members of the UN Security Council to exercise control over the application of the relevant sanctions (sanctions committee): to monitor the compliance with the Resolution and determine additional lists of goods, materials and technologies the supplies of which to DPRK may be prohibited. The Security Council also reaffirmed that it would keep the activities of DPRK under close control<sup>70</sup>.

On 5 April 2009 DPRK conducted a test of a long-range missile disguised as a launch of communications satellite. The statement of the UN Security Council adopted on 13 April following this launch demanded that DPRK not conduct any further launches and comply with its obligations under Resolution 1718 of the UN Security Council.

In response to this statement North Korean leadership left the Six-Party Talks on denuclearization of the Korean Peninsula and on 25 May 2009 held the second nuclear test. On 12 June the Security Council responded to the defiant actions of the North Korean leadership by adopting unanimously Resolution 1874 in accordance with Article 41 of Chapter VII of the Charter of the United Nations.<sup>71</sup> The resolution contained provisions considerably expanding the scope of sanctions.

The UN Security Council established a full prohibition on import from and export to the North Korea of all kinds of weapons (with the exception of small arms and light weapons)<sup>72</sup>.

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<sup>69</sup> UN document S/RES/1718(2006).

<sup>70</sup> The Committee was established on 14 October 2006. On 20 June 2007 the Committee adopted its guiding principles. The Committee issued four reports on its activities between 1 January 2007 and 16 July 2009.

<sup>71</sup> UN document S/RES/1874 (2009).

<sup>72</sup> Resolution 1718 prohibits import from and export to DPRK only of some categories of conventional weapons (e.g. tanks, ACVs, large-caliber artillery

Resolution 1874 called upon member states to inspect all cargo to and from the DPRK, in their territory, if the state concerned has information that provides reasonable grounds to believe the cargo contains prohibited items. The scope of sanctions was considerably expanded by the provision demanding the member states to prohibit the provision by their nationals or from their territory of bunkering services, such as provision of fuel or supplies, or other servicing of vessels, to DPRK vessels (unless provision of such services is necessary for humanitarian purposes). Resolution 1718 also provided for additional financial enforcement measures, such as freezing the assets of individuals and legal entities specified by the sanctions committees.

Those measures signified a considerable advance in enforcement practice. They went far beyond the sanctions imposed by Security Council against Iran, as they implied virtually complete arms embargo, as well as embargo on the provision of bunkering services and import of luxury goods. However, even these enforcement measures against DPRK proved insufficient.

In September 2009 the leadership of DPRK announced uranium enrichment activities (in addition to production of weapon-grade plutonium). According to experts, DPRK may possess five to seven nuclear explosive devices.

Strict adherence of strengthened sanctions against DPRK by all members of international community would significantly hamper the production of nuclear warheads, missiles and other weapons, as well as the funding of the relevant programmes. It would also create a barrier to 'secondary proliferation' activities, that is transfers of sensitive nuclear technologies and missile materiel and technologies from North Korea to other countries (in particular to Iran and Myanmar).

The 2011 has seen signs of normalization on the Korean Peninsula. Steps have been taken to improve the dialogue between the two Koreas for the sake of relieving military tensions in the peninsula, the meetings of the US and Korean diplomats took place in Geneva (October 2011). However, a breakthrough that could enable the resumption of the Six-Party Talks on the settlement of the North-Korean case, has never been achieved.

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system, attack helicopters, etc.), WMD and ballistic missiles-related items, and luxury goods.



**Proliferation Security Initiative (PSI).** In May 2003 the US president George W. Bush proposed WMD Proliferation Security Initiative in an attempt to apply informal mechanisms involving use of force for the suppression of proliferation activities<sup>73</sup>. PSI implies control of the trade routes used for the purposes of proliferation (including the seizure of illicit WMD-related cargo) and blocking such supplies in order to prevent the proliferators from getting access to materials and know-how necessary for the development of weapons of mass destruction and their delivery means.

Specific tasks of the Initiative are fulfilled through a set of measures. Those include the exchange of information on matters related to proliferation activities, allocation of adequate resources and efforts to seizure operations and capacity-building, suppression of acts of WMD proliferation, coordination of seizure efforts, strengthening as appropriate of national and international law to support PSI purposes. Partnership in the framework of PSI is not an international organization, PSI has no charter, headquarters, chairman and budget.

PSI areas of focus include exercises to suppress illicit movement of WMD and dangerous materials. A total of almost 100 states cooperate in the PSI framework. In 2009 the Republic of Korea joined PSI.

After some hesitations Russia also joined PSI on 31 May 2004 guided by the reason that strategic goals and tasks of this structure were in general compatible with Russia's national interest. The document "Strategy of National Security of the Russian Federation through 2020" provides for close cooperation with other states in the framework of multilateral informal structures and institutions<sup>74</sup>.

PSI mechanisms, including those for the exchange of sensitive information, intended for fighting against the networks of proliferators of WMD and means of their delivery, may be used to prevent the penetration of WMD and means of their delivery in the territory of Russia and former Soviet republics. Pertinent Russia's efforts are focused on enhancing controls over the whole national territory, territorial waters and airspace.

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<sup>73</sup> Proliferation Security Initiative (PSI) was put forward by US President George W. Bush in May 2003.

<sup>74</sup> See <http://www.mid.ru/ns-osndoc.nsf/0e9272bafa34209743256c630042d1aa/8abb3c17eb3d2626c32575b500320ae4?OpenDocument> (In Russian).

Needless to say that Russia tackles major problems in this sphere by itself, yet in close cooperation with its neighbors.

PSI is increasingly discussed at various international fora. However, more and more states question legal grounds for the seizure of goods in the course of PSI operations, especially dual-use items intended for both civilian and WMD purposes. They claim in particular that international law contains no explicit prohibition of movement of WMD on the high seas.

Russia also has its concerns. The documents issued by Russian Foreign Ministry stress that the premise of Russia's approach to PSI is that all activities in its framework should be compatible with the "norms of international law, including the provisions of international non-proliferation and export control arrangements", in accordance with national laws, and the "common assessment of threats" should be ensured"<sup>75</sup>.

The International Commission on Nuclear Non-Proliferation and Disarmament (the Evans-Kawaguchi Commission) advocates the adoption of a UNSC resolution explicitly authorizing the seizure of WMD-related items in international waters and airspace. It also suggested that PSI is integrated in the UN system as a neutral body to assess intelligence data, coordinate efforts and prepare specific recommendations on matters related to seizure of suspicious materials moving to and from the countries of concern in terms of proliferation<sup>76</sup>.

In this way it would probably be easier to use the PSI tools in order to strengthen the regimes of sanctions imposed by the UN, in particular, to attain a more effective implementation of counter-proliferation UNSC resolutions 1874 (on North Korea) and 1803 (on Iran).

**The need for an effective enforcement mechanism.** Indeed, the adoption by consensus of the UNSC Resolution 1887 providing for a number of measures aimed at strengthening the NPT regime has become a landmark event. Nevertheless, follow-up efforts are required and a qualitatively new level of cooperation in this sphere needs to be achieved

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<sup>75</sup> On Russia's Participation in the Proliferation Security Initiative (PSI)/ Press Release. Ministry of Foreign Affairs of the Russian Federation. Information and Press Department. 4 March 2011.

(<http://www.mid.ru/bdomp/ns-dvbr.nsf/8329e2a2d0f85bdd43256a1700419682/2cb437441e4cb3e3c32575cb002a526b!OpenDocument> (In Russian)).

<sup>76</sup> See *Eliminating Nuclear Threats...* p. 97.

in order to establish an effective scheme for preventing states parties from breaching their obligations under the Treaty. Improving the effectiveness of collective actions within the UNSC aimed at enforcing non-proliferation would to an largely depend on the convergence of interests of the three great powers: China, Russia and the US<sup>77</sup>.

The main lesson of Iranian and North Korean nuclear crises by the UN Security Council is that the UN needs to effectively intervene in such situations at an early stage and maintain a corresponding level of readiness. Potential non-compliant states should be sent in advance a clear message of warning that the UNSC seriously intends to make full use of its powers and is capable of conducting rigid collective actions to suppress any attempt of proliferation.

The UNSC Resolution 1887 emphasizes the Security Council's primary responsibility in addressing the threats to international peace and security posed by situations of non-compliance with non-proliferation obligations. This provision of principle should be given concrete substance and reinforced by corresponding actions of the UNSC members. The UNSC members could address this task by developing in advance an arrangement on guidelines for enforcement actions with the view to countering nuclear proliferation and nuclear terrorism in order to enhance the international community's response to the crises and emergencies caused by such phenomena. Hence, there is a need for detailed UNSC planning and corresponding organizational support. It would be practical to set forth in advance a set of measures and a procedure of actions in order to hold potential non-compliant states in a more effective manner.

Taking in consideration the continued responsibility of state for the non-compliance with the NPT provisions before withdrawal from the Treaty, it would be appropriate to elaborate international responsibility of states for such non-compliance. The need for additional measures stems from Resolution 1887 of the UN Security Council.

The International Commission on Nuclear Non-Proliferation and Disarmament calls the UN Security Council to send a clear message that a withdrawal from the NPT will be *prima facie* considered as a threat to

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<sup>77</sup> This opinion is shared by the authors of the mentioned report of the International Commission on Nuclear Non-Proliferation and Disarmament (See *Ibid.* p. 207).

international peace and security and entail punitive measures in accordance with Chapter VII of the Charter of the United Nations<sup>78</sup>.

As a specific measure in this area, the UNSC could adopt a framework resolution (a follow-on resolution to Resolution 1887) containing specific provisions of rapid response of the international community to the actions of states regularly violating the rules of the NPT regime and non-complying with the instructions of the UN Security Council.

It would also be advisable to enhance the capability of IAEA to investigate possible military nuclear activities. In this respect, the recommendation of the International Commission on Nuclear Non-Proliferation and Disarmament to update Additional Protocols to include provisions on dual-use items, information on denied exports, on shorter periods of notice, and the right to interview relevant persons, should be implemented<sup>79</sup>.

Besides, there is a separate issue of agreeing on the procedure for immediate response to the actions of terrorists in case they get access to nuclear weapons, explosive devices or weapon-grade materials of states parties.

In the context of developing non-proliferation enforcement strategy, serious consideration should be given to Russian proposal on involving the UN Military Staff Committee (MSC) in creating the UN capacity to maintain international peace and stability. This issue was raised by Russian Foreign Minister Sergey Lavrov at the 61st session of the UN General Assembly. In fact, the Final Document of the World Summit that took place in September 2005 at the UN Headquarters contains a provision on the need for the UNSC to consider the composition, mandate and working methods of the MSC<sup>80</sup>. Later on the UN Secretary General Ban Ki-Moon raised the issue of whether it would be advisable to use the MSC capability for the purposes of international arms control<sup>81</sup>.

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<sup>78</sup> See Ibid. p. 90.

<sup>79</sup> See Ibid. p. 252.

<sup>80</sup> See The World Summit Outcome, 2005. UN document A/RES/60/1. Par. 178 (16 September 2005).

<sup>81</sup> Ban Ki-Moon discussed this topic in an address to the East-West Institute, New York, 24 October 2008 (See <http://www.acronym.org.uk/textonly/dd/dd89/89news01.htm>).

MSC could become a valuable steering house to coordinate activities of the UNSC permanent members, as well as of other members of the Security Council and the UN in general as regards enforcement measures, including those related to the NPT.

Therefore, the mandate of the Military Staff Committee should be expanded to include functions related to developing rigid measures to enforce compliance with the non-proliferation requirements. The MSC would be in a position to elaborate specific enforcement and response procedures. It would be of special use in establishing operational contacts between the UN Security Council and the Global Initiative to Combat Nuclear Terrorism (GICNT)<sup>82</sup>. The MSC would provide the UNSC with the necessary expertise on matters related to 'hard' security, such as early warning, operations planning and conduct and logistical support.

It would be logical if the MSC is tasked, as necessary, with developing provisions on establishing, under the UN auspices, operational units in the highest risk areas to combat this evil<sup>83</sup>.

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<sup>82</sup> GICNT unites 75 partner states (as of 16 July 2009) working to expand national and collective efforts to addressing the threat of nuclear terrorism. The GICNT is co-chaired by Russia and the US.

<sup>83</sup> See Makeev B. Naval arms control and countering terrorism at sea / Russia: arms control, disarmament and international security: IMEMO Supplement to the Russian Edition of the SIPRI Yearbook 2008. Compiled and edited by Kaliadine A., Arbatov A. Moscow, 2009. p. 46-47.

## 6. DISARMAMENT AND NON-PROLIFERATION — DIALECTICS AT WORK

The Republican administration of the US virtually made the topic of nuclear disarmament anathema. They considered obligations of nuclear-weapon states under Article VI of the NPT (to negotiate for nuclear disarmament) as a mere formality, the possession of nuclear weapons as an 'inalienable right' of the great powers and expected to prevent further proliferation of nuclear weapons through the use of force (the concept of counter-proliferation).

Unfortunately, after several timid and inarticulate objections Russia virtually accepted this course, the more so as it suited the military establishment, the conservatives and nationalists within the country.

In practice the long-lasting standstill in nuclear disarmament resulted in the failure of the efforts to strengthen the NPT and non-proliferation regimes. This was vividly manifested in the breakdown of the NPT Review Conference in 2005. Although the power method of resolving the issue brought about a tactical gain (Israel's strike against Syria's nuclear facility in 2008), it only resulted in the strategic defeat during the US military operation in Iraq and in the attempts to put pressure on Iran and North Korea regarding their nuclear programmes.

Eventually, the US policy on this matter came to evolve after the country realized its failure and evident absence of prospects. A well-known article by the four authoritative US statesmen Henry Kissinger, Sam Nunn, William Perry and George Schultz advocating the rehabilitation of complete nuclear disarmament as a final goal of negotiations among nuclear powers and international efforts to prevent the proliferation of nuclear weapons, was a sign of that<sup>84</sup>. As the policy of President Bush's administration failed, this idea quickly became popular in the US and the rest of the world and brought about a true renaissance of

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<sup>84</sup> See Shultz G.P., Perry W.J., Kissinger H.A., Nunn S. A World Free of Nuclear Weapons // The Wall Street Journal. 2007. January 4. p. A15.

the nuclear disarmament issues in the minds of international community and expert studies.

In Russia, this issue caused a confrontation between a pro-nuclear-weapons majority and a minority of supporters of nuclear disarmament from academic community and mass media, despite the fact that formally the goal of nuclear disarmament was reaffirmed as far back as at the first meeting of presidents Medvedev and Obama<sup>85</sup>.

Needless to say that today one can hardly imagine a world free of nuclear weapons even in the long-term. Nuclear arms are an integral element of politico-military relations of the great powers and security assurances to allies. It is a habitude that is not easy to change due to enormous military, strategic, political and psychological inertia reinforced by a widespread opinion that the fear of nuclear catastrophe has saved the world from the world war III during the five decades after 1945.

What is more, since early 1990's in Russia nuclear weapons have been almost generally viewed as the sole means of ensuring the country's security due to Russia's inferiority in general-purpose forces and cutting-edge military technical systems, as well as in view of its vulnerable geostrategic position. The interconnection between nuclear disarmament and non-proliferation is refuted by the argument that the new members of and candidates to the nuclear club are guided by their own interests and do not care about nuclear disarmament of the great powers, or, rather feel encouraged to acquire nuclear weapons, viewing nuclear weapons as a shortcut to equality with the 'big five'.

Meanwhile, several important considerations make the universal character of these conventional truths seem quite dubious.

**New security threats.** Now that the Cold War is over, with the current globalization and increasing global interdependency (to which the current economy crisis has been yet another illustration), nuclear deterrence among great powers seems to become an anachronism. It prevents threats that no longer exist: intended massive attack of major powers or their alliances against each other.

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<sup>85</sup> See Joint Statement by Dmitry Medvedev, President of the Russian Federation, and Barack Obama, President of the United States of America, Regarding Negotiations on Further Reductions in Strategic Offensive Arm. 1 April 2009. London ([http://www.whitehouse.gov/the\\_press\\_office/Joint-Statement-by-Dmitriy-A-Medvedev-and-Barack-Obama](http://www.whitehouse.gov/the_press_office/Joint-Statement-by-Dmitriy-A-Medvedev-and-Barack-Obama)).

At the same time, nuclear deterrence does not address the real threats of modern times, such as international terrorism, proliferation of WMD and their delivery systems, ethnic and religious conflicts, clashes for energy supply and fresh water sources, to say nothing of the new issues of climate, environment, illegal migration, epidemics, cross-border crime, etc.

The 'rehabilitation' of nuclear disarmament as a final, although a very distant end of the leading powers' policy renders directed and consistent such rational and useful measures as the new START Treaty and further nuclear arms reduction. This opens the way to implementing the CTBT and FMCT, agreements of utmost importance at the intersection of nuclear disarmament and non-proliferation. Besides, this enables the involvement of the third nuclear-weapon states and non-NPT nuclear-weapons states (India, Pakistan and Israel) in this process. Furthermore, this gives a powerful impetus to enhancing the NPT and its regimes, the political settlement of North Korean and Iranian nuclear issues, the internationalization of nuclear fuel cycle and ensuring high international standards of nuclear materials security.

It is equally important that only in the context of such policy and in no other way Russia and other countries would be able to achieve an acceptable resolution of other politico-military problems, such as halting NATO eastward expansion, limiting strategic missile defense systems, preventing space arms race, etc.

It is on this path where one can achieve minimum levels of nuclear capabilities – comprising only hundreds or even tens of nuclear warheads – while strengthening international security. As the states are advancing along this path, the cooperation and mutual trust among the states may come to the point when they will be able to make a final step and completely withdraw nuclear weapons from operational service of their armed forces, then eliminate the reserves and stockpiles of nuclear weapons, and eventually convert nuclear materials and technologies for exclusively peaceful purposes.

As for the dependence of Russia's security on nuclear weapons, this concept also appears to be superficial at closer consideration. Besides, it is quite banal and turns out to be a Russian version of arguments offered by Western conservatives 20 or 30 years ago. Today, the immense Russian nuclear capability can play a political role either in case of increasing military tension between Russia and the West, or in the context



of Russian-American arms control talks securing Moscow's exceptional position in the world politics.

The tension, even if benefiting certain communities within the US and Russia, run counter to their national interests, and would undermine their national and international security, especially in the face of new threats requiring partnership and cooperation. Even in case of consistent reductions the talks on nuclear disarmament (taking in consideration the quantity and the programmes of modernization of such weapons) will not affect Russia's minimum nuclear deterrent for decades. The challenge facing Russia is rather of a different nature: due to the ageing of its nuclear arsenal and its reduction (as much more weapons are withdrawn from service than are made operational), Russia should timely and regularly lower the thresholds provided by the treaties in order to maintain an approximate parity with the United States.

The resulting capability, if highly survivable during the launch and flight, may comprise several dozens of warheads, taking in consideration that even the loss of several large cities would constitute an unacceptable damage for modern advanced countries.

**Nuclear weapons as a token of status.** The role of nuclear weapons for ensuring Russia's status and security is overemphasized. Save for hypothetical and low-probability threat of massive attack of NATO and China, nuclear weapons do not protect Russia from many smaller-scale yet more real dangers. Neither does it address its immense economic and internal policy problems. One should not forget that the Soviet Union collapsed despite the fact it possessed a 5-7-times larger nuclear arsenal as compared to today's Russia. Besides, the preservation of nuclear weapons and its subsequent inevitable proliferation will devalue of Russia's nuclear capability and undermine its status, unless it rests on some new economic, political and military basis.

In fact, although the proponents of nuclear weapons usually portray themselves as patriots, one should have absolutely no faith in Russian people to believe that the nuclear weapons inherited from the Soviet Union is the only possible and attainable token of Russia's status as a great world power.

At the same time, it comes naturally that renunciation of nuclear weapons should not give 'green light' to large-scale, regional, or local wars involving the use of conventional arms or weapons based on new physical principles (laser, particle beam, seismic, etc.). In other words, the

world without nuclear weapons is not “the existing world minus nuclear weapons”, but an international community based on different principles ensuring security of all countries irrespective of their size, economy and military strength.

Progress towards a world order based on cooperation has now become a necessity not only due to nuclear threat. It has been made imperative by the lessons learnt from the recent economic crisis, the need to jointly address climate, food, demographic and other global issues of the 21st century.

**The issues of nuclear arms reductions.** Nuclear deterrence persisting in the great powers' relations most probably encourages the proliferation of nuclear weapons and increases the probability of its falling into the hands of terrorists although this may be debatable. Yet it is certain that the relations of mutual nuclear deterrence hamper cooperation of the great powers in addressing this danger.

Logically, nuclear deterrence in a multi-polar and globalized world inevitably causes further nuclear proliferation and at certain point will lead to deliberate or accidental use of nuclear weapons (or a nuclear explosive device) by a state or as an act of terrorism. Any such use will be catastrophic for modern civilization and will change it in a fundamental and unpredictable way.

Almost 40 years' experience of negotiations on nuclear arms reductions makes it possible to impartially assess the extent of the nuclear-weapon states' compliance with their obligations under part one of Article VI of the NPT. On the one hand negotiations on controlled limitation and reduction of nuclear weapons among the major nuclear actors seem to be in keeping with their obligations under Article VI of the NPT, despite periodic ups and downs in their intensity. On the other hand, the rationale behind these talks and agreements had little in common with the parties' obligations under the NPT Article VI, although they were cited by the parties as proof of their commitment to the Treaty. Besides, the rest of the nuclear-weapon states have never been involved in nuclear arms reduction and limitation.

On the whole, during the two decades that elapsed since 1991 (the conclusion of the START 1 Treaty), the great powers, mainly the US and Russia, reduced the number of their operationally deployed strategic and operational-tactical nuclear warheads by more than 80 percent, both under the treaties, and unilaterally.

The scale of these reductions are truly impressive, but the rest of the nuclear weapons continues to be absurdly large (about 10,000 warheads in operational service of all the nine nuclear-weapon states, or about 150,000 Hiroshima-sized bombs<sup>86</sup>). Further prospects of negotiations on deeper nuclear arms reductions in the follow-up to the new START Treaty today is in doubt.

In the first decade of the 21st century, the explicit refusal by the great powers to continue the negotiations on nuclear disarmament was an unprecedented violation of Article VI of the NPT. The increased reliance on nuclear weapons in ensuring one's own security and the withdrawal from a number of previous agreements violated the spirit of the Treaty.

**Nuclear proliferation and its drivers.** This raises a perennial issue of principle: if the US and the USSR/Russia, involving also three other nuclear-weapon states (under the NPT) had consistently engaged in negotiations to limit and reduce nuclear arms since 1968 to this day and if such reductions achieved in the previous decades had been much deeper, would that stop Israel, South Africa, India, Pakistan and DPRK from developing and making operational nuclear weapons? Would that eliminate the nuclear programmes of Iraq, Libya, Syria and reported military plans of Iran and DPRK?

As there are no what-ifs in history, one can only offer a hypothetical answer to this question. The skeptics and opponents of nuclear disarmament from Moscow, Washington and a number of other capitals categorically deny such connection. Furthermore, they claim that the reduction of nuclear arms by the US, USSR/Russia, UK, France and China to several hundreds or dozens of nuclear warheads would only have promoted proliferation as it would enable 'threshold countries' to easily attain the levels of nuclear arsenals of the 'big five'.

The advocates of nuclear arms reduction and limitation, on the contrary, argue that this would have a significant effect on nuclear non-proliferation. In particular, at all NPT Review Conferences the majority of non-nuclear-weapon states parties to the Treaty invariably offer this argument and accuse nuclear-weapon states of failure to comply with their obligations under Article VI of the Treaty.

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<sup>86</sup> See Eliminating Nuclear Weapons...

Real life is as usual much more complicated than linear logic construction based on yes-or-no principle, not to mention political positions of states at the international fora.

No doubt, the incentives for the states to acquire nuclear weapons are much more varied and contradictory than a mere imitation of the great powers. On the whole, the rationale behind a government's decision to develop nuclear weapons may be to ensure national security and the international prestige, maintain the public image across the nation or obtain political concessions from other countries in exchange for renouncing or partially limiting one's own nuclear programme. The NPT addresses neither of these reasons in a direct and effective manner, that is, it does not provide for more attractive benefits in the mentioned spheres for those who forego nuclear weapons. The same is true with regard to the treaties on nuclear disarmament between the great powers, which do not necessarily directly affect all of the above incentives.

One can be certain enough that after the NPT entered into force, Israel and South Africa made their choice as regards nuclear weapons irrespective of the concept set forth in Article VI of the Treaty. In case of India this interconnection is more tangible, although this country's decision to acquire nuclear weapons, in addition to reasons related to the status and domestic policy, was prompted by the fear of an unlimited increase in the military and nuclear missile capability of China, while India could no longer rely on the support of the USSR/Russia for ensuring its security.

Pakistan's decision to follow that example was primarily driven by its intention to counter India, and only then explained by ideological reasons ('Islamic bomb'), and, therefore, had little to do with Article VI.

As for the lessons of 'nuclear history' of North Korea and Iran, one can assume that Pyongyang's main incentive to develop nuclear weapons was its fear for the survival of its political regime. North Korea faced losing economic and social and political competition with the South, made even worse by the Western economic sanctions. Besides, DPRK feared a US military attack involving conventional arms. Furthermore, there was political isolation of a rogue state scorned by the international community. The loss of formal and practical security safeguards from the USSR and China and information on nuclear weapon experiments of South Korea apparently clinched the matter in favor of acquiring nuclear weapons for DPRK.

In these circumstances, the nuclear weapons programme became the last security guarantee against external threat, a bargaining chip to be exchanged for economic and political concessions from the West and a means of raising the regime's prestige both across the world and among its citizens. It is also probable that after his father's death Kim Jong-Il has regarded nuclear bomb as a means of strengthening his reliance on military, party, and industrial and scientific elite. Nuclear disarmament of the US and USSR/Russia would obviously have no positive effect in terms of non-proliferation on any of these motives of DPRK's policy.

As for Iran after the fall of the Shah, the rationale for the development of its nuclear programme (or, rather, of its military component) was, most probably, the fear of Iraq that developed nuclear weapons and used chemical weapons and tactical missiles in its war against Iran in 1980s. After that war was over, another threat came to the fore, that is, the threat of the use of force by the US (especially as a new Republican administration came to power in 2000) and Israel (an undeclared nuclear-weapon state). Besides, there were considerations of the country's status and prestige in the region and in the world. The latter were linked to the acquisition of nuclear weapons by the neighboring India and Pakistan, as well as to Tehran's growing ambition to leadership in the Islamic world after the fall of Taliban in Afghanistan, Saddam Hussein in Iraq and the increasing instability of the ruling regimes in Pakistan and Saudi Arabia.

At first sight, this is yet another example in which nuclear disarmament of the US, Russia and other great powers under Article VI of the NPT would hardly have any effect on suspicious aspects of Iranian nuclear programme.

**Dialectic interconnection.** However, a closer consideration makes us admit that there has been and there still is a positive link between nuclear disarmament and non-proliferation. It is not a direct one, but is rather of a much more complicated and subtle nature.

First, this is a matter of a general perception of international security determining the states' attitude towards nuclear weapons irrespective of specific individual factors influencing such attitude in any given moment.

One can hardly view it as a coincidence that between 1987 and 1999 active negotiations on nuclear arms reductions (INF Treaty, START I, START II, framework START III, agreements on ABM-TMD

demarcation, CTBT, unilateral reduction of tactical nuclear arms by the US and the USSR/Russia) went hand in hand with the strengthening of the NPT. About 40 new members acceded to the Treaty in 1990s, including two nuclear-weapons states — France and China. 1995 saw the indefinite extension of the Treaty, while in 1997 the Additional Protocol to the IAEA Safeguards Agreement was developed. Five states renounced their nuclear weapons programmes voluntarily or were made to renounce them by the use of force (Brazil, Argentina, South Africa, PDRK in 1994 and Iraq). Three states that had nuclear weapons in their territories after the collapse of the Soviet Union acceded to the Treaty after two years' negotiations as non-nuclear-weapon states (Ukraine, Belarus and Kazakhstan).

Most probably, if the great powers had consistently pursued a policy of reducing their nuclear arsenals and the reliance on nuclear weapons in ensuring national security, as well as of enhancing a global 'taboo' on any use of nuclear weapons either directly or as a threat, the nuclear weapons would gradually lose their attractiveness as a token of status, power and prestige. Alongside with that, the role of nuclear weapons in internal policy of many countries would diminish (as is the case with the attraction of biological and chemical weapons).

It is equally evident that the exact reverse of this policy pursued since late 1990s by the great powers and the three non-NPT states has increased the attraction of nuclear weapons for the governments and the public of an increasing number of countries.

Second, the maintenance of high levels of nuclear forces, their improvement and even their buildup by some of the major powers is still explained to a great extent by the strategy of mutual nuclear deterrence. This strategy continues to be the guiding principle of military policy. At the same time these strategic relations of hostile confrontation (with thousands of nuclear warheads having targets in other major powers' territories, and the missiles kept in a state of one-minute readiness to launch) creates rigid limitations for deeper constructive cooperation of the great powers. Difficulties in negotiations on nuclear disarmament exacerbate mutual mistrust and suspiciousness of political elites of the great powers and accentuates the difference of their positions as to global issues.

This has a more direct bearing on non-proliferation, in particular such aspects as sanctions against the third countries, elaboration of a

consolidated position in negotiations with such countries (five parties in the talks with DPRK and six parties in negotiations with Iran). This is even more true as regards cooperative military operations within PSI, as well as operations against countries non-complying with their safeguards agreements with IAEA or intending to withdraw from the NPT with no sufficient grounds for that. This also puts equally serious obstacles to the cooperative development of missile defense systems.

However, there are a number of areas in which there is a more direct link between nuclear disarmament and non-proliferation. First and foremost, this refers to the CTBT that was signed in 1996 and has never entered into force, and FMCT, the negotiations on which at the Conference on Disarmament in Geneva have reached an impasse. The implementation of the mentioned essential nuclear disarmament measures and the involvement of all the states parties to the NPT and the three non-NPT nuclear-weapon states under the influence of the great powers, would automatically place additional barriers to nuclear proliferation. Had not the US withdrawn from the ABM Treaty in 2002 and had they unblocked the CTBT and FMCT, North Korea (and Iran in the longer term) would have to surmount three, and not one, obstacles (NPT, CTBT and FMCT) on their way to acquire nuclear weapons. That would be much more difficult and would cause a much more consolidated and rigid response of the great powers, the UN Security Council and international community in general.

The non-compliance with obligations under Article VI has divided the great powers and many compliant non-nuclear-weapon states parties to the NPT. The latter view this as a breach of understanding reached during the indefinite extension of the NPT in 1995 and the agreement of the 13 steps of nuclear disarmament at the 2000 NPT Review Conference. This profound divergence led to the failure of the 2005 NPT Review Conference. In this situation, the great powers find themselves in want of strong political position to promote a whole set of measures aimed at strengthening non-proliferation regime.

This refers to the universalizing the 1997 Additional Protocol, introducing more rigid procedures and conditions for withdrawal from the NPT provided for in Article X paragraph 1 of the Treaty, strengthening the norms and terms of export controls through the NSG, switching to international NFC centers, incorporation of PSI in the international law, etc. One can hardly expect to impose all these measures on non-nuclear-

weapon states parties to the NPT who bear the main burden of restrictions and control under the Treaty, in a situation when the nuclear-weapon states retain complete freedom of military nuclear activities, both in terms of limitations provided for by the treaties, and in terms of accountability and transparency.

Recent years have seen another example of dialectic interconnection between nuclear disarmament and non-proliferation. The conclusion of the new START Treaty in 2010 has enabled a success of the Washington Nuclear Security Summit and the NPT Review Conference that took place the same year. At the same time, a marginal nature of the new START is quite in keeping with the controversial nature of the Final Document of the Conference and the increasing difficulty of the dialogue of the leading powers with Iran and DPRK in 2011.

One can confidently say that there is another obvious consequence of the great powers' nuclear policy, which nourishes proliferation. This refers to the continued absence of agreed and approved negative security assurances to non-nuclear-weapon states parties to the NPT on the part of official nuclear-weapon states. Such assurances have only been provided in a number of highly ambiguous individual statements of representatives of permanent members of the UNSC in 1995, made first by Russia and then by the US, the UK, France and China.

In these statements the nuclear-weapon states declare that they shall not use their nuclear weapons against any state party to the NPT except in case such a state being allied to a nuclear-weapon state perpetrates an attack against them, their territory, the armed forces or against its allies, such a state, jointly with a nuclear-weapon state, perpetrates or supports an invasion or an armed attack against them.

The UN Security Council, summing up such statements, adopted in 1995 a corresponding Resolution 984 that nothing but duplicated a similar yet less detailed Resolution 255 of 1968 and contained no explicit security assurances even as set forth in the P5 statements. The proposals put forward before the Conference on Disarmament in Geneva of 1995 to conclude a convention on full-scale assurances to non-nuclear-weapon states parties to the NPT had never been worked on.

It is absolutely certain that unconditional obligation on no-first-use of nuclear weapons against states parties to the NPT would lower the political, and possibly military and strategic role of nuclear weapons in



the foreign policy of the great powers. This expressly runs counter to their current course and military programmes.

In this situation non-nuclear-weapon states that have no full-fledged security treaties with nuclear-weapons states and are located in the regions of instability, obtain reasonable incentives for developing nuclear capability to enable them to be self-reliant in ensuring their national security. This is completely true of Israel, South Africa, India, Pakistan, DPRK. In the future, similar considerations may induce Iran and other threshold countries to acquire nuclear weapons.

In other words, one can define the interconnection between nuclear disarmament and non-proliferation, particularly based on the Iranian and North Korean case studies, as follows.

First, the compliance with the nuclear disarmament obligations under Article VI of the NPT cannot in and of itself guarantee freedom from nuclear proliferation as the rationale of the latter is of a diverse and complicated nature.

Second, this calls for numerous additional measures to strengthen and develop the NPT, its norms and mechanisms.

Third, the nuclear-weapon states' failure to comply with their obligations under Article VI guarantees further nuclear proliferation and puts serious obstacles to strengthening of the non-proliferation regime and system.

Fourth, then the only remaining option would be the use of force, often in defiance of the international law. As the 2003 war in Iraq showed, such 'remedy' may be worse than the 'disease' itself, and may lead to the contrary result, including in terms of nuclear non-proliferation.

**Disarmament as a goal and a process.** Nuclear disarmament as a goal and a final state is hardly imaginable in today's world. This refers not only to military and strategic, and economic aspects of this issue. This vast issue is rather of a political nature. Indeed, the elimination of nuclear weapons and the renunciation of nuclear doctrines based on principles of nuclear deterrence should not provide states with freedom to develop and use conventional weapons and other types of WMD and arms based on new physical principles.

Therefore, final nuclear disarmament implies almost general and complete disarmament. That, in its turn, implies a fundamental overhaul of the system of international relations and the resolution of disputes and

conflicts as compared to the one that has existed throughout the recorded human history .

This overhaul is obviously a matter of many decades. Yet, among other things, there are processes of globalization and growing interdependence of the world, the issues of climate, energy, demographic challenges and many other trends and threats of the 21st century that provide a powerful impetus for this reform. Nuclear disarmament is but an aspect of this most complicated historical process which is a prerequisite rather than a goal.

Nevertheless, although nuclear disarmament is very distant as a final goal, it is already possible as a process leading to a more secure world and gradually introducing constructive changes in the pillars of the existing world order. Moreover, there is a pressing and urgent need for a whole set of steps in this sphere aimed at enhancing current security of both nuclear-weapon and non-nuclear-weapon states and strengthening the global nuclear non-proliferation regime and system.

## CONCLUSIONS

1. Despite the unique character of the NPT in terms of the list of parties it includes, in the first decade of the 21st century the prospects for non-proliferation have caused increasing concerns of the global community and policy-makers in most of the world's countries. The next stage in proliferation, provided that it gains momentum, will not only cause exponential growth of the nuclear threat, it will make, as a result of the synergy of many factors, the use of nuclear weapons in the foreseeable future virtually inevitable.

Progress towards further arms reductions and limitations may perceivably improve the situation and provide conditions and incentives for strengthening non-proliferation regime.

2. The aim of shutting down proliferation channels may be attained through raising the effectiveness of the IAEA safeguards, improving export controls, strict formalization of the procedure of withdrawal from the Treaty and increasing its political significance, bringing into force and the conclusion of a number of multilateral treaties designed to serve as 'barriers' to violations of the Treaty and the withdrawal from it.

This calls for a qualitatively new level of cooperation among the five nuclear-weapon states and their consistent progress towards complying with their obligation on nuclear disarmament in accordance with Article VI of the NPT. Specifically this refers to resolving a number of tasks: implementing of the new START Treaty; opening negotiations on further reductions of nuclear arms of the two leading powers and taking into account related issues (long-range precision-guided conventional weapons, pre-strategic nuclear weapons, etc.); resuming negotiations on cooperation in developing joint Russia-US/NATO missile defense; putting the NFC facilities of the five nuclear-weapon states (or at least four of them) under IAEA control, which could expedite the negotiations on the FMCT and the universalization of the Additional Protocol of 1997; consultations on multilateral nuclear dialogue with a view to involve the UK, France and China in the system of nuclear arms

reductions and induce them to adopt a number of confidence-building measures.

3. Since the establishment of IAEA, a giant leap has been made in the development of the Agency's safeguards. However, the continued erosion of the non-proliferation system calls for additional measures to strengthen it.

The most important and pressing task is to achieve accession to the Additional Protocol on safeguards of 1997 of all the states that have sizeable or less sizable nuclear activities. The IAEA should continue its vigorous efforts on introducing the so-called integrated safeguards into its safeguards practice and to promote the idea of establishing multilateral nuclear fuel cycle centers under the IAEA safeguards.

The attraction of Russia's initiative on the nuclear fuel cycle may significantly increase if it also included (in addition to enrichment) the services related to the new fuel production and spent nuclear fuel management.

Further steps should be taken to convert research reactors to low-enrichment reactors and withdraw the fresh highly enriched uranium and spent nuclear fuel to the countries that initially supplied such reactors.

It is essential to explore in practice the possibility to significantly increase the safeguards budget to provide the Agency with first-rate analytical equipment and other technical capabilities so that it can perform its safeguards-related tasks independently and adequately. The Agency should have its own framework for research and development in the sphere of safeguards without being dependent on technology owners and should be able to perform remote monitoring.

4. The right to withdraw from the NPT has come to be a serious problem in terms of maintaining the non-proliferation regime. This issue may be helped through the improvement of the IAEA safeguards and the universalization of the 1997 Additional Protocol.

The announcement by a state of its withdrawal from the NPT should be followed by intensive inspections by the IAEA, an Extraordinary Conference of the parties to the Treaty to examine the motivation for the withdrawal. If the motivation is recognized as contradicting Article X paragraph 1 of the NPT and/or the issue cannot be resolved without withdrawing from the Treaty – the issue should be immediately referred to the UNSC for consideration pursuant to Chapter VII Article 41 of the Charter of the United Nations.

Resisting the IAEA inspections or non-observance of the notice period clause should immediately bring about a decision by the UNSC to impose sanctions.

All materials and technology existing in the state on the date of its withdrawal from the NPT should be used exclusively for peaceful purposes and should remain under the IAEA safeguards. All dual-use technologies and materials obtained from third parties or created by the state when it was party to the NPT should be immediately frozen and subsequently dismantled or returned to the supplier states under the IAEA control. The refusal to comply with the two last-mentioned requirements should result in a UNSC decision to impose sanctions in accordance with Chapter VII Article 41 and 42 of the Charter of the United Nations, including the use of military force.

5. The proliferation of fissile materials production technologies poses serious risks to the nuclear non-proliferation regime. Overall, it will be possible to develop nuclear energy on a broader scale while preventing the spread of sensitive nuclear technology through the nuclear fuel cycle only if a number of basic conditions are met.

Parties to the NPT need to recognize the necessity of foregoing the construction of new national enrichment facilities, including small-capacity ones. Countries that already have enrichment technology need to cooperate in this area aiming at a full transition to international uranium enrichment centers in the longer term.

The existing nuclear fuel cycle services offered by the existing IUEC should be gradually internationalized, preferably, under the auspices of IAEA. Efforts must be made to strengthen the existing nuclear services market through long-term contracts and enhanced transparency thereof, and to provide, in a guaranteed and non-discriminatory manner, nuclear fuel cycle services to states parties to the NPT foregoing the development of national uranium enrichment and spent fuel reprocessing technologies.

Alongside with price incentives, a comprehensive set of technological and commercial incentives for countries foregoing the nuclear fuel cycle, must be developed. Beginner countries will receive nuclear technologies suppliers' assistance in developing national nuclear energy only after accession to Additional Protocol of 1997.

Eventual transition to international uranium enrichment centers under the auspices of the IAEA must be accompanied by the extension of

the 1997 Additional Protocol to the entire civilian nuclear infrastructure of the nuclear-weapon states and, if the FMCT is concluded, to all of their uranium enrichment and spent fuel reprocessing facilities.

6. Strengthening the non-proliferation regime requires the improvement of all the system of non-proliferation institutions. It appears essential that the effectiveness of collective actions taken by the UNSC in order to enforce non-proliferation, is improved. The success of this task will depend on the convergence of interests of the three great powers: China, Russia and the US.

It would be practical to set forth in advance a set of measures and a procedure of actions so that potential non-compliant states have no illusions of impunity provoking adventurism. It is of special importance that timely actions are agreed to be taken with regard to states expecting to withdraw from the NPT unpunished for the violations of its provisions. It would be appropriate to elaborate international responsibility of states for such non-compliance.

One should support the initiative of the International Commission on Nuclear Non-Proliferation and Disarmament that called the UN Security Council to send a clear message of warning that a withdrawal from the NPT will be considered as a threat to international peace and security and entail punitive measures in accordance with Chapter VII of the Charter of the United Nations. This could become a significant factor efficiently holding the proliferation.

As a specific measure in this area, the UNSC could adopt a framework resolution (a follow-on resolution to Resolution 1887) containing specific provisions on rapid response of the international community to the actions of states regularly violating the rules of the NPT regime and non-complying with the instructions of the UN Security Council.

The UN Military Staff Committee could become a valuable steering house to coordinate activities of the UNSC permanent members, as well as of other members of the Security Council and the UN in general as regards enforcement measures, including those related to the NPT.

Therefore, the mandate of the Military Staff Committee should accordingly be expanded to include functions related to developing rigid measures to enforce compliance with the non-proliferation requirements.

7. Nuclear deterrence among great powers has become an anachronism, it continues to prevent threats that no longer exist—

intended massive attack of major powers or their alliances against each other. At the same time, it fails to address the real threats of modern times, such as international terrorism, proliferation of WMD and their delivery systems, ethnic and religious conflicts, clashes for energy supply and fresh water sources, to say nothing of the issues related to climate, environment, illegal migration, epidemics, cross-border crime, etc.

Nuclear deterrence persisting in the great powers' relations most probably encourages the proliferation of nuclear weapons and increases the probability of its falling into the hands of terrorists. Besides, the relations of mutual nuclear deterrence hamper cooperation of the great powers in efficiently addressing this danger.

Logically, nuclear deterrence in a multi-polar and globalized world inevitably causes further nuclear proliferation and at certain point will lead to a deliberate or accidental use of nuclear weapons (or a nuclear explosive device) by a state or terrorists.

There is another obvious consequence of the great powers' nuclear policy, which nourishes proliferation. This refers to the continued absence of agreed and approved negative security assurances to non-nuclear-weapon states parties to the NPT on the part of official nuclear-weapon states.

8. Revisiting the idea of nuclear disarmament as a final, although a distant, goal of the leading powers' policy lends direction to the rational and promising measures such as the new START Treaty and further nuclear arms reductions. This opens the way to implementing the CTBT and FMCT, agreements of utmost importance at the intersection of nuclear disarmament and non-proliferation. Besides, this enables the involvement of the third nuclear-weapon states and non-NPT nuclear-weapon states (India, Pakistan and Israel) in this process. Furthermore, this gives a powerful impetus to enhancing the NPT and its regimes, the political settlement of North Korean and Iranian nuclear issues, the internationalization of nuclear fuel cycle and ensuring high international standards of nuclear materials security.

It is equally important that only in the context of such policy and in no other way Russia and other countries will be able to achieve an acceptable resolution of other politico-military problems, such as halting NATO eastward expansion, limiting strategic missile defense systems, preventing space arms race, etc.

9. One can confidently say that there has been and there still is a link between the disarmament and non-proliferation. It is the positive dynamism of arms reduction and limitation process and the prospect of its development to the point where complete disarmament may be attained, provides favorable conditions for the states not to opt for developing nuclear weapons capability to ensure their security.

The maintenance of high levels of nuclear forces, their improvement based on the strategy of mutual nuclear deterrence exacerbate mutual mistrust and suspiciousness smacking of antagonism and places rigid limitations on the great powers' constructive cooperation. This has a direct bearing on non-proliferation, in particular such aspects as agreeing and adopting sanctions against the third countries and the elaboration of a consolidated position in negotiations with them.

As the great powers fail to observe their obligations under Article VI of the NPT, they find themselves in want of a strong political position to promote a whole set of measures aimed at strengthening non-proliferation regime. In this context, the interconnection between nuclear disarmament and non-proliferation appears to be as follows/ The compliance with the nuclear disarmament obligations under Article VI of the NPT cannot in itself guarantee from nuclear proliferation as the rationale of the latter is of a diverse and complicated nature. But the nuclear-weapon states' failure to comply with these obligations guarantees further nuclear proliferation and puts serious obstacles to strengthening of the non-proliferation regime and system.

Expansion of the 'field of negotiations', on arms reduction and limitation, the transition to real phased nuclear disarmament would give additional powerful impetus and create conditions for consistent course of strengthening the non-proliferation regime.



## ANNEX

### Abbreviations

ACV	Armored combat vehicle
CD	Conference on Disarmament in Geneva
CTBT	Comprehensive Nuclear Test-Ban Treaty
EASI	Euro-Atlantic Security Initiative
FMCT	Fissile Material Cut-Off Treaty
GICNT	Global Initiative to Combat Nuclear Terrorism
GNEP	Global Nuclear Energy Project
HEU	Highly enriched uranium
IAEA	International Atomic Energy Agency
IMEMO RAN	Institute of World Economy and International Relations of the Russian Academy of Sciences
INF Treaty	Treaty between the USA and the USSR on the Elimination of their Intermediate-Range and Shorter-Range Missiles (1987)
INPRO	International Project on Innovative Nuclear Reactors and Fuel Cycles
IUEC	International Uranium Enrichment Center
KEDO	Korean Peninsula Energy Development Organization
LEU	Low-enriched uranium
MSC	Military Staff Committee (of the UN)
NATO	North Atlantic Treaty Organization
NFC	Nuclear fuel cycle
NPT	The Treaty on the Non-Proliferation of Nuclear Weapons
NSG	Nuclear Suppliers Group
NSP	Nuclear Security Project
NTI	Nuclear Threat Initiative
PSI	Proliferation Security Initiative
START I	Treaty between the USA and the USSR on the

	Reduction and Limitation of Strategic Offensive Arms (1991)
START II	Treaty between the USA and the Russian Federation on Further Reduction and Limitation of Strategic Offensive Arms (1993)
SWU	Separation work unit
TRR	Tehran Research Reactor
UN	United Nations
UNF	Used nuclear fuel
WMD	Weapons of mass destruction