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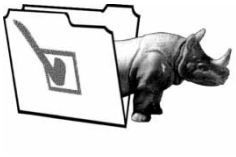

REACHING ONE HUNDRED

Some day you'll reach a hundred
And we'll sing, ''Thank you that you're alive!''
(Vladimir Vysotsky)

It's a special kind of pleasure to read through all the congratulatory emails. Especially emails like, ''I congratulate the entire Editorial Team of the *Security Index* on your 100th anniversary.'' Believe me, that was far from the only such slip of tongue.

Our actual stats are as follows. The journal was born in November 1994, when the test issue came out. It was prepared by a small team of like-minded people in the editorial offices of the legendary *Moskovskiye Novosti* (Moscow News) newspaper on Pushkin Square. The official first issue was unveiled to a broad audience in January 1995, in the run-up to the NPT Review Conference.

So we are not actually 100 years old, we're only 18. But we have reached a hundred: the 100th issue of *Security Index*. The proof is in your hands. And I am glad that many of our readers, it seems, cannot even imagine a time when our journal did not exist.

We have really enjoyed that road, from No. 1 to No. 100. I have had the task—and the honor—to edit and sign off to print every single one of those 100 issues. The beginning was difficult. This snatch of lyrics by my favorite Russian poet Vladimir Vysotsky just about sums it all up:

> By great good fortune you were born.
> Almost the same day your country was born.
> You have lived through it all together.
> Be thankful you're still alive.

Back then, in 1994–1995, it sometimes felt as though ''being born almost the same day your country was born'' was a piece of really bad luck for the journal (and for its parent, the PIR Center). At the beginning of the new Russia, values and ethical criteria were eroded, and NGOs specializing in international security were seen as something unnatural. Now that we have reached a hundred, it is clear that the timing was not bad luck at all; it was actually our great good fortune. It was a time of great risks, but also a time when it was right and proper to take those risks and tread new paths instead of following in other people's footsteps.

That is why it has been so interesting. Always interesting. The heart of any journal's editorial team is the ideas and the authors. We have never had a shortage of either. I cannot remember a single instance of our editorial portfolio starting to look a bit thin. But I remember plenty of times when authors started taking offence at us for keeping their articles, excellent as they were, in a long line of similarly excellent articles awaiting their turn to be published.

On this day I would like to say a heartfelt ''Thank You!'' to every single one of our authors. Some of them are people who need no introductions. Others are young specialists whose careers our journal have helped to kick-start. There are in fact entire dynasties of authors: father and son, or father and daughter.

But there is one particular person who deserves our special gratitude. That person is Roland Timerbaev. Without his vast experience, without his energy, and his confidence that NGOs must play a more prominent role, without his ability to nurture a new generation of specialists, our journal would never have become what it is now.

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As time went by, we started to feel that our chosen niche is too narrow, and we decided to widen the number of topics we cover. Although nuclear nonproliferation remained at the center of our attention, it soon ceased to be our sole remit. We broadened our expertise and merged other PIR Center periodicals: *Voprosy Bezopasnosti* (Security Issues), *Khimicheskoye Oruzhie i Problemy Ego Unichtozheniya* (Chemical Weapons and Their Elimination), *Export Vooruzheniy* (Arms Exports), and *Rakety i Kosmos* (Rockets and Space)—with our flagship publication. We have also launched new projects dealing with the new challenges and threats to international security and Russian national interests.

It was therefore entirely logical for us to move on from our old academic stomping ground. The road from *Yaderny Kontrol* to *Security Index* took us 12 years. During that time we moderated our pace (at one point we were a monthly), gained a lot of substance (the first issues had just 16 pages; this one has almost 10 times as many), won an international audience by launching an English-language version, and, most importantly, attained a whole new level of quality of our output. Not a single piece of analysis is published in our journal without external peer review by the most reputable experts in the field. The Editorial Board, which maintains the quality standards and sets our development goals, is made up of people of all political hues and stripes united by the depth of their thinking. We also have 14 journal representatives across the globe, from Prague and Kiev to Vladivostok and Tokyo.

But as the Russian saying goes, ''You give your pleasures an hour, but you give your business the whole time.'' This issue is about *time*. It brings us back to our roots, to the issues that lay at the very foundations of our journal: nuclear nonproliferation, disarmament, and nuclear security. Looking back almost two decades on, we ask ourselves: What has changed over these years? Which of our forecasts and projections have come true? (And here I'd like to draw your attention to the ''Leafing through Old Pages'' inserts throughout this issue.) That is the focus of the articles by Gennady Evstafiev and Sam Nunn, Adriaan van der Meer, and my own article dedicated to the past two decades of Russia's nonproliferation policy.

In this issue we give center stage to the authors who have won the PIR Center's award, the PIR Globe, for special achievements in the area of nonproliferation and disarmament. It is, by the way, a great honor to see these Globes still displayed prominently in the offices of their owners in Moscow, Vienna, Washington, or Cairo. Articles by these authors are marked with a special PIR Globe logo in this issue.

But we would like to use this occasion not just to look back at the past two decades, but also to peer two decades into the future. What awaits the nuclear nonproliferation regime over the next 20 years? We offer opinions and projections by Nikolai Ponomarev-Stepnoy and Kassym-Jomart Tokayev, Tibor Toth and Dmitry Evstafiev, Sergey Ryabkov and Eugene Miasnikov.

The circulation of our 100th issue will be double the usual figure. In addition to our regular audience, we invite new readers to have a look with us at the future of the nonproliferation regime, which remains a cornerstone of the entire global security architecture. The Russian and English-language versions of this issue are gaining a new audience in the offices on Staraya Ploshad in Moscow where the President's office sits, in the libraries of Tomsk and Paris, in the universities of Shanghai and Sao Paulo, in Riyadh and Sarov, Astana and Ankara, and, for the first time, in Pretoria.

In addition to the traditional printed version of this journal, we are also offering an electronic version; key articles from it have been highlighted in PIR PRESS newsletters and announced via Twitter. Our latest issues and the entire archive in Russian are now available on ELIBRARY.RU, a major Russian online library. The English-language versions are available in the databases of our partner Taylor & Francis, the world's largest publishing house specializing in international relations. We are also glad to see that the electronic version of our journal is gaining new audiences among researchers in South Korea, Iran, Canada, Armenia, Turkey, the Czech Republic, Germany, Switzerland, and Brazil.

So everything is only just beginning for us and for our journal with this *one hundred*.

Finally, to those of you who keep asking us, ''*Why the rhino*?'' Stick with us until the 200th issue, and I'll tell you.

Vladimir Orlov

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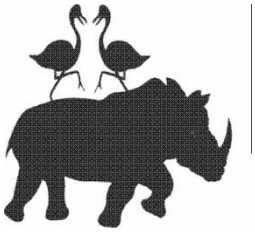

Kassym-Jomart Tokayev

THE CONFERENCE ON DISARMAMENT IS AN IRREPLACEABLE FORUM

In March 2011 the United Nations Secretary-General Ban Ki-moon announced the appointment of Kassym-Jomart Tokayev as the new Director-General of the United Nations Office in Geneva. On taking office Mr Tokayev has also become the Secretary-General of the Conference on Disarmament.

In an exclusive interview for* Security Index *the new UN Under-Secretary-General Kassym-Jomart Tokayev talks about the prospects for the Conference on Disarmament, including the idea of transferring the negotiations on FMCT to an alternative platform, about the negotiations on the draft treaty preventing the deployment of weapons in outer space, about the chances for a Global Treaty on Cybersecurity and Cybercrime to be adopted, and the recent trends in national cyber strategies.

SECURITY INDEX: In 2011 you have assumed office as United Nations Under-Secretary-General. What are the areas of activity that have high priority for you?

TOKAYEV: The time since I took office as Director-General in Geneva has been very exciting. This city is the second-largest duty station for the UN, and in many ways is the Organization's second home. It is important for the Organization, and a particular priority for me, to further enhance Geneva as a major hub for multilateral diplomacy. Home to many UN entities, as well as other international organizations and world-class research institutions, Geneva has a great deal to contribute. I am convinced that by harnessing this expertise in dealing with serious global challenges, the added value of Geneva will make a real and positive difference to the important work of the United Nations. As such, I am actively looking to harmonize our work, and to modernize our methods, to ensure even greater efficiency in delivering the needed services of this Organization.

As Secretary-General of the Conference on Disarmament (CD), and also the Personal Representative of the UN Secretary-General to the CD, the multilateral disarmament agenda is one of my most pressing priorities. This means that I feel a particular responsibility for the good functioning and the success of the Conference and for reinvigorating the multilateral disarmament process, which the Conference on Disarmament embodies.

SECURITY INDEX: Russia pays much attention to the activities of the Conference on Disarmament. Russian Foreign Minister Sergey Lavrov addressed the participants of the Conference three times over the past four years. Meanwhile the forum has been repeatedly criticized, including calls for the reform of the Conference. What is your assessment of the prospects of the Conference on Disarmament?

TOKAYEV: The Conference on Disarmament is an irreplaceable forum. If the CD did not exist it would need to be established. The CD is the only venue where the five nuclear weapons states and other nuclear powers come together to discuss nuclear disarmament and non-proliferation as well as other key disarmament issues. All countries, including Russia—as you rightly say—pay much attention to the CD and, for the most part, also wish to preserve its role and functions. It is, however, undeniable that the CD is facing serious difficulties, which have even intensified since the failure of the implementation of the Programme of Work that CD members agreed to in 2009.

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Frustration continues to grow among the members of the CD because of the continuing lack of agreement on the priorities that this body should address, which for a majority of states would at this stage consist of negotiations on a Fissile Material Cut-Off Treaty (FMCT).

From a UN perspective, the UN Secretary-General, Ban Ki-moon, has made several calls for the Conference to resume its substantive work. To this end, he convened a high-level meeting in New York in 2010 and asked his Advisory Board on Disarmament Matters to address the issue during its 2011 session. Furthermore, in July 2011, the UN General Assembly held a plenary meeting under agenda item 162, entitled ''Revitalizing the Work of the Conference on Disarmament and Taking Forward Multilateral Disarmament Negotiations.'' Ultimately, however, it is for the members of the CD to decide how to address the diverging priorities that are hampering the functioning of the Conference.

I believe that there are two main issues that need consideration.

The first one is the importance of the consensus rule for the CD. In fact, albeit action can sometimes be slowed down or even hampered by the time-consuming process necessary to achieve consensus among the Conference members, it is the existence of the consensus rule that guarantees the members of the Conference that action will not be taken against their legitimate security interests. The value of this rule is, therefore, immense. It is also true, however, that the privilege of participation in the Conference should come with a sense of responsibility and that states should protect their security concerns during negotiations and through the relevant steps relating to the signing, ratification, or accession to a treaty, rather than by blocking the start of negotiations *tout court*. The very existence of the rule of consensus should indeed represent an encouragement to come to an agreement to start substantive work.

The second point is that it is undoubtedly true that some of the procedures that characterize the CD are impairing its efficiency. To give an example, the monthly rotating presidency and the annual adoption of the programme of work are not contributing to the effective functioning of this body.

Then, there is the issue of the expansion of its membership, which, unfortunately, in the opinion of some, would not solve any problems. In this regard, I would advise not to forget that a body such as the CD needs to be representative of the wider international community, in particular as it is funded from the regular budget of the United Nations.

Last, but certainly not least, the agenda of the CD dates back to 1978 and needs to be reassessed to reflect the current international security environment.

To conclude, while I do see that there may be room for a revitalization and possibly transformation of the Conference on Disarmament, I have no doubts that this body will continue to play an essential role in the future as the single platform for conducting multilateral negotiations on disarmament issues.

SECURITY INDEX: One of the most serious reasons for criticism of the Conference on Disarmament is the absence of progress in FMCT negotiations. What is your attitude towards the idea of transferring the negotiations on FMCT to an alternative platform?

TOKAYEV: The negotiation of FMCT is the issue that, in the opinion of a majority of the member states of the CD, would be ripe for negotiations within the CD. However, the lack of agreement on the scope of such a fissile material treaty, in particular, has pre-empted the start of negotiations so far. This situation has indeed led some states to consider moving such negotiations to an alternative forum.

The first consideration to be made in this regard is that there is no agreement at present among the members of the CD on the best way to proceed. On the contrary, the idea of moving negotiation on a fissile material treaty to an alternative forum is considered by a number of states as counterproductive, as it would inevitably leave out of the negotiations some key countries. Consequently, the credibility of any agreement would be questionable, not to mention the true relevance of the outcome treaty, if any was indeed to be negotiated.

Second, moving negotiations on items on its agenda to alternative bodies would without any doubt undermine the CD and could ultimately lead to its demise.

On this issue, I agree fully with Foreign Minister Sergei Lavrov, who speaking in front of the plenary of the CD on March 1, 2011 stated that ''if talks on an FMCT are to succeed, they should be carried out within the framework of the Conference rather than somewhere else.''

SECURITY INDEX: The issue of non-weaponization of outer space has been on the agenda of international negotiations for a long time. How would you assess the present state of negotiations on the draft treaty preventing the deployment of weapons in outer space?

TOKAYEV: The use of outer space for a variety of military, intelligence, civil, or commercial purposes has much increased over the past decades. It is therefore more important than before that efforts are made at the multilateral level to increase space security and stability, in order to ensure that space remains a peaceful domain. The weaponization of space would, indeed, severely hamper its use for overall civilian purposes and would obviously destroy existing strategic balances, thus triggering an unpredictable arms race that would be both space and earth-based.

Fortunately, Prevention of an Arms Race in Outer Space (PAROS) has been one of the four core issues on the agenda of the Conference on Disarmament since 1982.

Among the latest developments on this issue is the new draft ''treaty on prevention of the placement of weapons in outer space and of the threat or use of force against outer space objects'' (PPWT), submitted in 2008 jointly by the Russian Federation and China to the CD for its consideration. While at that time a number of delegations welcomed the draft PPWT, no consensus within the CD was reached then, nor has it been reached since, on the negotiation of such a treaty.

It should also be recalled that CD/1864 (2009), which represents the only and last programme of work that the CD members agreed to in more than a decade, provided for the establishment of a Working Group to discuss substantively, without limitation, all issues related to the prevention of an arms race in outer space. CD/1864 did not, however, provide for a negotiating mandate for the Group. Ultimately, for reasons unrelated to PAROS, there was no agreement on the implementation of CD/1864.

Despite the formal absence of a working group on PAROS, however, every year scheduled debates on this issue take place in plenary or informal meetings in the CD. Such discussions provide an invaluable platform for the exchange of views, although they do not seem to have bridged completely the diverging views among delegations.

Most recently, the General Assembly with its resolution 65/68 entitled ''Transparency and Confidence-Building Measures in Outer Space Activities'' requested the Secretary-General to establish, on the basis of equitable geographical distribution, a Group of Governmental Experts (GGE) to conduct a study, commencing in 2012, on outer space transparency and confidence-building measures. Making use of the relevant reports of the Secretary-General, without prejudice to the substantive discussions on the prevention of an arms race in outer space within the framework of the CD, the GGE is to submit to the Assembly at its 68th session a report with the results of the study.

It is not to be excluded that the Report of the 2012 GGE could intensify the discussions and, maybe, the negotiations on PAROS in the CD. I believe that increased transparency and confidence-building measures could create a climate of greater trust and, possibly, also facilitate the negotiations of a treaty, although the final word on this rests—as usual—with the members of the CD.

SECURITY INDEX: How would you evaluate the chances for a Global Treaty on Cybersecurity and Cybercrime—the initiative promoted by the ITU High Level Experts Group—to be adopted in the very near future? If the Treaty becomes reality how would it coexist with the Budapest Convention on Cybercrime? What is the principal difference between the two documents in terms of creating legal mechanisms to counter cybercrime? What efforts is the international community undertaking in order to create an international legal and institutional framework for countering and preventing cyber-terrorism? To what extent does Russia take part in its activities and how would you evaluate the prospects for more active engagement by Russia in this field?

TOKAYEV: In the information age, the internet opens great possibilities for connecting people and for spreading knowledge. Of course as we seek to make use of this enormous potential for development, our reliance on electronic means of communication also brings vulnerability. Cyber-attacks are becoming ever-more frequent and sophisticated and pose serious threats to our

information infrastructure. Just last year, it was revealed that the United Nations, together with several governments, appeared to have been the target of an intrusion.

The legal questions of how to deal with these cyber-threats must go hand-in-hand with joint practical steps for combating cybercrime. The United Nations is addressing cyber-security in particular through the International Telecommunications Union and its global cyber-security agenda. By virtue of the global scope and implications, it is a challenge that requires a truly international response at political and technical levels. Russia, of course, plays a critical role within the required global response.

SECURITY INDEX: How does the UN assess the latest trends in the evolution of national cyber-strategies, especially those of major cyber and military powers, such as the United States, Russia, and China? Do you see any threat or a challenge in the rapid and practically uncontrolled development and adoption of doctrines implying multiway use of cyberspace for military and intelligence purposes?

TOKAYEV: There exists, indeed, a wide variety of existing and potential threats in the sphere of information security. Such threats may manifest themselves in disruptive activities such as power grid disruptions, interference with air traffic control, and attacks on military command and control infrastructures—just to mention a few examples—and carry significant risk for public safety, the security of nations, and the stability of the globally linked international community as a whole. That is why I believe that the United Nations has a decisive role to play in this area.

It should be recalled that the issue of information security has indeed been on the agenda of the United Nations for quite some time already. It was the Russian Federation which, in 1998, first introduced a draft resolution in the First Committee of the UN General Assembly on this issue. Since then, there have been annual reports by the Secretary-General to the General Assembly reflecting the views of UN Member States on the issue and their call for concerted action at the global level.

In 2009–2010, upon the request of the General Assembly of the United Nations, the Secretary-General established a Group of Governmental Experts composed of 15 states to examine the existing and potential threats from the cyber-sphere and the possible cooperative measures to address them. The United States, Russia, and China participated actively in this group and contributed to its final report that was issued last summer (UN document number A/65/201). In his foreword to the report, the Secretary-General of the United Nations noted that:

> The General Assembly has an important role to play in the process of making information technology and telecommunications more secure, both nationally and internationally. Dialogue among Member States will be essential for developing common perspectives. Practical cooperation is also vital, to share best practices, exchange information and build capacity in developing countries, and to reduce the risk of misperception, which could hinder the international community's ability to manage major incidents in cyberspace.

It should also be recalled that last year the General Assembly unanimously approved resolution A/RES/65/41, in which it requested the Secretary-General to continue to study existing and potential threats in the sphere of information security and possible cooperative measures to address them, with the assistance of a group of governmental experts, to be established in 2012.

In a new recent development, the governments of China, Russia, Tajikistan, and Uzbekistan have announced that they have elaborated an international code of conduct for information security and have called for deliberations within the UN framework on such an international code with the purpose of achieving consensus on international norms and rules guiding the behaviour of states in this area. Such a proposal for an international code of conduct will be part of an eventual draft resolution to be tabled and debated later this year by the Plenary of the General Assembly of the United Nations.

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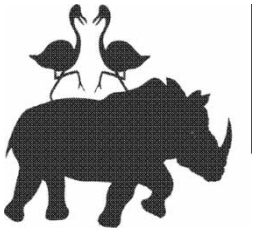

Tibor Tóth

CTBT: NOT YET IN FORCE BUT ALREADY EFFECTIVE

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) was adopted by the United Nations General Assembly in September 1996. It was opened for signature in New York on September 24, 1996. What are the prospects for this important treaty to enter into force? What is the progress made by the Preparatory Commission—the institution that was created to build the verification regime including establishment and provisional operation of the network of monitoring stations, the creation of an international data centre, and development of the on-site inspection capability?

We have put our questions to the Executive Secretary of the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Ambassador Tibor Tóth.[1]

SECURITY INDEX: The year 2011 marked the 15th anniversary since the CTBT was opened for signature. How do you assess the achievements of the CTBTO during these years and the prospects for the Treaty to become law?

TÓTH: First of all, we are still eight ratifications away from bringing the treaty into force. Nevertheless, we have made a tremendous progress during the last 15 years.

The road to each ratification goes through the capital of that country. There is no short-cutting. Every country will take time to make this decision, and it is difficult to predict how long this process will take. It will require a change in mindset, away from a narrow national approach to security with an emphasis on military might, towards a greater understanding and appreciation of multilateral nuclear disarmament and nonproliferation and the need to jointly address the threat of nuclear terrorism.

Looking at the list of the remaining holdouts – China, Egypt, India, Iran, Israel, North Korea, Pakistan and the United States – it is clear for any political observer that achieving the CTBT's entry into force remains a daunting challenge. However, looking back at the CTBTO's founding years, there have always been challenges, but also increasing and dedicated support from the international community.

In 1998, the series of Indian and Pakistan nuclear weapon tests took place. In 1999, the United States failed to ratify the treaty. We, the CTBTO Secretariat, could have closed the shop, put a note at the entrance, and be back when times are better. But we persevered! At that time the level of ratifications was less than 50, and the number of fully operational stations was zero.

What has happened, since 1999? First of all, this period was definitely not a Golden Age of nuclear disarmament, nonproliferation, and arms control. With the exception of a few positive signals in recent years, the last decade has been quite bumpy. In spite of this, over 100 more countries have ratified the CTBT during that time, increasing the numbers from 50 to 157.

Second, there were no certified stations in 1999. The first station of the overall system was certified in the summer of 2000, and despite the unfavorable political climate, despite the complexities and the challenges, countries decided to put the system in place. By mid-March 2012, 80 percent of the facilities had been certified and have started sending data to the CTBTO's

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headquarters in Vienna. The investment is estimated at $1 billion, which adds to the political, technical, scientific, and intellectual capital that was invested.

The United States, which shoulders the lion's share of 22 percent of our regular budget, is not only catching up on some of the previous non-payments, but has made a voluntary contribution of $34.5 million to enable us to become even better at detecting nuclear tests.

The payment situation in 2011, not the best year for finance and economics, was improving. We've received 10 percent more money than in 2010. This is not just a finance issue, this is a sign of dedication and the perseverance of countries. It is not that foreign and finance ministries have extra money, and would like to throw the money around. They do believe in this system.

SECURITY INDEX: What does the whole system consist of? How does it work? And how useful are the results?

TÓTH: The International Monitoring System (IMS) will, when complete, consist of 337 facilities worldwide to monitor the planet for signs of nuclear explosions. More than 270 of the facilities are already certified. The IMS uses the following four state-of-the-art technologies: seismic, hydroacoustic, infrasound, and radionuclide.

Seismic technology is to monitor the Earth for underground nuclear explosions. Seismic stations are equipped with sensors or seismometers to measure waves generated by seismic events that travel through the Earth. Measurements taken at seismic stations help identify the location, strength, and nature of a seismic event. The vast majority of the approximate 45,000 events detected annually are earthquakes. But man-made explosions such as mine explosions or nuclear tests are also detected. Hydroacoustic stations ''listen'' for sound waves in the oceans. Sound waves from explosions can travel extremely far underwater. That is why the whole system operates with 11 hydroacoustic stations only. Infrasound stations on the surface can detect ultra-low frequency sound waves (inaudible to the human ear) that are emitted by large explosions in the atmosphere. Radionuclide stations measure the atmosphere for radioactive particles. Only these measurements can give a clear indication as to whether an explosion detected by the other methods was actually nuclear or not. They are supported by radionuclide laboratories.

All the data from the global monitoring stations goes to the International Data Centre at the CTBTO's headquarters in Vienna. The data are processed and distributed to the CTBTO member states in both raw and analyzed form.

On October 9, 2006, North Korea carried out its first nuclear weapon test. By that time we had only 60 percent of the IMS functioning. The system of data gathering (which eventually covered the territory of 90 countries) as well as data processing was already functioning at that time; the data were then distributed to some 1,000 institutions that had software replicated from Vienna, in 120 capitals. Based on these features no one could question how information was derived, how the conclusions were arrived at. It was an unfortunate test, but it was also a test for the system. The system performed on what I could call a stress test, because the system was half ready at that time. All the above-mentioned components of the system were tested.

In May 2009 the system was tested again; 61 stations detected seismic signals. We informed 1,200 institutions in 120 countries within one and a half hours after the event. We also had the information about the exact location, magnitude, time, and depth of the test. Both tests demonstrated that even before the CTBT's entry into force, our verification regime is effective.

We now can make a conclusion that the system is absolutely relevant for complex disasters. The most recent test for the system was the triple disaster in Japan on March 11, 2011 that tragically claimed so many lives – the Tohoku earthquake, the tsunami and the accident at the Fukushima Daiichi nuclear power plant. The IMS helped national authorities to issue timely tsunami warnings and later to assess the radioactive emissions from the damaged power plant.

SECURITY INDEX: Could you describe the development of this monitoring network on the territory of Russia? What about the other P5 nuclear weapon states?

TÓTH: My last visit to the Russian Federation was in May 2006. At that time we had no stations certified there. Now I express my gratitude to Russian Foreign Minister Sergey Lavrov, Deputy Minister of Defense Anatoly Antonov, Deputy Foreign Minister Sergey Ryabkov, and Rosatom State Corporation, because 70 percent of the Russian Federation's segment was put in place

during the last five years. And we have an inspiring goal of putting the remaining 30 percent in place by the end of 2012.

What is extremely interesting is that alongside Russia, the United States opened up as well to international verification through the CTBT. This is the first time that the P5 are undertaking equally legally binding obligations on both the verifications and the prohibitions sides through a legally binding document on multilateral nuclear disarmament and nonproliferation. Altogether, the percentage of the monitoring stations on the territory of the P5 is probably more than 50 percent. It is inspiring! It is the right message they are sending. The monitoring stations hosted by the United States, United Kingdom, and France are 80–90 percent complete.

What is interesting on the U.S. side is that during 2000 and 2008 more than 30 of the 42 U.S. facilities were put in place under the Bush administration. So there is a certain perception that even without pursuing ratification, the data and information provided by the IMS were valuable. For the Obama administration, CTBT ratification is a declared policy goal..

All the participants (not only P5) are monitoring all 182 countries (including themselves). This is what I called all-inclusive verification. It is not dependent on a small group of bureaucrats like myself and my colleagues, and we are open in foreclosing the information. This is not the privilege of a few countries to tell the others what happened.

Probably the United States is getting additional information from this system. I cannot quantify how much additional information that they are getting on top of what they are having—another 10 percent or 20 percent or 30 percent. However, for the first time not just the United States but all the P5 are opening up to collective scrutiny, they are exposing themselves vis-à-vis the world. And in the absence of this system, with the exception of probably five to 10 countries there would be zero information available.

The nuclear weapon test or the absence of tests is a bench mark as to whether things are going alright or not. That is why it is important that in Asia and in the wider Middle East region we do more on the issue of the test ban.

The increase in the number of facilities in different countries of the region producing fissile material—I don't think it's good for anyone's security. We can contribute together with other measures like the Fissile Material Cut-off Treaty (FMCT) to diminish the number of potential misuse sources.

CTBT ratification by the United States is widely perceived to be a game changer for the entry into force process. At the same time, it's important that countries don't hide behind the United States. Unfortunately, some countries have a so-called ''wait and see'' attitude, meaning that they are not ratifying until certain other countries ratify. It is not convincing because unless and until everyone ratifies it the Treaty will not enter into force. So everyone has to be on board. During the talks in Geneva back in 1996 India pulled out from the last stage of the negotiations. So the Indian and Pakistani stations are practically ''to be determined'' stations. At the same time, we have a sort of understanding of what kind of stations are needed and, based on the negotiating history, if and when the time comes we will brush off those ideas.

What I would like to mention is that our Pakistani colleagues are engaged in technical discussions. They are participating in the work of a subsidiary body where they are following all the discussions on the different technologies. It is very promising.

Besides nuclear weapons an additional source of potential misuse is coming from nuclear energy in Asia and in the Middle East. Before Fukushima the projected annual increase was above 10 percent. It's for the countries of the region to think it through, having in mind not just good scenarios but worse scenarios as well. Today the monitoring facilities are missing in the same regions where nuclear energy is growing. So, we had better roll up our intellectual and political sleeves.

SECURITY INDEX: What is your assessment of the CTBT's place in the nonproliferation regime?

TÓTH: 50 years ago, in 1958–1961, there was a moratorium for nuclear tests in place. At the end of August 1961, the moratorium was interrupted. Both the United States and the former Soviet Union resumed testing. During the 16 months after the moratorium was interrupted 275 tests were conducted, which was more than during the 16 years before that. This is a reminder that a

moratorium is not enough. We cannot just be relaxed about a norm in action or a monitoring system in action. We have to consolidate that.

It is very difficult to differentiate what was fueling what: whether the political tension in itself was fueling this testing frenzy, or additional testing contributed to the further deterioration of the political climate. But as a matter of fact, the Berlin crisis broke out in 1961, and the Cuban missile crisis in 1962. The situation was spinning out of control. It was total mismanagement.

LEAFING THROUGH THE OLD PAGES

GEORGE BUNN, ROLAND TIMERBAEV, JAMES F. LEONARD: A comprehensive ban on nuclear tests is always mentioned as the most urgent of the three measures aimed at ending the arms race. This is the only measure mentioned in the preamble of the Treaty. At the four previous NPT Review Conferences the attention was focused on the failure to reach an agreement on banning all nuclear tests. For that reason, two out of those four conferences failed to produce a Final Document. From the point of view of the non-nuclear members of the Treaty, a comprehensive ban of nuclear tests is the most important measure the nuclear-weapon states can undertake as part of their commitments under Article VI.

''Nuclear Disarmament: Have the Five Nuclear-Weapon States Undertaken Enough Commitments under the NPT?'', *Yaderny Kontrol* (Russian Edition), 1995, No 4, P. 2.

Those events led to 1963, when the Partial Test Ban Treaty was signed. Why did all those events have to trigger such fast-tracking of the Partial Test Ban Treaty? A close encounter with fate had to happen to shake up those who were responsible, on different sides, for adding more diplomacy, transparency, arms control, adding soft tools to the very tough tools of military competition.

The choice is still very much there. We are facing a very similar dilemma today. We will have to decide upon the mixes of how many soft tools will be added to the military tools of competition. The point shared by 157 countries is that during the last decade we managed to put the genie back in the bottle in 99.5 percent. We had two tests during the last 10 years compared with the 400–500 tests per decade prior to the Treaty.

NOTE

[1] The interview is based on Tibor Tóth's speech at a seminar ''15 Years of the CTBT–Assessing the Achievements and Prospects,'' held by the PIR Center on the premises of the MacArthur Foundation in Moscow on September 30, 2011 and updated in February, 2012.

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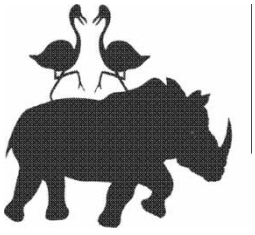

Sergey Ryabkov

FURTHER SANCTIONS AGAINST IRAN POINTLESS

The Iranian nuclear program: is it a threat, and can it trigger an arms race in the Middle East? Or are rumors about its dangers much exaggerated? What are the main problems with the approaches being used by the international community to address the issue? What are the steps Iran itself is prepared to take? Finally, what is the Russian strategy and tactics in resolving the Iranian nuclear problem?

The Security Index Editor-in-Chief, Vladimir Orlov, has put these questions to Russian Deputy Foreign Minister Sergey Ryabkov.[1]

SECURITY INDEX: The situation with the Iranian nuclear program has defied resolution for several years now. What is your assessment of the international community's efforts in this area? What steps should be taken to find a way out of the impasse?

RYABKOV: The Iranian nuclear problem is a multi-faceted issue, which is tightly interlinked with many other problems on the international agenda. For more than a decade we have been facing a paradoxical situation; all our attempts to find a resolution to the problems related to the Iranian nuclear program are not yielding any results, even though these efforts have included elements of pressure as well as elements of dialogue, i.e. attempts at political engagement of the Iranian side to discuss the problem. Whatever we call this combination of pressure and engagement used over these years, the nature of the situation remains the same: as Iran continues to make progress on its nuclear program, the international community employs ever bigger sticks and ever sweeter carrots.

The ongoing international debate, including the discussion in the ''Europe plus three'' format [known as P5 + 1 format.—**Ed.**], focuses not so much on the final goals of the process as on the tactics which are supposed to make that goal closer. We believe that some clear room for improvement has remained over all these years in terms of *real political investment* in this dialogue and in efforts aimed at engaging Iran itself into searching for a workable compromise.

We are hearing counterarguments to the effect that Iran will never comply with the international community's demands, and that the only way to persuade the decision-makers in Tehran (and by the way, it is not at all clear who makes these decisions, and how) is to ramp up the pressure of sanctions.

Well, let us look at these arguments. In the past four years alone the UN Security Council has adopted six resolutions on Iran, four of them introducing new sanctions. We believe that these resolutions have completely sealed off any loopholes that may have existed for Iran to receive external assistance in the development of its nuclear program. The same applies to a very large extent to the Iranian missile program. What is more, the United States, the EU, Canada, Australia, South Korea, Japan and many other countries are introducing ever more biting and comprehensive sanctions against Iran, imposing travel restrictions on Iranian officials, freezing Iranian assets in foreign banks, and cutting off relations with Iran in various other areas, from banking to transport. For now let us put aside the question of whether this policy of unilateral sanctions bypassing the UN Security Council is in line with international norms and customs, let alone international law. Let us put aside the question of whether this is in the spirit of partnership with

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this or another country. Let us focus instead on the far more important fact—namely, the fact that these sanctions have yielded practically no results whatsoever. We are now at the crossroads. What are the conclusions that should be drawn from this situation, which is causing political frustration in many capitals, and which is giving rise to internal political problems for a whole number of governments that are coming under mounting pressure from lobbyists, politicians, and parliaments?

One of the answers is to keep ramping up the pressure by introducing even more sanctions. You see, this is no longer a question of practical politics or practical diplomacy. This is now a question of beliefs and fortune-telling. Some believe in Buddha, some in Jesus Christ, some believe in sanctions, others don't believe—that is essentially the level to which our discussion has degenerated.

Jokes aside, theoretically it may be possible to just keep ramping up the sanctions until the regime in Tehran breaks. But, given the experience of the past several months, the unfortunate and grim experience of international norms being violated by the international coalition during Operation Unified Protector in Libya, we can absolutely rule out Russia's participation in such sanctions aimed at achieving a regime change in Tehran. Some might say that the current situation represents a window of opportunity; some might pursue the cynical path of trying to topple the government in Tehran so as to resolve a whole number of problems in one fell swoop. But Russia will never join such actions, and it will not in any way share the political or legal responsibility for any such steps.

SECURITY INDEX: Do you believe that there is a workable alternative to sanctions?

RYABKOV: Yes there is. The alternative is to pursue serious negotiations with Iran, with a clear commitment by everyone involved in the dialogue to find a compromise and to identify a solution that can be acceptable to the Iranian side.

The Iranian diplomats and politicians who are involved in the negotiations with the international community over their nuclear program are using the same tactics which are always used at the Iranian bazaar. When the buyer and the seller haggle over the price of something expensive, such as a beautiful rug which took many years and a lot of skill to make, the seller always starts off with a completely exorbitant price. But if the seller feels that the buyer is really interested in this rug, that he is not just looking around—that is when the real bargaining begins. The seller will never give the rug away for free, especially if the buyer tries to just take it by pulling out a big stick or a gun. Unfortunately, these things are very difficult to explain. Strangely enough, our partners are often willing to pay a fair price for a real rug at the bazaar—but when it comes to the Iranian nuclear problem they start off by demanding unilateral concessions from Iran.

We could of course leave all these paradoxes to political scientists and scholars of diplomacy—but the issue at stake is too serious, and the danger is too great.

It is true that Iran is making progress on its nuclear program, and that it has limited its cooperation with the IAEA strictly to the minimum that is required under its safeguards agreement with the agency.

For Russia this situation is probably even more worrying than for many other countries. Geographically, Iran is our close neighbor, and a nuclear-armed Iran is not an option for Russia. At the same time, we have to say that the policy now being pursued by Tehran does not offer any firm or unambiguous evidence that the Iranian nuclear program has a military component.

Suspected research is also a deadlock, an impasse within an impasse. What is the problem with suspected research? To make a long story short, the Iranians don't want to respond to these charges. Their official position is that they do not want to respond to the accusations because they have not seen the original documents on which these accusations are based. Meanwhile, the original documents cannot be disclosed because those who have obtained these documents don't want to compromise their intelligence sources. As a result, no one is prepared to take the first step; no one has the required political will. Essentially, the entire problem with the Iranian nuclear program, the entire international debate boils down to the question of who takes the first step, who makes a concession, who loses face, and who doesn't.

I think this is wrong. If politicians are genuinely worried about the situation, if they don't want it to degenerate into a new crisis, including the use of force, they must admit to themselves that they need to show courage and make the necessary decisions.

Russian representatives expound this logic and this approach, using much the same wording, to our partners in the ''Europe plus three,'' as well as to our Iranian partners, with whom we maintain—and will continue to maintain—very close dialogue.

LEAFING THROUGH THE OLD PAGES

ROBERT J. EINHORN, GARY SAMORE: Despite years of high-level U.S.-Russian engagement, Russian entities continue to provide assistance to Iran's nuclear and missile programs. The approach suggested here - distinguishing between more sensitive and less sensitive nuclear cooperation with Iran and then rigorously enforcing that distinction - may provide a way out of the frustrating pattern of charges and denials, assurances and backsliding. But adopting such an approach will not be easy for either side. For Washington, it may be difficult to abandon its longstanding "zero tolerance" for cooperation with Iran, even in relatively non-sensitive areas. For Moscow, it may be difficult to insist that Iran accept tighter restrictions on its nuclear activities, especially restrictions that go beyond Iran's international treaty commitments.

''Heading Off Iran's Bomb: the Need for Renewed U.S.-Russian Cooperation'', *Yaderny Kontrol*, 2002, No 3, P. 24.

There is no point explaining the details of that dialogue, and that is not really the point. The point is that as the Iranian nuclear program continues to make progress Iran is gradually losing interest in discussing any possible deals which offer it only a cosmetic improvement of its situation in return for some steps to limit or suspend various nuclear program components.

In other words, the price of the rug, the offer that needs to be made in order to initiate a serious discussion, is, unfortunately, becoming more expensive. Nevertheless, the buyer still has enough money to buy. In fact, we have tried to count this money in someone else's pocket by proposing the so-called Lavrov Plan. This is a plan for resolving the Iranian nuclear problem based on a step-by-step and reciprocity approach.

SECURITY INDEX: What is the essence of that plan?

RYABKOV: It is based on the notion that the level of trust between the two sides, between the P5 + 1 group and Iran, is not just zero, it is somewhere below zero. In order to begin gradually rebuilding that trust, in order to make some progress towards a mutually acceptable solution, we need to start from something fairly simple. Again, all is relative, so what is simple, and what is complex?

In this system of coordinates one simple step Iran could make is, for example, to freeze the number of its centrifuges at the current level and desist from adding new centrifuges to the existing cascades, from creating new cascades, and from putting the centrifuges that are already spinning, but without gas, into operational mode, etc.

In return, the P5 + 1 could undertake a commitment that once the IAEA confirms that such steps have indeed been made by Iran—and such a confirmation is very important—the P5 + 1 will desist from any further, additional, unilateral sanctions.

We can begin by a commitment not to introduce unilateral sanctions. Then, as we make progress from simple to more complex steps we could move towards a comprehensive resolution whereby the international community undertakes certain measures to satisfy Iran's security requirements, up to and including military and naval confidence-building measures in the adjacent waters. The necessary steps are outlined in the four stages which make up the core of our plan. We believe that such a plan is entirely feasible.

We discussed this mechanism with our partners in the Group of Six in November 2010. Unfortunately, they were unable to work out a single approach to the mechanism we proposed; they did, however, confirm that they agree with the principles, i.e. step-by-step and reciprocity. We are happy that these principles are now reflected in the documents of the P5 + 1 group, including a statement by Catherine Ashton (of September 21, 2011, New York), and Catherine Ashton's letter of October 21, 2011 to Dr Jalili, which reiterate that the P5 + 1 group is prepared to continue the dialogue.

As for the Iranians, we submitted our proposals to them officially, in writing, on August 17, 2011, during a visit to Moscow by Iranian Foreign Minister Ali Akbar Salehi. The Iranians showed interest;

they always take their time, but we have not received any signals to suggest that they are inclined to reject our proposal. We believe that we have something to work with, and we will continue our efforts to demonstrate the advantages of our proposal. Of course, the Iranians have also criticized some of its aspects, but let me say this: both sides are equally unhappy and equally dissatisfied, and that is a clear sign that we are close to identifying a mechanism that could actually work.

We hope that the talks will resume. We are working with the Iranian side in order to secure a positive answer to the aforementioned letter from the EU High Representative.

SECURITY INDEX: You have discussed the Lavrov Plan with the Iranian side. Based on these discussions, have you got a feeling that Iran might be willing to end uranium enrichment, and if so, on what terms? On the other hand, if Iran turns down all the proposals and rejects all the initiatives, would it perhaps be useful to brandish a somewhat bigger stick?

RYABKOV: I am not aware of any evidence to suggest that at this time Iran is ready to forego its uranium enrichment program. The Iranians' precondition for any further talks with the P5 + 1 group is to recognize Iran's right to enrich uranium.

We cannot accept that. First and foremost, there must be no preconditions for any negotiations, especially for negotiations on such a complex problem. But we are ready to confirm and to reiterate Iran's right to peaceful use of nuclear energy in accordance with the provisions of the NPT, of which Iran is a member.

As for making the stick even bigger, that is essentially what is already going on. New and increasingly painful sanctions are being introduced in various areas almost every day. The trouble is that at the beginning, when UN Security Council Resolution 1696 was being drafted—the resolution which was meant to serve as a warning and which threatened sanctions unless Iran took some specific steps—our firm agreement was (and we are sticking to it) that any sanctions must pursue the sole purpose of strengthening the nuclear nonproliferation regime.

After a whole series of resolutions that followed, including Resolutions 1737, 1747, 1803, and 1929, we have exhausted the entire arsenal of all possible sanctions which pursue that particular purpose. In other words, there is nothing more that can be done to strengthen the nuclear nonproliferation regime by adopting UN Security Council resolutions.

Having said that, I am not arguing that there should be no more sanctions because there are no more punitive measures left. Of course we can come up with all sorts of sanctions; there are plenty of examples of sanctions being imposed on some corporate entities which have nothing whatsoever to do with Iran's nuclear or missile program. Calls have been made to ban the Iranian space launches, to block the development of the Iranian oil industry, etc. But what does all this have to do with the nuclear nonproliferation regime?

The real objective of all such measures is to change the behavior of another country's government, to stoke up internal tensions, and ideally to bring about a change of government. But that is an entirely different article of the Penal Code, if you forgive my language. I have seen nothing in the UN Charter to justify such measures. I have read that charter forwards and backwards, upside down and the right way up—but I could find nothing to justify these measures. There is no such article in the UN Charter—although there probably is in the Penal Code.

SECURITY INDEX: Do you believe that even if Russia's most idealistic intentions come to pass, Iran will abandon the military components of its nuclear program? Because the behavior of the Western countries only serves to persuade Iran—and not just Iran—that it is better to have weapons than not to have them.

RYABKOV: Based on the facts at our disposal, based on the bureaucratic platform on which the official discussion rests, I can only reiterate that there is no smoking gun to prove that the Iranian nuclear program has a military component. There was some research conducted mainly prior to 2003—but, according to a whole number of reports by the IAEA Director-General, that research was then ended, for reasons which are not entirely clear to the Director-General. The research I am talking about focused on high explosives, the so-called Green Salt, metalizing uranium for the uranium sphere in warheads, and some other areas.

The nature of the deadlock is this: claims are being made that there is evidence, that all of this is real. But the documents cannot be passed on to the Iranians so as not to compromise the intelligence sources. And without seeing these documents first the Iranians refuse to comment on

the 100 pages or so which the IAEA handed over to them two or two and a half years ago. That is one reason for the current deadlock.

The other reason has to do with the latest report by the IAEA Director-General, which contains nothing new on this subject. The IAEA Director-General has found nothing to fundamentally alter the picture. Some are asking questions about the Iranians' intentions to complete the construction of a heavy-water reactor. Critics argue that such a reactor would be completely at odds with Iran's declared goal of producing nuclear energy. Heavy-water reactors work on plutonium, etc. All these technical details are well known. But the Iranians say without any hesitation that they need a heavy-water reactor to produce targets, for medical purposes, etc. That is the second reason for the current deadlock.

The third area of discussion has to do with the general political situation. Amid the ongoing turbulence in the region, as the whole international system as we have known it for many decades since the foundation of the UN starts to look wobbly, there is growing temptation in some capitals to acquire WMD, which are seen as an ironclad insurance policy against any foreign meddling. But in order to acquire nuclear weapons it is not enough merely to develop the technology. A nuclear device then needs to be tested; it also needs a delivery system, and I don't mean the kind of system we usually see in blockbusters, i.e. ''put the bomb on a barge and then blow it up.'' All these things require testing facilities, and it is impossible to keep them under wraps, especially given that Iran is the focus of extraordinary and unprecedented attention by the entire world and of every nation's intelligence service.

This may sound as though I am not taking the real threats seriously; some might accuse me of inconsistency, in view of my previous statement that Russia is worried by the possibility of Iran going nuclear. So I don't want to be misunderstood: we are worried by the fact that the distance which separates Iran from a hypothetical acquisition of nuclear weapons technologies is becoming shorter. And that is exactly why we believe that a negotiated solution should be sought.

We need bold and innovative approaches to the problem in order to remove these concerns. But I do not believe that Iran has already reached the point where it needs only to make the political decision, and that it will need only a short period of time to build a primary nuclear explosive device once that political decision has been made. That is not our assessment of the current situation.

The fourth area of discussion is as follows. An Iran that is approaching the acquisition of nuclear weapons is a stimulus for its neighbors, especially those dominated by Sunni Muslims, also to take the nuclear path and at some point to launch nuclear weapons programs.

I believe that we should simply reject this as an argument, because the United States and those countries in Europe which see such a scenario as realistic must use all their resources and bring all their huge influence to bear in order to prevent such a turn of events. Otherwise it will become obvious to us that bringing about a regime change in Tehran is far more important to these countries than strengthening the nuclear nonproliferation regime.

SECURITY INDEX: The Iranian nuclear program is increasingly causing concern all over the world. Based on the existing experience of resolving problems in different parts of the world, would it be fair to say that the Iranian colleagues must realize that by pursuing their current policies they are playing with fire?

RYABKOV: One of the difficulties in dealing with the Iranians is that it is not entirely clear who is responsible for what in Iran. We are not always sure who reports what, and to whom, or what decision-making mechanisms are at work in different areas of Iranian policies. Based on everything we have seen in the country, both in the cities and in the far provinces, the impression is quite ambiguous. The economic situation has deteriorated; there are fewer products to choose from on the shelves of Iranian shops; inflation is on the rise; it is becoming more difficult to build or repair things owing to the restrictions on the supplies of technology and equipment to Iran.

On the other hand, the Iranian government has successfully implemented a program of monetization of many welfare policies; the Iranian experience in this area is quite impressive, given the difficult international environment. There are no obvious signs of any strong social or political tensions in the country, at least for the moment. Over the past 12 or 18 months I have seen nothing to suggest that some kind of explosion is imminent.

It is difficult to say how events in North Africa and the Middle East are affecting the mood of the Iranian government. The official political rhetoric coming out of Tehran is that the West has deeply and fundamentally miscalculated by hoping that a change of government in a whole number of countries will make them pro-Western, even in the medium time frame.

It is also being said that Iran in fact also wanted the authoritarian ruler of Libya to go, and that Iran now supports democratic transformations in a whole number of other countries because Iran itself is a democratic country. It is democratic, but it is also Islamic. So, the argument goes, just give the political movements in these countries some freedom and you'll see that Islamic fundamentalists will come to power by democratic means. In other words, the Iranians believe that the social engineering strategies used by the EU and the United States, their attempts at transplantation—all of that may work to some extent. But you can't make a pear tree bear apples. A pear tree will always bear pears. Only time will tell whether this is just wishful thinking on the part of the Iranians—or perhaps, with their thousands of years of experience, they are in a better position than some newcomers to judge the mood in neighboring countries.

LEAFING THROUGH THE OLD PAGES

VLADIMIR NOVIKOV: If we assume that the United States is intentionally pushing Iran towards activities which would create the preconditions for building nuclear weapons, such steps, which only serve to stoke up tensions, can be easily explained. The U.S. may be trying for a repeat of the Iraqi scenario, whereby "the outraged international community" gives Washington the go-ahead for a large-scale military action, either unilaterally or as part of a "broad coalition". As a result the U.S. would establish complete control over Iran. It would install a new loyal "democratic majority" government in Tehran. If that really is the strategy the United States is pursuing, things will not be so easy. Such a strategy can be described as chasing a rat into a corner. As a rule, in such situations the rat turns around and attacks, even if the one chasing it is much stronger. The authors of the strategy should keep that in mind.

''Nuclear and Missile Nonproliferation: the Iranian Issue'', *Yaderny Kontrol* (Russian Edition), 2002, No 5, P. 53.

SECURITY INDEX: What is the long-term outlook for the region if we manage to resolve the Iranian problem? The Middle East is moving towards developing nuclear energy. Do you believe that a regional nuclear center can potentially be set up in Iran based on the facilities and technologies the Iranians already have? I realize that it's difficult to imagine the Arabs and the Iranians working together following the assassination attempt on the Saudi ambassador. So I am asking about the long-term prospect rather than the near or medium time frame. Or do you believe that such a scenario, i.e. setting up an international center under international controls in Iran, is completely unrealistic?

RYABKOV: I think this is a very productive idea, and I believe it was the PIR Center who came up with it. On the whole, we are very appreciative of the PIR Center's work, including the *Russia Confidential* bulletin, which we in the Foreign Ministry call the *PIR Yellow Papers*. It really stimulates the intellectual debate, and it often goes several steps ahead of what officials and diplomats can afford to say out loud.

For more information on Iran, please, visit the section
"Resources by Region – Iran" of the PIR Center website:
http://www.pircenter.org/view/iran/eng

As for whether Iran can position itself, over time, as an attractive location to host such a center or facility will largely depend on Tehran's own policies. If things start to improve this would be entirely realistic by, say, the middle of the next decade, barring some major new crises.

NOTE

[1] This interview is based on Sergey Ryabkov's speech at a meeting of the Trialogue Club International organized by the PIR Center in Moscow on October 27, 2011. The text was updated by the author in January 2012 ahead of this publication.

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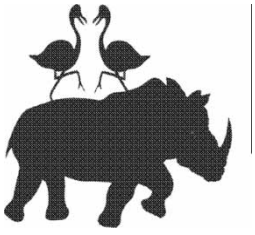

Yerzhan Kazykhanov

KAZAKHSTAN: THE NPT IS ASYMMETRIC AND NOT EFFICIENT ENOUGH

Ever since independence Kazakhstan has always been among the leading advocates of reducing the nuclear threat. In 2011 the country hosted the International Forum for a Nuclear Weapons-Free World. In an interview with the* Security Index *Editor-in-Chief, Vladimir Orlov, Kazakh Foreign Minister Yerzhan Kazykhanov describes the Forum's outcomes, his country's international initiatives in the nonproliferation field, and Central Asian experience of establishing a nuclear weapons-free zone.

SECURITY INDEX: In October 2011 Kazakhstan hosted the International Forum for a Nuclear Weapons-Free World. What are your impressions of its results?

KAZYKHANOV: The year 2011 was generally special for Kazakhstan. On December 16 the republic celebrated 20 years of independence. Back on August 29, 1991, shortly before independence, President Nursultan Nazarbayev signed a decree ordering the shut-down of the Semipalatinsk nuclear testing range.

The president demonstrated a lot of courage by taking that step in defiance of huge pressure by the military-industrial complex of the former Soviet Union. He put the will of the Kazakh people first, and the people wanted to put an end to nuclear evil on the long-suffering soil of Semipalatinsk.

It would be no exaggeration to say that the closure of the Semipalatinsk range heralded a new era in the global disarmament process. After Semipalatinsk, nuclear tests were completely halted or suspended at other nuclear testing ranges across the globe. That facilitated the adoption of such a revolutionary document as the Comprehensive Nuclear Test Ban Treaty (CTBT). After the closure of Semipalatinsk the Republic of Kazakhstan voluntarily relinquished the world's fourth-largest nuclear arsenal. In doing so our country made a notable contribution to the cause of strengthening global security.

In December 2009 the UN General Assembly supported Kazakhstan's initiative and unanimously proclaimed August 29 as the International Day against Nuclear Tests.

The closure of Semipalatinsk is not merely a past achievement. It is also a strong symbol of disarmament and progress towards a world free of nuclear weapons. It is a beacon of hope that one day the world will be free of the deadly arsenals which threaten all life on our planet. It is for a good reason that the Semipalatinsk range continues to attract a lot of international attention. In 2010 it was visited by UN Secretary General Ban Ki-moon, and in 2011 by IAEA Director-General Yukiya Amano and the head of the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Tibor Tott.

On October 12–13, 2011, the cities of Astana and Semey hosted the International Forum for a Nuclear Weapons-Free World, which was timed to mark the 20th anniversary of Kazakhstan's independence and of the closure of Semipalatinsk.

The forum was attended by heads and senior officials of the IAEA, UN, OSCE, SCO, CSTO, EurAsEC, CICA, UNESCO, CTBTO, and other organizations; leading international politicians who

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have made a notable contribution to the cause of nuclear disarmament and nonproliferation; prominent experts and researchers; representatives of the world's governments and legislatures; members of the Kazakh and international NGOs; and media representatives. I would like to use this occasion to thank the PIR Center and Vladimir Orlov, *Security Index* Editor-in-Chief, for taking part in the forum.

As part of the agenda of the forum the participants visited Ground Zero of the former Semipalatinsk testing range, where statements for the media were made by IAEA Director-General Yukiya Amano, U.S. Deputy Secretary of Energy Daniel Poneman, and the head of the CTBTO Preparatory Commission, Tibor Tott.

Guests of the forum also visited the National Nuclear Center in Kurchatov, took part in the official opening of the renovated memorial to the victims of nuclear tests on Kazakh soil in Semey, and attended a rally to mark the 20th anniversary of the closure of Semipalatinsk.

One of the achievements of the forum was the adoption of the Astana Declaration for a Nuclear Weapons-Free World. The document ''recognizes the invaluable contribution to global nuclear disarmament and nonproliferation made by President Nursultan Nazarbayev, who made the historic decision to relinquish the Kazakh nuclear arsenal, which was the world's fourth-largest, and to close one of the world's largest nuclear testing ranges.'' The declaration also calls on all the countries which possess nuclear weapons to take all necessary steps to achieve a complete elimination of nuclear weapons as soon as possible. It emphasizes the importance of the fulfillment by all NPT members of their obligations under all the articles of the treaty. The declaration was a notable event in the global disarmament process.

The Forum for a Nuclear Weapons-Free World has been yet another Kazakh contribution to global disarmament. I hope that the event has served to re-energize international efforts aimed at achieving a speedy entry into force of the CTBT, the signing of the Fissile Material Cut-off Treaty (FMCT) and resolving a number of other pressing problems in the area of disarmament and nonproliferation.

SECURITY INDEX: Speaking at the Nuclear Security Summit in Washington in April 2010, President Barak Obama praised his Kazakh counterpart, Nursultan Nazarbayev, as ''a leader of the international nonproliferation process.'' He recognized your country's undisputed achievements in strengthening the nonproliferation regime. What are Kazakhstan's current priorities in the area of nuclear nonproliferation and disarmament? And what are the main problems?

KAZYKHANOV: President Obama spoke very highly of President Nazarbayev at the Nuclear Security Summit in Washington, describing him as an example for other world leaders on matters of WMD nonproliferation and nuclear security. The two leaders have established good and friendly relations, which helps in the promotion of international anti-nuclear initiatives. The Kazakh president continues to raise the most pressing nonproliferation problems at various international forums, and to call for their resolution.

Speaking once again about the forum in Kazakhstan, UN Secretary-General Ban Ki-moon recorded a video address in which he noted President Nazarbayev's global leadership in the area of nuclear disarmament, and described Semipalatinsk as a symbol of hope. The international recognition of the leading role played by Kazakhstan and its president encourages us to move forward and generate new initiatives which offer solutions to the latest challenges.

For example, Kazakhstan has offered to host on its territory the IAEA international bank of low enriched uranium, and submitted an official proposal to that effect to the IAEA.

We believe that building up additional low enriched uranium (LEU) reserves under the IAEA auspices will offer extra assurances of access to nuclear fuel for all countries, without any prejudice to the inalienable right of every NPT member to develop peaceful nuclear energy in full compliance with all IAEA requirements.

Unfortunately, very little progress is being made in the area of disarmament and in strengthening the nonproliferation regime. Despite the existence of the NPT, the world has not managed to put an end to unceasing attempts by some countries to develop nuclear weapons; neither has it

stopped efforts by countries which already possess these weapons of mass destruction to make them even more deadly.

As an active participant in the disarmament process, Kazakhstan believes that, to our great regret, the NPT is not very effective; in addition, it is also asymmetric. The international community urgently needs to develop clear mechanisms to deal with those countries which possess nuclear weapons but fail to comply with NPT requirements, and to prevent the exit of some members from the treaty. We need to achieve unconditional compliance by all members with their obligations under the three pillars of the treaty: nonproliferation, peaceful use of nuclear energy, and disarmament.

Speaking at the 62nd session of the UN General Assembly, President Nazarbayev called on the nuclear weapon states ''to undertake, within the UN framework, measures to ensure the effectiveness of the NPT and bring its provisions up-to-date with the current situation in order to strengthen the nuclear nonproliferation regime.''

Speaking at the 66th session, President Nazarbayev also said that:

> ... all countries, especially nuclear-weapon states, must be called to greater account over nuclear weapons reductions and gradual elimination of nuclear arsenals. At this time the countries which possess nuclear weapons provide no clear legal guarantees to non-nuclear weapon states. In this important aspect the NPT is not functioning properly. At this stage nuclear weapons are a catalyst of an arms race rather than a stability factor.

One of the latest Kazakh initiatives, announced at the Global Nuclear Security Summit in Washington in April 2010, was the proposal to launch a broad discussion of a future Global Declaration for a World Free of Nuclear Weapons, which could become the first step towards a Nuclear Weapons Convention. The initiative was also reflected in the Astana Declaration of the Forum for a Nuclear Weapons-Free World held on October 11–13, 2011.

In other words, we are keeping up the tempo of our work in this area.

SECURITY INDEX: In 2012 it will be six years since the signing of the agreement on the establishment of a zone free of nuclear weapons in Central Asia. What can you tell us about the effects of the Central Asian nuclear weapons-free zone on the general security situation in the region and on the nuclear nonproliferation regime?

KAZYKHANOV: The fact that the agreement was signed in Semipalatinsk was deeply symbolic for the entire nuclear disarmament process. In March 2009, after all the domestic procedures in the member-states had been completed, Central Asia officially became a Zone Free of Nuclear Weapons. This is the world's first nuclear-weapon-free zone (NWFZ) that lies entirely in the Northern Hemisphere. It is also the first such zone which has common borders with two nuclear-weapon states.

The only issue which has yet to be resolved in the signing of the Negative Assurances Protocol, which rules out the use or a threat of use of nuclear weapons against the NWFZ member-states by the nuclear-weapon states. Russia and China are ready to sign the Protocol, but the Western nuclear-weapon states, i.e. the United States, Britain, and France, are not. Kazakhstan, with the backing of our NWFZ partners, has initiated consultations with these three states, and we are optimistic about the outcome of that process. We expect to receive the assurances in the not too distant future. Such assurances would clearly demonstrate the commitment of the P5 states to the goal of a world free of nuclear weapons. Each new NWFZ makes us closer to a global zero.

SECURITY INDEX: As you've noted in 2011 we marked 20 years since the closure of one of the world's largest nuclear testing ranges in Semipalatinsk—but the CTBT has yet to enter into force. What is your assessment of the prospects for this issue being resolved? What steps does Kazakhstan intend to take in this regard?

KAZYKHANOV: The CTBT remains an important component of the global security architecture. We have repeatedly called on the international community to complete the procedures necessary for this important treaty to enter into force. The determination demonstrated by the Barak Obama administration to achieve the treaty's ratification will clearly give a new impetus to this process in the countries which have yet to ratify. The ratification of the CTBT by the United States would set a powerful example for other countries, and ensure the treaty's entry into force.

As I have already mentioned, in December 2009 the UN General Assembly supported Kazakhstan's initiative to declare August 29, the date we closed the Semipalatinsk nuclear testing range, as the International Day against Nuclear Tests. The decision obviously serves the purposes of the CTBT. As you know, the infrastructure of the former nuclear testing range in Semipalatinsk has been converted for use as an international peaceful experimental center to resolve sensitive nonproliferation issues. Representatives of other countries have been invited to monitor or participate in various experiments and programs conducted at Semipalatinsk, thereby making a contribution to nuclear nonproliferation. In particular, Kazakhstan is an important part of the international network of seismic monitoring of nuclear tests.

Another Kazakh contribution to the cause of banning nuclear weapons tests comes in the form of events we and our international partners organize as part of the International Day against Nuclear Tests. On August 26, 2010 Astana hosted an international conference devoted to the International Day against Nuclear Tests; on September 9, 2010 the UN General Assembly held a special session in New York. Events organized in 2010 include an international conference on nuclear security and nonproliferation headlined ''Nuclear Dilemmas: Present and Future'' (August 30, The Hague); an informal plenary session of the UN General Assembly devoted to the International Day against Nuclear Tests (September 2, New York); the International Forum for a Nuclear Weapons-Free World (October 11–13, Astana); and several other events and exhibitions.

SECURITY INDEX: As a graduate of the Oriental faculty of the Leningrad State University, a specialist in Arabic studies, and as the Kazakh representative on the Council of Foreign Ministers of the Organization of Islamic Cooperation (OIC), how realistic do you think is the task of conducting the 2012 conference on establishing a zone free of nuclear weapons in the Middle East? What can the OIC do to make sure that the conference takes place?

KAZYKHANOV: Speaking at the Nuclear Security Summit in Washington in April 2010, and at the 3rd summit of the Conference on Interaction and Confidence-Building Measures in Asia (CICA) held in Istanbul in June 2010, President Nazarbayev reiterated our strong support for the establishment of a zone free of nuclear weapons in the Middle East.

Facilitating the 2012 conference is one of the priorities of the Kazakh chairmanship of the Council of Foreign Ministers of the OIC in 2011–2012. OIC member-states welcomed the idea of conducting the 2012 conference in the Astana Declaration. They believe that progress on issues of nuclear disarmament and nonproliferation in all their aspects is a key to strengthening international peace and security. The Astana meeting of the OIC foreign ministers also adopted a separate resolution on the establishment of a zone free of nuclear weapons in the Middle East.

Kazakhstan advocates the establishment of such zones throughout the world, so that one day our whole planet could become one big zone free of nuclear weapons. We are ready to do our utmost to help in the establishment of the Middle East NWFZ.

SECURITY INDEX: In the past you served as head of the Multilateral Cooperation Department in the Kazakh Foreign Ministry, and worked at the Kazakh representative office at the UN. Based on this experience, what is your assessment of the effectiveness of the multilateral platforms dealing with disarmament issues? I mean, first of all, the Conference on Disarmament in Geneva (CD) and prospects for FMCT negotiations. If no progress is achieved on the issue of FMCT talks in Geneva, is there any real need to look for other platforms for such talks, as Washington has proposed?

KAZYKHANOV: First of all, let me say this: the very fact that such platforms for the discussion of topical issues exist suggests that there is a common understanding of the problems we are facing. The existing forums have a good record of resolving various disarmament issues. As for their effectiveness at this time, including the effectiveness of the Conference on Disarmament, we are facing procedural problems and differences in national approaches to national security.

We believe that the Conference on Disarmament is one of the most important mechanisms for strengthening international security. Despite the difficulties this forum is now facing it has a lot of potential and can make a substantial contribution to the cause of disarmament.

The Conference on Disarmament is the international community's only multilateral forum for disarmament talks. It is unique inasmuch as all decisions require unanimous approval, so that every member's opinion is taken into account.

Despite the existing differences we believe that the FMCT talks should be held only at the Conference on Disarmament, and they should start as soon as possible. The adoption of this

treaty is crucially important for nuclear nonproliferation. Halting the production of fissile materials will make it very difficult for countries to pursue illicit military nuclear programs. It will also improve the situation with controls of the existing material and significantly reduce the risk of nuclear terrorism. Some countries, such as Austria and Mexico, have proposed that the FMCT discussion should be held at some alternative forum. I believe that this would seriously weaken the CD and undermine its authority. Even more importantly, any treaty negotiated at an alternative platform would be inherently weak because it would lack the support of some key countries that have a major role to play in the disarmament process.

SECURITY INDEX: Experts and international officials are increasingly talking about the need for practical steps towards implementing Article VI of the NPT. The Final Document of the 2010 NPT Review Conference also calls for such steps to be made. How do you assess the prospects for involving the rest of the P5 states—and potentially all countries which possess nuclear weapons—in the nuclear disarmament process led by Russia and the United States?

KAZYKHANOV: This is a complex issue. The nuclear deterrence doctrine was formulated during the Cold War. Apparently it was not without merit, because despite the numerous conflicts all over the world in those decades the world still managed to avoid the use of nuclear weapons and did not sink into the abyss of nuclear war. Nevertheless, the threat of uncontrolled nuclear proliferation remains one of the key challenges of the new century. Unless the international community achieves some breakthrough in this area in the foreseeable future, nuclear proliferation will become irreversible, and the consequences of that don't need explaining. If that happens the nuclear deterrence concept will become completely irrelevant.

We therefore need to understand whether that concept is still useful at all in any way. What is the cause of the gradual proliferation of nuclear weapons? Could it be a direct consequence of the fact that nuclear weapons possession is seen by the nuclear entrants as a means of deterrence, as an arsenal that can provide security against the use or a threat of use of nuclear weapons—not by the nuclear weapon-states perhaps, but by neighbors in the region which have acquired nuclear weapons or are on the brink of acquiring them? We are witnessing a very worrying trend whereby nuclear weapons are turning from an instrument of global deterrence (and, by extension, global security) into an instrument of regional deterrence, and in the broader sense, an instrument for resolving regional problems. As the number of nuclear actors increases, the threat of a sudden use of nuclear weapons grows exponentially.

We will also face a growing threat of nuclear materials and other types of WMD falling into the hands of terrorists.

So the key question we need to answer is whether nuclear deterrence is a guarantee of global security, or whether it is increasingly becoming a threat in itself. Opinions differ. Some nuclear weapon states continue to advocate nuclear deterrence, whereas many other countries believe that the concept is a relic of the Cold War, and no longer serves its purpose. They believe that global security requires total elimination of nuclear weapons and universal disarmament.

The Republic of Kazakhstan is inclined towards the latter opinion. We believe that there is no alternative to steadily reducing the size of nuclear arsenals; securing a commitment by all members of the international community to stop horizontal and vertical proliferation; containing proliferation; and facilitating non-discriminatory peaceful use of nuclear energy and nuclear technologies under full IAEA supervision.

It may well be that only radical and rapid nuclear reductions by nuclear weapon states, and a clear demonstration of their commitment to a global zero can persuade countries which have acquired nuclear weapons since the signing of the NPT—or which are trying to acquire them—to disarm and relinquish their military nuclear programs.

SECURITY INDEX: The Collective Security Treaty Organization (CSTO) is the largest defense alliance in the former Soviet space. What is your assessment of that organization's role in the Eurasian security architecture? And what kind of future awaits the CSTO?

KAZYKHANOV: The signing of the Collective Security Treaty was a timely and necessary step. The treaty has already demonstrated its usefulness, and it still has a lot of potential for many years to come. As we all know and remember, in Soviet times all the Soviet armed forces and the Soviet defense industry were a centrally commanded and controlled system. After the collapse of the

Soviet Union everything started to fall apart, and to some degree even the army fell prey to anarchy; various armed conflicts broke out in many of the former Soviet republics.

There was a real threat of armed border conflicts spreading between the newly independent states. That is why after the formation of the CIS we faced the need for a treaty that would regulate defense cooperation between our countries and create an effective collective security system to protect our countries from external threats.

Kazakhstan's military security is based on a policy of cooperation and good-neighborly relations with all the countries in the region; equality and non-interference; peaceful resolution of international disputes; no first use of military force; strengthening our country's military capability based on the projected threats; and identifying and using the most effective forms and instruments for neutralizing those threats.

As part of our efforts to built an effective and modern system of national security we also pursue active cooperation with international security structures. Kazakhstan pursues cooperation with the CSTO members in order to strengthen the coalition's military capability, for the purposes of shared security and collective defense in the event of a military aggression.

In this day and age an effective collective security system requires effective mechanisms for countering the new challenges and threats in the area of application of the CST. The efforts being undertaken include adapting the CSTO to the changing political environment and to the standards expected of any versatile international security organization.

I believe that, on the whole, the task of effectively countering modern challenges and threats can be accomplished only through the joint efforts of the entire international community. Based on this notion, the CSTO pays particular attention to strengthening mutually beneficial cooperation with specialized structures of other regional and international organizations.

New challenges and threats such as international terrorism and religious extremism, illegal migration, drug and arms trafficking, and other types of transnational crime require joint efforts by the UN, SCO, CIS, EurAsEC, CSTO, and other organizations, which all have their own individual programs to counter those threats.

Consolidating the potential of all these organizations to strengthen international security, with active participation of the CSTO, would help us to build an effective collective security system on the Eurasian continent.

SECURITY INDEX: This interview is to be published in the 100th issue of the *Security Index* journal. What do you think has been the greatest achievement of the nuclear nonproliferation regime over the past 20 years? And what are the key changes you expect the regime may undergo over the next 20 years?

KAZYKHANOV: Although the international disarmament process is clearly undergoing a period of stagnation, there have also been some notable achievements over the past two decades. They include the already mentioned closure of the nuclear testing range in Semipalatinsk, which triggered similar moves across the planet. The three countries which inherited large nuclear arsenals—i.e. Kazakhstan, Ukraine, and Belarus—have voluntarily relinquished those arsenals, which have now been completely dismantled. Another achievement was the signing of the CTBT in 1996. The United States and Russia agreed substantial nuclear reductions in the New START treaty signed in 2010. Finally, we have a nuclear-weapon-free zone in the centre of Eurasia, in the very part of the world which hosted nuclear weapons and saw nuclear tests a mere two decades ago.

Making forecasts is an ungrateful task. But I would like to hope that over the next two decades the leading world powers will fully realize their responsibility for the future of humankind, and that we will see great progress towards a world free of nuclear weapons and other weapons of mass destruction. I hope that not only our children but the current generation as well will live in a world where these is no room left for nuclear weapons.

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Gennady Evstafiev

NUCLEAR WEAPONS HAVE OUTLIVED THEIR USEFULNESS AS A POLITICAL INSTRUMENT

In the first issue of the* Yaderny Kontrol *journal, the predecessor of Security Index, we published an interview titled ''Nine Questions on Nuclear Nonproliferation''[1] with Gennady Evstafiev, who served at the time as head of the disarmament and WMD nonproliferation department of the Russian Foreign Intelligence Service (SVR). It was the autumn of 1994. We talked about the key problems facing the nonproliferation regime, about the difficulties Russia was facing in the area of nuclear security, and about the future of the regime.

Eighteen years on, Irina Mironova, Deputy Editor-in-Chief of* Security Index, *has put the same questions to Gen. Evstafiev. What has changed since then?

SECURITY INDEX: ''The international community has stepped up its search for new ways of strengthening the Non-Proliferation Treaty (NPT), banning underground nuclear detonations, and developing attractive incentives to prevent some countries from acquiring nuclear weapons.... The current trends in military nuclear nonproliferation are rather contradictory.'' This is a quote from your 1994 interview. You were both optimistic and cautious in your outlook for the future of the nonproliferation regime. Have your optimistic expectations come to pass? What has changed in the area of nonproliferation over the past 18 years? What were the key developments, and have they changed the nonproliferation landscape in any radical way?

EVSTAFIEV: These years gave been full of events, with an energetic exchange of opinion between the participants in the nonproliferation process. In some cases that exchange was not easy; sometimes it caused angry reactions. Nevertheless, over these years various nations have managed to find some common ground in this area.

One of the main results of the past 18 years has been the decision by the NPT Review Conference in 1995 to extend the treaty indefinitely. Various opinions have been voiced about that decision. To be honest, I subscribe to the opinion of Roland Timerbaev,[2] who advocated extending the treaty for 25 years so as to evaluate its effectiveness once that term expires. But the majority preferred a different approach. The talks in New York were not easy, but in the end we managed to reach an agreement on extending the NPT indefinitely.

The second major achievement of the past 18 years is the general understanding of the fact that the nuclear weapons nonproliferation problem is a genuine concern and a complex problem which affects every nation and requires international cooperation on an extremely broad range of issues. Nations whose positions were very different have now managed to find common ground. Several initiatives have been launched, significantly improving the situation with non-proliferation.

In the 1990s nonproliferation was at the center of international debate. As a result—and this is the third major achievement—we have prevented another 20 or 25 countries from going nuclear. Such a scenario was a genuine concern in the mid-1990s. This achievement

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was made possible by mutual understanding and respect, by the understanding that such a scenario would be a real danger for the entire planet.

In 1991 South Africa signed the NPT and renounced nuclear weapons. It dismantled—on its own initiative and under international control—the six warheads that it had already built. Also, in 2003 Libya renounced its WMD programs, including the nuclear weapons program. As a result the country was removed from the list of nations which violate the nonproliferation regime.

In another important development, the international community has uncovered several illegal nuclear materials and technology proliferation channels. The break-up of the A.Q. Khan nuclear proliferation ring, probably the largest of its kind, in October 2003 has been a huge achievement. The ring involved not just A.Q. Khan himself but numerous other people who forged documents and broke the rules which regulate the circulation of such materials.

Yet another significant achievement was the adoption of the Additional Protocol to IAEA safeguards agreements in 1997. The protocol opens up huge opportunities to conduct inspections, something that was not possible previously. For example, in the case of Iran (which has not even ratified the Additional Protocol yet) there have already been about 3,000 inspections, visits, and trips.

As for promoting the idea of nonproliferation, NGOs and research centers have made a big contribution to achieving greater awareness and understanding of the problem, and identifying acceptable compromise solutions.

Unfortunately, we have not been able to contain proliferation completely. India and Pakistan tested nuclear weapons in 1998. North Korea has conducted two nuclear tests, in 2006 and 2009. Israel has a nuclear arsenal, although it has never confirmed this officially.

We must not forget that, unfortunately, the NPT has not become a universal document, even though the treaty is very important for successful prevention of nuclear weapons proliferation.

On the bottom line, I think that the past 15 or 17 years have been a difficult and fairly controversial period—but on the whole, it has clearly been a very positive period.

SECURITY INDEX: What was Russia's role in that process?

EVSTAFIEV: Russia has always played an active and proactive role in the WMD nonproliferation process. Russia's proposals regarding the promotion of important dialogue and negotiations are very prominent. For example, the format of discussing the North Korean problem—six-party talks—was proposed by Russia. Thanks to Russian efforts we have managed to start a dialogue, and it is important to maintain that dialogue.

There is a similar situation with Iran. On the one hand, Russia initiated the negotiating process on the Iranian nuclear problem. On the other, the essence of its important role is that Russia is preventing certain nations from taking some rash steps such as the use of force or excessively tough resolutions. That is why Russia's role must not be underestimated. Russia is playing a key role on these issues.

SECURITY INDEX: Let us discuss some specific problems on the international agenda. The first is the situation on the Korean Peninsula, which was very tense in the mid-1990s and remains very tense now. The country conducted nuclear tests in 2006 and 2009. At first glance, tensions are running high—but on the other hand, that is quite predictable. How will the situation change following the change of leadership in North Korea? What can be expected in the coming months and years?

EVSTAFIEV: External factors have had a very strong influence on the situation in North Korea over the past two decades. There were tensions on the Korean Peninsula itself. Of course, the presence of U.S. nuclear weapons in South Korea was a cause for great concern. The change in the political climate following the break-up of the Soviet Union led the North Korean leaders to believe that on defense issues they can rely only on their own resources. They have come to believe it unlikely that in the event of a conflict China or Russia would protect them. That is why they have been working on the ultimate weapon, which they believe is a guarantee of the regime's survival and of the country's territorial integrity.

All of this started a long time ago. North Korea has been pursuing nuclear research, especially military research, for many years. The country has limited resources, which is why progress has been very slow. In the late 1960s–early 1970s North Korea decided to build its own nuclear arsenal. They chose the plutonium path. They did have some resources, albeit they were very limited—by that I mean the 5 MW reactor. They started processing the spent nuclear fuel produced by that reactor. Until 1993 the IAEA monitored many of those processes, but when the North Koreans felt they were getting very close to their ultimate goal they kicked the IAEA inspectors out of their nuclear facilities, and carried on with very little external control.

Did North Korea have an alternative nuclear path? The Russian Foreign Intelligence Service, the SVR, was confident that it did. The SVR was accused of being wrong about Pyongyang having an alternative path. Its conclusions were questioned in the ''Nuclear Nonproliferation'' book edited by Alexey Arbatov, and in an article by one of the Russian leading experts on North Korea's nuclear program, Alexander Vorontsov. Even though the SVR did not have detailed data until the early 1990s, it did have information—which was confirmed later on—that as a result of cooperation between North Korea and Pakistan, the North Koreans had gained access to Pakistani expertise, and, as you know, Pakistan was working on uranium enrichment. A.Q. Khan gave North Korea uranium enrichment technology in return for North Korean missile technology. The funny thing is that Benazir Bhutto, who served as prime minister of Pakistan in 1988–1990 and then in 1993–1996, unwittingly transported those materials. During her first stint as prime minister she visited Pyongyang, where she met Kim Il-sung. At the end of their meeting he gave her a set of floppy disks and asked her to pass them on to people in the know in Pakistan. She did not even know what she was bringing to Pakistan. Upon her return she was met by Pakistani military officers, and she gave the disks to them. It was payment for Pakistani materials on uranium technologies. The North Koreans then launched a pilot project on uranium enrichment, which is still active. From A.Q. Khan they received centrifuges and the enrichment technology. Later on they reverse-engineered the Pakistani equipment, built their own centrifuges and set up their own laboratories.

Sigmund Hecker, an American nuclear scientist, confirmed many years later that apart from the known plutonium path facilities, the North Koreans also had small but operational pilot uranium enrichment projects. Those projects were based on materials received from A.Q. Khan. Also, there is every reason to believe that North Korean scientists visited Pakistan in order to see the consequences of Pakistani underground nuclear tests and to see those tests in progress. They were shown salt mines in which the tests were conducted, and the equipment required to conduct those tests.

It has to be said that the North Koreans have become experts at brinkmanship. They have constantly kept everyone on edge. This brinkmanship has not led to any disastrous consequences, but it has caused tensions to flare up from time to time. North Korea has been acting very inconsistently and erratically. For a long time it vacillated about its pullout from the NPT. In the end Pyongyang conducted two nuclear tests, in 2006 and 2009, so to all intents and purposes North Korea has become a fully fledged member of the nuclear club. That radically changed the perceptions in South Korea and in Washington. Paradoxically, this has essentially provided North Korea with certain security guarantees.

On the other hand, after long deliberations the Americans have withdrawn their nuclear weapons from South Korea, and progress is being made towards achieving a nuclear-weapons-free status for the Korean Peninsula. Now the objective is to reach an agreement with the North Koreans and persuade them to relinquish their military nuclear program. But in return the regime will demand very serious political guarantees and huge amounts of economic aid. Unfortunately, by refusing to support the Korean Peninsula Energy Development Organization (KEDO), the Americans have delivered a massive blow to the prospects of persuading North Korea to relinquish its nuclear ambitions.

As for the new North Korean leader, I think Kim Jong-un has not yet achieved the power and authority his father or grandfather enjoyed. But he is in the hands of very experienced and very cunning North Korean generals, who will keep him from making mistakes.

SECURITY INDEX: What can you say about the new threshold countries? There was a lot of debate about this issue in the mid-1990s. Back then you said that ''the international community is facing a stark choice. Either we find, in the very near future, ways of reversing military nuclear

proliferation, or at some point in the future there will be dozens of *threshold states* and *unofficial nuclear-weapon states*.'' What has changed since then?

EVSTAFIEV: Thresholds remain thresholds. But they have not become a common phenomenon.

Back in those days there was a lot of talk about Argentina and Brazil. But since then both countries have made certain decisions, and they are no longer seen as a cause for concern. But new concerns have appeared. First and foremost, we now have the problem of Iran. In the early 1990s the Americans never even considered seriously the possibility of Iran developing nuclear weapons. Only a couple of years later, in 1993 or 1994, did they begin to sound the alarm, saying that Tehran was on the verge of acquiring the nuclear bomb. Eighteen years on, Iran has yet to acquire the bomb. Nevertheless, the country's nuclear program has made enormous progress.

Of course, peaceful use is very important to Iran. There is a research reactor in Tehran, which produces isotopes for medical uses. The reactor uses Argentine fuel, but that fuel is about to run out. Tehran is now facing all kinds of sanctions, so there is very little hope that Argentina will supply more fuel. Meanwhile, there are 800,000 people in Iran suffering from cancer and other illnesses, and these isotopes, the medical isotopes, could be their only hope. There are 800,000 of them! That problem is a major cause of concern for the Iranians. That is why they genuinely need some level of enrichment so as to have enough fuel for the research reactor and for the production of medical isotopes.

Formally speaking, Iran is not yet in breach of its commitments under the NPT. It is now enriching uranium to 20 percent of U-235 content. This represents a lot of progress, this is a serious achievement. The question is, what will Iran do next? They now have the enrichment center in Natanz, and a new enrichment facility in Fordow, near Qom. What is going to happen next? Iran is a perfect example of a threshold state.

Meanwhile, just across the gulf from Iran there is another country that has not yet achieved threshold status, but which can do so at a moment's notice. I am talking about Saudi Arabia. If Iran makes further progress towards acquiring nuclear weapons, Saudi Arabia will immediately become not just a threshold state—it will actually acquire nuclear weapons, and nobody will be able to stop it. Given Saudi Arabia's financial resources, it can do that very quickly.

One of the most urgent issues now facing the international community is the establishment of a WMD-free zone in the Middle East. If that objective is achieved, whoever achieves it will have deserved the Nobel Peace Prize. Unfortunately, no progress is being made at this moment. There are major differences between Israel and Iran. I think there is only one solution. Chances for such an outcome may seem very slim at the moment—but if the international community gives Israel security guarantees, and I mean ironclad guarantees that Israel will continue to exist as a state, it will then be in a position to demand that Israel relinquish nuclear weapons. In my opinion, this should be done in the following way: the nuclear weapons Iran has not yet built should be traded for the nuclear weapons Israel has already built, while at the same time providing Israel with unbreakable guarantees by the entire international community, including the Arab states, that it will continue to exist as a state.

If we were to succeed in establishing a WMD-free zone in the Middle East, that would compensate for all the disappointments and miscalculations of the previous years.

The world is gradually becoming smarter. The world is becoming tired of nuclear weapons.

LEAFING THROUGH THE OLD PAGES

YADERNY KONTROL: In recent years there has been an epidemic of rumors about Russian nuclear smuggling. Those rumors have become something of a fashion.... Are you aware of any confirmed cases of significant quantities of highly enriched uranium or weapons-grade plutonium being smuggled out of Russia? Or any other materials which could actually be used by terrorists to build a nuclear weapon?

EVSTAVIEF: The word ''epidemic'' does not accurately describe the true state of affairs.... The peddling of this issue is nothing new. It has been going on for three years now. I am quite certain that some people are deliberately stoking up this wild speculation.... Any reasonable person can see that there is no logic whatsoever to allegations that there is some kind of a black market of uranium nuclear fuel for nuclear reactors.

''Nine Questions on Nuclear Nonproliferation,'' Yaderny Kontrol **(Russian Edition),1995. No. 1, p. 14**

It is for a good reason that George Shultz and his colleagues have proposed the idea of a nuclear zero,[3] which has been supported, on the whole, by our own wise men led by the Russian former Prime Minister Evgeny Primakov.[4] There is a growing understanding of the fact that the time is coming to relinquish nuclear weapons—not tomorrow, but eventually. As a political instrument, nuclear weapons have practically outlived their usefulness.

SECURITY INDEX: The so-called ''Russian trace'' was mentioned a lot in the 1990s. What is the situation in Russia now with nuclear materials control and accounting?

EVSTAFIEV: First of all, there have been extremely radical changes in the entire export control system for nuclear materials. That system was non-existent in the early 1990s. Back at the time there were numerous cases of export, attempted export, and theft of not only equipment but actual nuclear materials. People who knew nothing about the properties of nuclear materials thought they could just hide low-enriched uranium under the seat cushion and smuggle it out. That was a scary thing. That was complete illiteracy.

There was some trafficking—not so much of materials, it was mostly equipment—to countries like Iran, Pakistan, and North Korea. I am talking about systems which were difficult to obtain. That was happening not just in Russia. In the mid-1990s in the United States there were about 300,000 cases of export control violations every year. About 3,000 of them were nuclear-related. So that was not just a Russian problem.

Very important steps are now being made to introduce corporate-level export control measures. Our customs services and border crossing points are equipped with the latest technology. At that time this problem seemed insurmountable—and I should know because I was a member of the Russian government commission on export control at the time. But thanks to all the efforts that have been made since then we now have a properly functioning and effective export control service. Nevertheless, one must understand that export control is not a solution to all our problems. There are things such as intangible transfer of technologies, or foreign travel by scientists and specialists who take their knowledge with them wherever they go. We have had a lot of problems with this, but I believe that we have achieved some good results in this area as well. That is why I believe that there has been a veritable breakthrough in export control over the past 15–17 years.

Let me conclude by saying another few words about the achievements in strengthening the nonproliferation regime. The attention that has been paid to this problem since the late 1980s has enabled us to create a whole new branch of specialists and experts in nuclear weapons nonproliferation, development of nuclear programs, and physical protection of nuclear facilities. Hundreds of people who have received the necessary education and training are now analyzing the ongoing developments, identifying new trends, and generating ides. I think that is also a great achievement, and it is equally as important as the achievements I mentioned at the beginning of our conversation.

NOTES

[1] See: Gennady Evstafiev, ''Nine Questions on Nuclear Nonproliferation,'' *Yaderny Kontrol* (Russian Edition) 1, No. 1 (January 1995), pp. 12–15.

[2] Roland Timerbaev is a leading nonproliferation and nuclear arms control specialist and one of the authors of the Non-Proliferation Treaty. In 1988–1992 he served as Permanent Representative of the Soviet Union and then Russia at the international organizations based in Vienna. He played an active role in the drafting of key international nuclear treaties, including the ABM treaty, the Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War between the USA and the USSR, the IAEA safeguards system, the Treaty on the Limitation of Underground Nuclear Weapon Tests, the Peaceful Nuclear Explosions Treaty, and several others. Roland Timerbaev is one of the founders of the PIR Center. In 1994–2010 he served as Chairman of the PIR Center Executive Board.

[3] See: George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn, ''Toward a Nuclear-Free World,'' *Wall Street Journal*, January 15, 2008.

[4] See: Igor Ivanov, Mikhail Moiseyev, Evgeny Primakov, and Evgeny Velikhov, ''From Nuclear Deterrence to Common Security,'' *Security Index* No. 4 (2011), pp. 69–76.

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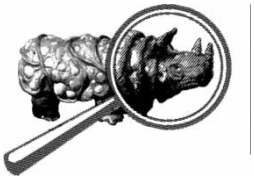

Vladimir Orlov

RUSSIA'S NUCLEAR NONPROLIFERATION POLICY FROM 1991 TO 2011: TWENTY YEARS SINCE THE SOVIET UNION'S COLLAPSE, STILL SOVIET[1]

On December 25, 1991 Mikhail Gorbachev handed over the ''nuclear briefcase'' to Boris Yeltsin. Eighteen months after the formal declaration of Russian state sovereignty and six months after his election as Russian president, Yeltsin found himself in possession of the symbolic key to the Russian nuclear arsenal.

THE ONLY TRUMP CARD

But it took Russia another painful six months finally to confirm its status as the legitimate successor of the Soviet Union in all areas related to nuclear weapons. The country then spent not months but long years trying to figure out what kind of inheritance it had received and what to do about it.

The choices facing Russia were stark. It could choose the path of a young nihilist, spitting on the grave of its forebears, renouncing the old ways and rejecting its inheritance as an unwanted burden. Alternatively, it could become the guardian of old traditions and put its inheritance into a savings account in the hope of earning handsome interest.

The drama of that choice was all the more poignant for the fact that the inheritor was also the lead actor on a limelight-flooded stage, facing the cold gazes of a critical audience. That audience was diverse. It included VIP members with keys to the ''Nuclear Club.'' There were important guests with no such keys, but with a lot to win depending on the outcome of the drama. There were also those who held a purely academic interest in nuclear matters—but who really wanted to know whether the inheritor would prove strong enough for his new role, or turn into merely a supporting actor. Finally, there were other inheritors—but they came after Russia in the line of succession, and therefore lacked VIP status.

Amid the hasty change of backdrop, with the sickle-and-hammer being replaced by a two-headed eagle, the actor-inheritor had just enough time for a quick improvisation. On top of that he also had to keep it straight in his head that his mission on the stage was two-fold. On the one hand, he had to do some proper acting for the benefit of the audience; some applause would be nice, but he would settle for simply not being booed off the stage. But on the other hand, he also had to do some things for real, for himself, based on his own interests, and not those of the audience.

Looking back from the vantage point of today's Russia at the events of 20 years ago, those improvisations look like a series of nave and sometimes outright dangerous U-turns and gyrations (see Figure 1 and Figure 2). There was perhaps a modicum of high-minded romanticism in those gyrations—but there was a lot more humiliating helplessness and indecision.

The *coming of age*, for lack of a better term, of the Russian nuclear nonproliferation policy has been an accurate reflection of Russia's evolving foreign and defense strategy—which is of course quite natural. That policy has gone through periods of excessive humility and unwarranted overconfidence—but it has always been full of ''paper tigers'' and empty posturing. In contrast,

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the Russian policy on nuclear nonproliferation has always been based on one solid and undeniable fact: Russia still remains the owner of a large nuclear arsenal, and that arsenal could well be its only real claim to being a great power. Indeed, in some periods nuclear weapons were Russia's last remaining trump card, its only real strength when all its other strengths were left only on paper.

Even during the most difficult periods for Russia's fledgling statehood that strength has always enabled Moscow to pursue a more solid, steady, and predictable policy on nuclear nonproliferation and arms control than the Russian foreign and defense policy as a whole.

Continuity has been the motto of Russia's nuclear nonproliferation policy since the very early days of the Yeltsin presidency. The country came under all sorts of external pressures, especially in the first five years after the break-up of the Soviet Union. But Russia's statements and especially its actions in the area of nuclear nonproliferation have always adhered to that principle of continuity—even though they certainly have not been completely unaffected by the aforementioned pressures. In other words, the Kremlin has stuck to the traditional Soviet course on nonproliferation. And when I say ''traditional Soviet course,'' I definitely don't mean the policies of the late Gorbachev period. The grand ideas of achieving a nuclear zero by 2000 (or by some other arbitrary date) found very little traction in Moscow after Gorbachev's exit.

ASSETS AND LIABILITIES OF NUCLEAR WEAPONS

President Yeltsin and his first administration quickly decided that Russia's nuclear arsenal was definitely a major asset and only a small liability in some respects. They never saw it as a burden. But how can that asset be used to earn dividends? This question quickly became a headache.

The full story of Russia acquiring real and complete control of its own nuclear weapons has yet to be told. That story is just as fascinating and just as ugly as any other Russian story of the early 1990s. The only difference is that the associated risks went far beyond the borders of the former Soviet Union.

Each of the 15 former Soviet republics conducted some nuclear activities or hosted nuclear weapons in Soviet times. Moscow was fully aware that if those weapons were to be left outside Russia for a long period, their security and safety would be very difficult to ensure. Tensions were fueled by reports in the US and Israeli media in early 1992, citing ''reliable intelligence sources,'' that Kazakhstan had allegedly sold one or two nuclear warheads to Iran.[2] It was clear that the rumors were groundless and politically motivated—but Moscow knew that quick action was needed to make sure that something of the sort never happens in real life.[3]

I believe the most dramatic page in the whole saga was the removal to Russia, Ukraine, and Belarus of all tactical nuclear weapons (TNW) previously held in other Soviet republics. The move came when the Russian nuclear policy was still in its infancy. In fact, the Soviet generals made that clever pre-emptive step even before the break-up of the Soviet Union was finalized in official documents. Their foresight significantly reduced the threat of nuclear proliferation, which would have become inevitable soon after the collapse of the USSR. Speaking in military parlance, the removal of TNW ''was effected in difficult operational circumstances caused by the increased activity of political groups,'' some of which appeared ready to use force in order to prevent that removal.[4]

LEAFING THROUGH THE OLD PAGES

VLADIMIR BELOUS: High-precision weapons (HPW) are extremely costly, and nuclear weapons have much higher ''effectiveness – cost'' indices. Russia cannot afford mass production of HPW, even the R&D in this area is facing serious obstacles. This makes many military specialists think that the most effective and the least expensive way for Russia to compensate for the imbalance in HPW is to preserve an arsenal of tactical nuclear weapons.

''Tactical Nuclear Weapons in the New Geopolitical Situation''
***Yaderny Kontrol*, 1996, No 1, P. 12.**

To give just one example, the removal of TNW from Azerbaijan was prepared in absolute secrecy, and as a result the nuclear warheads were brought to a military airfield inside the republic without any incidents. But

the landing strip was blocked by a group of civilians from the nationalist People's Front; they tried to prevent the aircraft from taking off. The stand-off became so tense that the crews of several bomber aircraft carrying the nuclear weapons had to fire a few warning shots. Fortunately, those shots were enough to disperse the crowd; there were no casualties and the aircraft were able to take off.[5]

The main problem after the break-up of the Soviet Union was that apart from Russia itself, there were strategic nuclear weapons left in Ukraine, Belarus, and Kazakhstan. Suffice to say that the part of the Soviet nuclear arsenal stationed in Kazakhstan alone was bigger than the nuclear arsenals of Britain, France, and China put together.

At first, Russia did not seek to take control of all the Soviet strategic nuclear weapons—in any event, no declarations were made to that effect. On December 21, 1991, two weeks after the foundation of the CIS and on the day Kazakhstan joined the organization, the four countries signed the Alma-Ata agreement on joint nuclear weapons control measures. On December 30 in Minsk the countries also signed the Strategic Forces Agreement Between the CIS States, in which they recognized ''the need for a united command of the Strategic Forces and for the preservation of unified control over nuclear weapons.'' Article IV of the agreement reads that:

> ... until the full elimination of nuclear weapons, decisions regarding the use of nuclear weapons are made by the President of the Russian Federation, subject to approval by the heads of state of Belarus, Kazakhstan and Ukraine, and after consultations with the other CIS members.[6]

In actual fact, however, the united strategic nuclear forces were left on paper. The very idea was probably a compromise which Russia had to accept at a difficult time immediately after the collapse of the former Soviet Union. To some extent the Kremlin was motivated by the desire to calm the Western capitals and make sure that the armed forces remain supportive or neutral during the dismantling of the Soviet Union; many generals were adamant that the nuclear arsenal should remain under a single command.

Nevertheless, a careful study of the Minsk agreements reveals how vague and flimsy they were. It was also quite obvious that Russia was the only former Soviet republic capable of maintaining the nuclear weapons in a combat-ready state, providing the necessary security and safety measures, retaining the highly skilled nuclear weapons specialists and paying them adequate wages. Besides, the idea of ''joint control'' of the former Soviet nuclear arsenal caused a lot of anxiety in the West, which wanted to know precisely who controlled the nuclear launch button.

On January 27, 1992 Yeltsin tried to seize the initiative and sent a detailed message to the secretary-general of the United Nations. He reiterated Russia's commitment to ''ensuring reliable and unified control of nuclear weapons, prevention of nuclear proliferation, and measures to preserve the core of the united armed forces under a unified command.'' For the first time Yeltsin confirmed that Russia would abide by the nuclear arms control treaties signed by the Soviet Union and that it would seek the elimination of nuclear weapons on the planet ''gradually and on a parity basis.''[7]

The situation was compounded by the absence of a properly functioning Defense Ministry in the newly independent Russian Federation. In the period from August 19 to September 9, 1991 Russia had no Defense Ministry but had a defense minister, Gen. Konstantin Kobets. That office was later abolished. The new Russian Cabinet formed in October–November 1991 did not include a defense minister either. That was a tactical ploy by Yeltsin to persuade Gorbachev that he was not trying to dismantle the Soviet Union. The option of setting up a Russian defense ministry was seen at the time as a provocative step which would spell the end of the USSR. Only on March 16, 1992 did Yeltsin sign a decree setting up the Russian Ministry of Defense and appointing himself as acting defense minister. On May 18 he handed over the job to Gen. Pavel Grachev.

In the spring and summer of 1992 bitter rivalry broke out between Gen. Grachev and Marshal Yevgeny Shaposhnikov, the former Soviet defense minister who was later appointed commander of the United Armed Forces of the CIS, an amorphous and powerless body. The hollowness of Shaposhnikov's title became especially obvious as more and more powers were being transferred to Gen. Grachev and the Russian Defense Ministry. By the autumn of 1992 Gen. Grachev was given one of the two ''nuclear briefcases.'' Shaposhnikov lost the other one in the spring of 1993. As a result, Moscow continued to wield full control of the former Soviet Union's strategic nuclear weapons, without any involvement of Minsk, Kiev, or Alma-Ata.

On June 6, 1992 nine CIS states (Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Uzbekistan, and Ukraine) confirmed their support for Russia's participation in the Nuclear Non-Proliferation Treaty (NPT) as a nuclear weapon state and declared they were ready to join the treaty as non-nuclear weapon states. That was the day when Russia officially became the legitimate successor of the former Soviet Union's nuclear arsenal.

But it took Russia another two years to remove to its own territory all the strategic nuclear weapons stationed in Belarus, Kazakhstan, and Ukraine.

There were no problems with Belarus, and by late 1996 all nuclear weapons had been removed from Belarusian territory.

Kazakhstan was a slightly more complex case. Technologically the country was no less capable of producing nuclear weapons on its own that Ukraine, and certainly more so than Belarus. There was a brief but heated discussion in Alma-Ata as to whether Kazakhstan should declare itself a nuclear weapon state. But President Nursultan Nazarbayev quickly and ruthlessly put an end to that debate. His strategy was to turn his country into a shining beacon of movement towards a world free of nuclear weapons. All nuclear weapons were removed from Kazakh territory by the autumn of 1996.

Ukraine, however, was a very different matter. ''We must have a powerful deterrent against Russia's aggressive policies,'' prominent Ukrainian politician Serhiy Holovatyy told me in May 1993. ''Otherwise Ukraine will fare no better than Georgia, Moldova and Tajikistan, where Russia is using imperial methods in pursuit of its vital interests.''[8] At that point a Ukrainian MFA official, Kostyantyn Hryshchenko (who is now serving as the Ukrainian foreign minister), joined our conversation: ''The obvious problem is that militarily, politically, and economically we cannot afford to keep nuclear weapons.'' These two opposing views informed the nuclear debate in Ukraine in 1992 and 1993.

Of course, the Ukrainian politicians who argued for keeping nuclear weapons were being more than a little disingenuous. Ukraine was bluffing; the true goal of its nuclear policy was to bolster its international standing as an independent state and, even more importantly, to secure generous economic aid from the West in return for surrendering the nuclear warheads stationed on Ukrainian territory to Russia.

In January 1994 the presidents of Russia, Ukraine, and the United States signed a tripartite statement in which Ukraine finally confirmed its non-nuclear status and committed itself to the pullout of all nuclear weapons to Russia. Kiev had essentially achieved all its foreign policy goals, including a commitment by Russia, undertaken in the same statement, to ''desist from economic coercion'' and ''respect the existing borders.''

The story of Ukraine parting with its nuclear weapons became a difficult lesson for Russia. Initially Moscow was confident that, one way or another, the issue would be resolved in a ''brotherly'' fashion, and without any meddling by outsiders. In the end, however, the Kremlin was forced to admit its inability to solve the problem without the United States. What is more, Washington was not merely a symbolic mediator; its participation was crucially important and perhaps even decisive for the success of the whole endeavor.

Be that as it may, Russia managed to secure the removal of all nuclear weapons from the former Soviet republic to its own territory. It did so peacefully, non-aggressively, and without any losses. But Moscow failed to compensate for its nuclear pullout from the former Soviet republics by taking any steps aimed at cementing nuclear energy or nuclear security cooperation with the CIS states. At that time the Kremlin argued that it had its own problems to sort out, and the former Soviet republics' problems were their own concern. Essentially Russia made the same foreign policy mistake which it also made in many other areas in the 1990s. In 1994 it turned down Kazakhstan's request to remove tens of kilos of enriched uranium from the Ulba Enrichment Plant. In 1998 it refused to remove more than four kilos of enriched uranium from Georgia. As a result, what should have been Russia's natural role fell to the United States. Washington also launched strategic programs with nuclear research centers and specialists in the CIS states. Russia chose to stand aloof, and lost its positions in the process. It soon realized its mistake and did what it could to limit the damage, but it was too late.

CHALLENGES OF THE 1990s

There have been two distinct phases in Russian policy on nuclear nonproliferation and arms control. The first phase lasted until the turn of the century; the second is ongoing.

The most distinctive feature of the first phase is that Russia's nuclear policies were heavily influenced by its own domestic situation and problems. These policies were also being formed under colossal pressure from other international players.

There were two main domestic factors. First, Russia was in the throes of a deep economic and social crisis, compounded by domestic political instability and by the growing terrorist threat. Such pressures were too much for the Russian nuclear industry and the nuclear weapons complex to bear.

The nuclear industry had to be rescued by means of securing export contracts. Foreign customers were few and far between: the Iranians, the Pakistanis—and that is about it. Romantic expectations of future partnership with the *new friend*, the United States, were dashed swiftly and cruelly; suffice to recall the anti-dumping investigations against Russian uranium exports or the sanctions imposed on the Russian space agency for cooperating with India. As if bureaucratic hurdles in Russia itself were not bad enough, almost every single contract now also had to pass the vetting of the U.S. Senate.

The First Chechen Campaign (1994–1996) was another blow for the Russian nuclear industry. Russian nuclear facilities became potential targets for terrorists, and these facilities did not even have proper air cover. I once witnessed an emotional exchange on the issue between the nuclear energy minister, Viktor Mikhaylov, and Prime Minister Viktor Chernomyrdin. In the 1990s there were at least 20 attempts at nuclear sabotage or nuclear terrorism in Russia. I remember feeling completely devastated as I was leaving the Prosecutor-General's Office in 1995, having learnt about the state of nuclear material security throughout Russia: gaping holes in the fence around one nuclear facility, a broken-down alarm system at the second, missing material at the third.

Now that the situation has been restored to normal I can safely assert this: it was just a blind bit of luck that Russia did not suffer a massive terrorist attack in the 1990s.

In the Russian armed forces the situation was little better. The Russian nuclear shield was still holding, but people in the know realized how decrepit it had become. In November 1996 Gen. Obarevich, head of the inspectorate overseeing the safety and security of the Russian nuclear arsenal, had this to say:

> I just don't understand how the people. . .who work with nuclear weapons manage to survive. They have no money to buy even the bare necessities. One major collapsed from malnutrition just a day before he was due to perform maintenance on nuclear ammunition. How can he work with nuclear ammunition in such a state? Remember also that in order to keep that ammunition safe we need some expendables. We don't have the money to pay for those expendables, either. Things are so bad that we can't even afford to buy slippers for our officers to wear in the nuclear maintenance room, where they are not allowed to wear their own shoes. We've hit rock bottom.[9]

The second domestic problem was the Byzantine politics of the Yeltsin administration. The decision-making process was a total mess, with endless reshuffles and a constant tug-of-war between the various government agencies.

The Soviet Union also saw its fair share of clashes between rival agencies, especially between the Foreign Ministry and the agencies running the Soviet defense industry. A major tussle broke out in the late 1970s over Libya after Colonel Gaddafi asked the Soviet Union to help develop the complete nuclear fuel cycle in his country. The colonel's shopping list included a heavy-water reactor working on natural uranium and a heavy-water production facility. Senior officials in the Soviet government and the nuclear ministry were inclined to accept the deal (Gaddafi was offering about 10 billion dollars). But, as Amb. Roland Timerbaev recollects, the Foreign Ministry was opposed, and in the end common sense prevailed.[10] Apart from the supreme ''collective intelligence,'' the Politburo, such issues also required the vetting of a special mechanism in the Soviet government, the Inter-Agency Commission for Non-Proliferation of Nuclear Weapons.

In Russia, however, such a mechanism was never set up. That was a clear mistake, and Moscow had to sort out its consequences on more than one occasion during the Yeltsin administration. One notorious incident happened when the then nuclear energy minister, Viktor Mikhaylov, travelled to Tehran in January 1995. While the rest of the government in Moscow was away

celebrating the Orthodox Christmas, the minister signed a protocol of intention to build a gas centrifuge enrichment plant in Iran, thereby overstepping his authority and doing something that went completely against the Russian nonproliferation policy. The Kremlin learned about what had happened from the Americans.

We are already beginning to forget that there have been periods in recent Russian history when parliament played a very active and independent role in many areas, including foreign policy. Government agencies were learning the skill of justifying to the legislature the need to ratify this or that nonproliferation agreement or treaty, such as the START II treaty (which was eventually buried by the U.S. Senate) or the Russian–U.S. agreements under the Nunn-Lugar Program (Cooperative Threat Reduction). Those agreements provided hundreds of millions of dollars of extra financing for nuclear safety and security efforts in Russia. There have also been shameful episodes which damaged Russia's international reputation; in one such episode Vice-President Rutskoy churned out reams of classified documents regarding so-called ''red mercury'' for everyone in the Russian parliament to see.

The gravity of these internal Russian problems should not be diminished—but it should also be recognized that the main pressures which put a huge strain on the Russian nonproliferation policy, often to dire effect, were coming from the outside.

Yeltsin had to learn on the hoof that there are no friends in international politics; there are only interests. Russia was finding it difficult to formulate its own foreign policy interests, and the country was weakened from the inside, so it often (and inevitably) found itself a target of American pressure and manipulation. That was especially obvious in the former Soviet republics and in the other parts of the world where attempts were made, often without any clear strategy, to bolster our presence and ''keep our flag flying.'' Iran and India have been the two most prominent examples.

After committing itself in 1992 to complete the construction of the Bushehr nuclear power plant (NPP) in Iran, Russia was gradually becoming entangled in the endless complexities of the situation. On the one hand, it desperately needed the money, and Bushehr was the first Russian nuclear contract in the Middle East. Moscow was hoping that the deal would attract more Middle Eastern customers, and not just in the nuclear industry but also in the oil and gas sector, the arms trade, etc.... The region was a promising market and potentially a valued partner. But on the other hand, in 1993 the Russian foreign intelligence service, the SVR, said that Iran was pursuing ''a program of applied military nuclear research'' (noting, however, that even if that program were allowed to progress unhindered, it would take Iran at least a decade to acquire nuclear weapons).[11] As a result, Russia was dragging its feet on the Bushehr project.[12] Its relations with Iran kept turning sour from time to time, and the level of bilateral trade and economic cooperation between the two countries remained unimpressive. Nevertheless, even such limited nuclear cooperation with Iran was drawing brickbats from America and Israel. Both lambasted Moscow regardless of the precise nature of its dealings with Tehran. The Russian–Iranian contracts, which were entirely in line with nuclear nonproliferation norms, attracted just as much criticism as some genuinely suspicious steps.

As recently as 1995 Russia argued that its cooperation with Iran should be viewed as:

> ... a kind of test bed to assess the modalities of a nuclear weapon state discharging its commitments under Article IV of the NPT, which says that the participants of the treaty should facilitate equal and non-discriminatory cooperation in the area of peaceful nuclear energy, without creating the preconditions for proliferation of nuclear weapons.[13]

But those Russian calls were left unheeded. Instead of welcoming this Russian ''test bed of cooperation,'' Washington prevailed upon Russia to curtail its military-technical cooperation with Iran, and forced Yeltsin to sign a Russian–U.S. document to that effect in 1995. Russian concessions to the Americans sent a signal to Iran and other countries that Moscow was bending over backwards to accommodate Washington's wishes. It was becoming clear that Russia could no longer be viewed as a reliable and independent partner in nuclear cooperation—and possibly in other areas of cooperation as well.

American pressure on Russia over its ties with India was another painful lesson our country has had to learn. In 1992 Washington told Moscow in no uncertain terms that it must not supply cryogenic rocket engines to India, even though Russia was not a member of the Missile Technology Control Regime (MTCR) at the time and had not undertaken any such commitments.

The whole issue was raised by Al Gore as part of his presidential election campaign. Russia was forced to comply, for the most part.

Then in 2000 Russia agreed to supply 58 tonnes of uranium dioxide to India; the material was needed to ensure the safe operation of the nuclear power plant in Tarapur. The U.S. administration described the decision as ''one of the most serious nonproliferation challenges.''[14] Speaking on American television in February 2001, Donald Rumsfeld branded Russia as an ''active proliferator'' and said the country was part of the proliferation problem. ''They are selling and assisting countries like Iran and North Korea and India and other countries with these technologies which are threatening other people including the United States and Western Europe and countries in the Middle East,'' he went on to say.[15] On that particular occasion, however, Russia refused to bend over backwards. The irony and the lesson of the situation is that only a few years later Washington initiated the lifting of all restrictions on nuclear trade with India imposed by the Nuclear Suppliers Group (NSG).

FROM WASHINGTON TO BEIJING

Washington has been the main source of pressure on Russia in nuclear nonproliferation issues. Nevertheless, for two decades now America has remained Russia's main dialogue partner on the entire range of nonproliferation and disarmament issues. It is with Washington that Moscow tries to stay on the same page. In some ways the attitude to nuclear nonproliferation remains the same as during the Cold War. Back then the Soviet Union and the United States refused to make the issue hostage to their differences in other areas, and continued consultations on nonproliferation even through the most difficult years (including the especially tense 1983). The world's two largest nuclear powers, whose arsenals account for 95 percent of nuclear weapons on the planet, are well aware of their special responsibility for the future of the international nuclear nonproliferation regime. They built that regime in another era, back in the 1960s—but it remains more or less functional to this day.

On more than one occasion Russia has found it difficult to conceal how flattered it is to remain on a par with the Americans at least in some respects; Washington has used that Russian yearning very skillfully. On other occasions the Americans needed a Russian demonstration of pliability and flexibility for their own domestic political purposes; Russia was happy to oblige. For example, in 2009, when Barak Obama sensed an acute shortage of foreign policy achievements, he chose nuclear reductions as an area in which to score one such achievement. Moscow saw no reason not to play along. It gave a nod to President Obama's ''nuclear zero'' aspiration (with a ''not in our lifetime'' qualification), and agreed to a new strategic arms reduction treaty, negotiated in a record-short time.

The culmination of Russian–U.S. cooperation in strengthening the nonproliferation regime came in May 1995, when the NPT was extended indefinitely. Both countries worked together very closely and very productively to achieve that outcome. An indefinite extension of the treaty was in their shared interests. Ensuring the efficacy of the nonproliferation regime was not their only consideration; that purpose would have been better served by extending the NPT every 25 years or so, and ''taking its temperature'' during the intervals to make sure that everyone complies with their commitments. But from the pragmatic point of view it was important for both the United States and Russia to forestall once and for all any remaining possibility of the NPT falling apart in the future. They achieved that goal, and did so very skillfully, through a unanimous decision, without a vote that would have split the NPT members into the larger group of supporters and the smaller group of skeptics. Quite predictably, however, interest in the NPT has waned since the treaty's indefinite extension. Now it is mostly limited to empty gestures and declarations.

In recent years Russia and the United States have achieved a steady, mutually comfortable and generally agreeable climate in their dialogue on the entire range of nuclear nonproliferation, disarmament, and nuclear security issues. Even such shocks as the differences over Iran in the early 2000s have not really affected that situation.

But this comfortable relationship can soon be tested (and is already being tested in some ways) by three contentious issues: the Iranian nuclear program, missile defense, and overcoming the impasse in multilateral disarmament.[16]

Meanwhile, Russia's nuclear nonproliferation dialogue with another key international player, China, does not go back nearly as long as with America. But on the surface at least, it looks just as cozy and lacks any controversy. When I read official Chinese documents on nonproliferation it sometimes feels as though they were actually written in Moscow; even the wording looks the same. The authors of these documents are undoubtedly Chinese, of course—but at this point in time Russian and Chinese interests in the area of nonproliferation largely coincide.

There are, however, several differences; the most notable of them concern the two countries' approaches to the situation in South Asia. In addition, China has not ratified the CTBT, which is very unfortunate and also makes Beijing's position similar to that of Washington. But Russia and China are very close on Iran, on North Korea, and on the FMCT. On disarmament the situation is easier in some ways and more difficult in others. On the one hand, China's nuclear arsenal is quite small. There are suspicions that it can be ramped up very quickly, but for now there are no signs of that actually happening. In other words, any comparisons to Russia are not appropriate in this case. On the other hand, Russian and Chinese declarations are almost identical. Meanwhile, the number of areas on which Moscow and Beijing have shared views keeps rising. These include the two countries' opposition to strategic missile defense programs and their aspiration to prevent an arms race in outer space.

At some point Moscow will have to exit this comfortable *ménage à trois* and make a choice between Washington and Beijing. That choice will most likely be forced by the strategic missile defense problem. But it cannot be ruled out that all three countries still have some time to spend in a state of comfortable uncertainty and procrastination; for now, none of the three is ready to make the choice.

INITIATIVES AND INTERESTS

One might be excused for thinking that over the past 20 years Russia has failed to formulate an independent nuclear nonproliferation policy. It is true that Russian foreign policy (and its nonproliferation policy in particular) remains largely reactive rather than proactive. We react angrily to NATO's eastward expansion (then acquiesce); we react to America's aggression in Iraq (then forget about it); we announce the deployment of Iskander missiles in Kaliningrad to counter America's missile defense plans (then we make a U-turn; then we decide to go ahead with it after all ... may be ... at some point, but not now ...), and so on. But such a view would be a rather primitive and unfair oversimplification.

In the past two decades Russia has come forward with dozens of initiatives on nuclear nonproliferation. Having overcome the syndrome of an ''international aid recipient'' and an ''eternal target of criticism,'' in recent years Russian diplomacy in this area has been very confident, independent-minded, and proactive.

I think the main problem of Russia's nonproliferation policy is that Moscow's initiatives are usually laudable and well thought out—but almost all of them die an unremarkable death in the archives. Russia has become very good at generating ideas which it believes would be productive, both for itself and for the international community. But it looks quite helpless when it comes to actually implementing those initiatives. Only a handful of them have achieved their stated goal.

Let me give you a few examples.

In April 1996 President Yeltsin hosted a G8 nuclear security summit in Moscow. The event was a great success. The G8 leaders put their signatures to the declarations drafted ahead of the summit, and gave Yeltsin a helping hand at a difficult moment for the Russian president. But one important Russian initiative was ignored. Moscow proposed that all nuclear weapon states undertake a commitment not to station their nuclear weapons outside their borders. In actual fact, at this time four of the five official nuclear weapon states (and eight of the nine countries which possess nuclear weapons in practice) abide by that rule. Stationing nuclear weapons outside national land borders is not banned by the NPT, but such a ban would go a long way towards strengthening the spirit of the treaty. The actual issue at stake is only about 200 American nuclear warheads, which remain in Europe. Russia has made a few timid attempts at resurrecting its 1996 initiative, but the proposal has not been reflected in the resolutions of the NPT review conferences or any other major international security forums.

In the mid-1990s there was a flurry of initiatives regarding nuclear-weapon-free zones (NWFZs). This regional mechanism has already demonstrated its efficacy at reducing the numbers and the geographic spread of nuclear weapons around the world. Suffice to say that the entire Southern Hemisphere is nuclear weapon free. But, for obvious reasons, Russia is more concerned with the situation in the Northern Hemisphere. There have been several initiatives in this regard, most notably the Belarusian proposal to create a NWFZ in Central and Eastern Europe. At the time Russia welcomed the idea with great enthusiasm; Poland rejected it out of hand. Right now Moscow had a lot more leverage to support the initiative proposed by one of its key allies in the region. But the idea of NWFZs has already gone out of fashion.

Yet another Russian initiative (which has actually been backed by Washington) was to make the bilateral U.S.–Russian Intermediate-Range Nuclear Forces Treaty (INF) multilateral. Such a step would result in a notable reduction of the missile threat. But having come forward with that excellent initiative, Russia has been much less successful at promoting it. Specialists are well aware that this goal will be hugely difficult to achieve, especially since it touches upon the interests of key Russian partners such as India.

But faced with such passivity on the part of Russia, the international community is increasingly gaining the impression that Moscow is not really interested in seeing its own initiatives through. To outsiders it looks as though Russia views these initiatives as an end in itself, as mere declarations to be made at an appropriate moment and then quickly forgotten.

What is worse, if often looks as though Russia just does not know how to work with its natural allies and partners, even though it has learned to work very well with the United States and the G8. Russia is constantly missing opportunities to rally its CSTO allies around its initiatives. Cooperation with the CIS states is almost nonexistent; the only positive example I can recall is the joint Russian–Ukrainian efforts on proposals under Article X of the NPT. Moscow has so far failed to leverage the resources of the Shanghai Cooperation Organization; BRICS has not made any contribution to nonproliferation either.[17]

I can think of only two bright spots in this generally dismal landscape, both of them fairly recent.

The first is the Russian initiative on multilateral approaches to the nuclear fuel cycle and the launch of the International Uranium Enrichment Center (IUEC) in Angarsk. The center is already up and running; Iran has yet to become a member (Moscow had hoped that Tehran would have joined by now), but three other countries have already joined, and others are welcome to follow suit. When our partners, especially in the developing world, see such commitment and persistence in achieving our objectives within the originally announced time frame, it immediately translates into greater respect for Russian policies.

The second bright spot has been Russia's proposal to convene an international conference that would discuss the future of a WMD-free zone in the Middle East. Russia had done its homework on this issue, and its initiative was received very well at the 2010 NPT Review Conference. Now it is important for Russia to remain a proactive and independent player during the preparations for the upcoming 2012 conference on a WMD-free zone in the Middle East. Moscow must not be deterred by the difficulties of the painstaking and often thankless work behind the scenes which is necessary to bring the initiative to fruition and to make sure that it generates foreign policy dividends rather than losses for Russia itself.

This, however, is the main problem, compared with which all others pale into insignificance.

We have left our actor-inheritor in the middle of the stage. The background and props are all new; the urgency is no longer quite as pressing, and the fear of being booed off the stage is in the past. Instead of desperately improvising the actor is now playing a well-rehearsed role and follows the script word for word. The extras on the stage are playing along; their own lines are also strictly in accordance with the script. The audience might be excused for thinking that there is a heated debate going on, that the actors are genuinely arguing with each other and with the lead—but that is just an illusion. It is all part of the script; if there is a good cop, there needs to be a bad cop as well. The trick works very well, and many believe the charade.

But what if our actor has immersed himself too deeply in his own role, trying as he does to convince the audience? Does he even know any longer what his own interests are, rather than the interests of that guy in the first row?

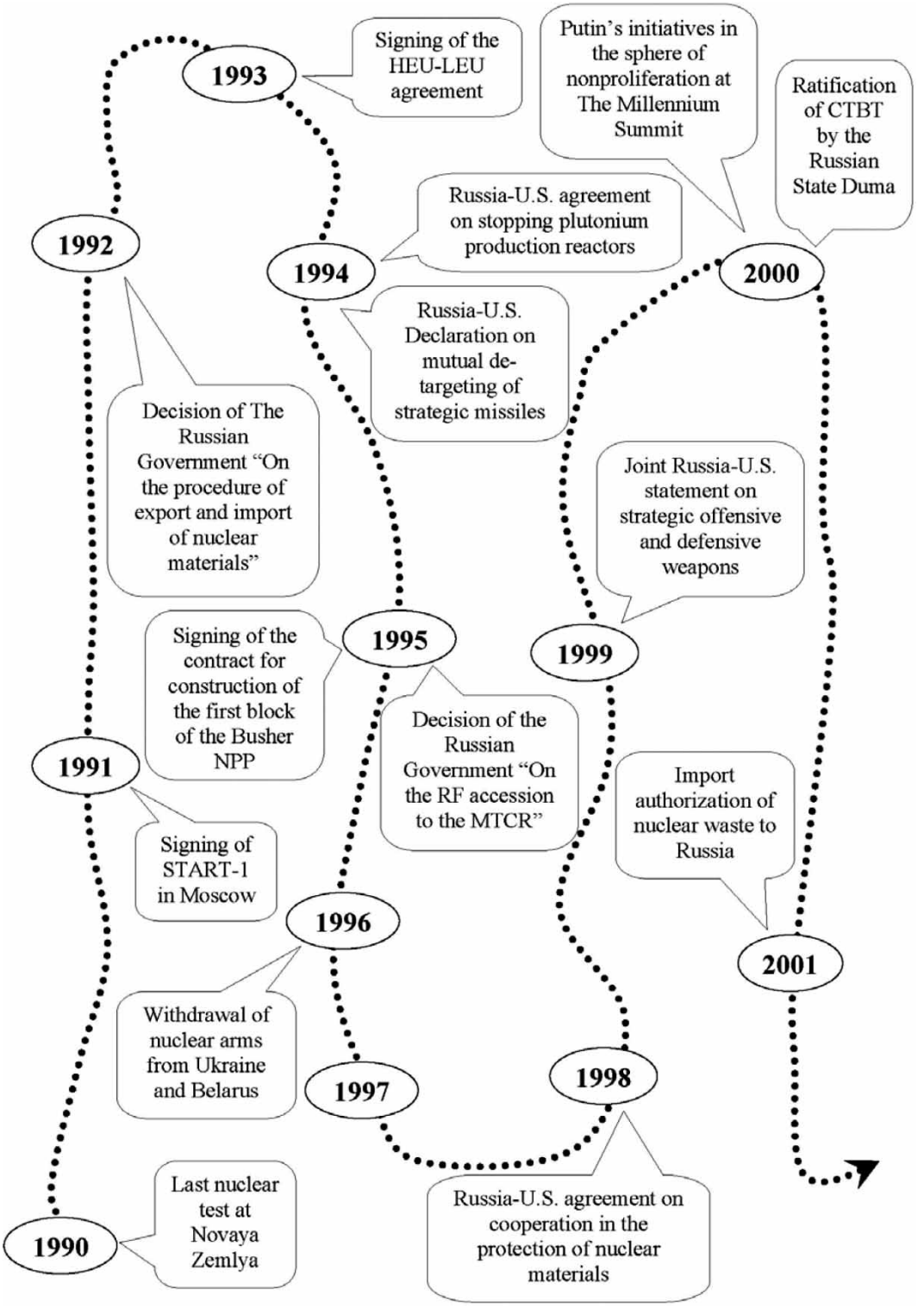

Figure 1. **Key Steps of Russia's Nonproliferation Policy in 1990–2001**
Source: PIR Center, 2012

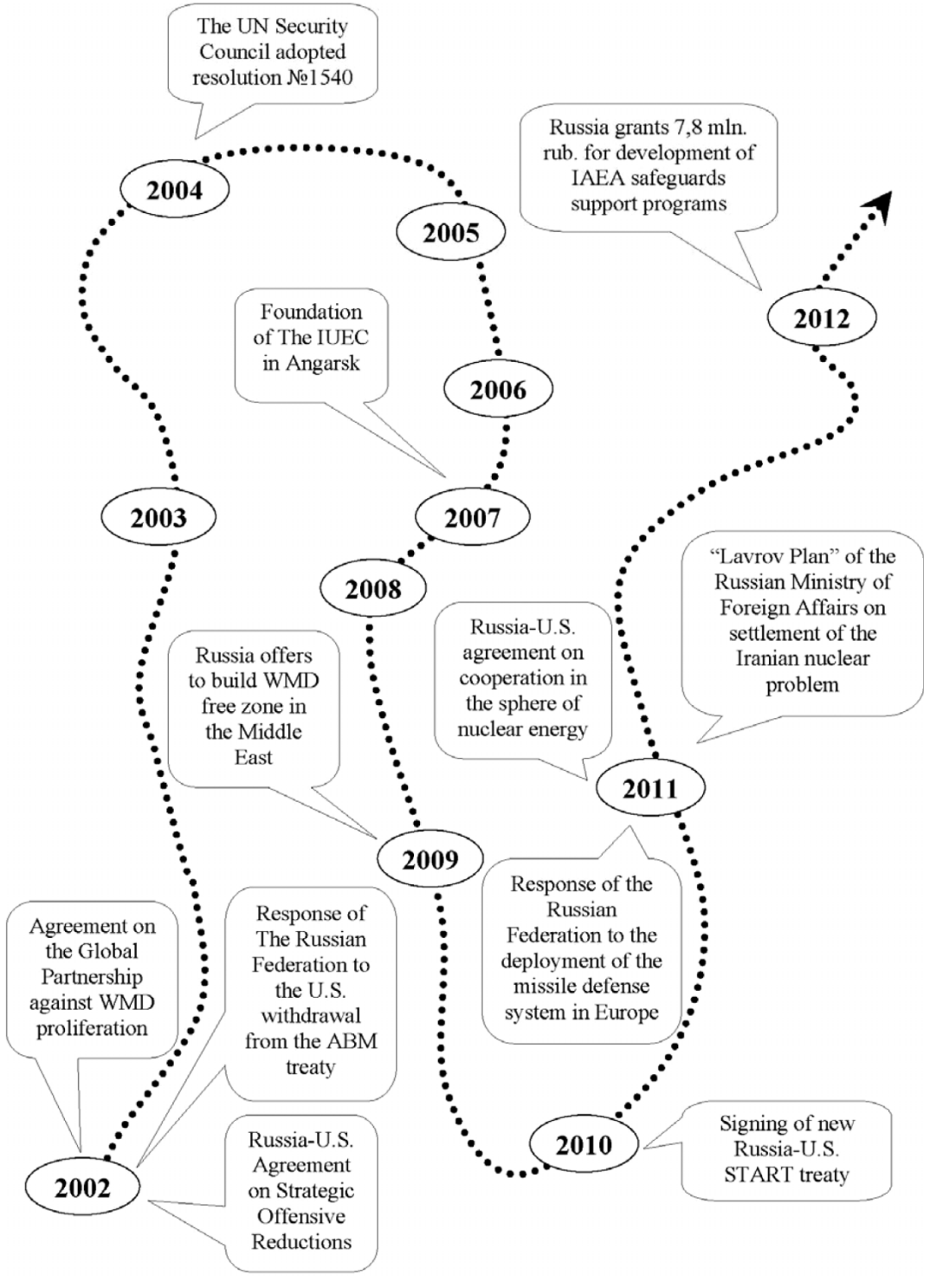

Figure 2. **Key Steps of Russia's Nonproliferation Policy in 2002–2012**
Source: PIR Center, 2012

Twenty years on, having grown up and matured, what does Russia actually *want* from nuclear weapons and nuclear nonproliferation?

I cannot hear the answer to that question. Or maybe it is so soft and timid that I cannot even hear the words.

There are actually two schools of thought here.

The first school, the ''Activists,'' say ''Yes, we want . . .'' (new treaties, initiatives, joint projects, and so on). They genuinely believe that Russia should maintain its current leading role in the international nonproliferation regime. They think it gives Russia greater international standing, boosts its prestige, and enables it to take part in making key international decisions. They reckon that it is better to have an unlimited-access VIP card than not to have it. They think that the NPT is eternal, our nuclear weapons are strong, our tanks are fast, and we just need to take part in this Brownian motion called ''nonproliferation''—we always need to be part of everything so as to ''keep the momentum . . . .'' Did someone say our tanks are not all that fast? Well, we are not really talking about tanks. We are talking about nuclear weapons, and those are really fast.

The second school, the school of ''Don't care,'' say ''We're not bothered either way and we don't want anything.'' According to their logic, Russia already has a VIP card which can never be taken away and which will never expire. Why bother? Why exert ourselves? Who needs all these ''action plans''? It is all just a show . . . . Russia must not undertake any new commitments which would limit its freedom of maneuver.

For more information and analytics, please, visit the section "Nonproliferation and Russia" of the PIR Center website: npt.pircenter.org/eng

We still lack a deeper understanding of the true nature of Russia's nuclear heritage, and of the role of nuclear weapons in our country's future. We are not really sure whether those weapons will be needed at all in the decades to come. We do not really know how best to utilize the opportunities given to Russia by the nuclear nonproliferation regime. And we are still trying to understand how that regime should be modified to make it fit for the new century. We are only just beginning to discern the outlines of the answers to all these questions.

We have gone full circle in our search for these nuclear answers. Meanwhile, Russia is still coasting along the old Soviet track. 

NOTES

[1] An earlier version of this article appeared in Russian under the title ''Rossiysky Yaderny Krug'' [Russian Nuclear Circle], *Russia in Global Affairs* 9, No. 6 (November–December 2011), pp. 59–71.

[2] Steve Rodan, ''Iran Paid $25m for Nuclear Weapons, Documents Show,'' *Jerusalem Post*, April 10, 1998.

[3] V. Orlov, R. Timerbaev, and A. Khlopkov, ''Nuclear Nonproliferation in U.S.–Russian Relations: Challenges and Opportunities,'' *PIR Library Series*, Moscow (2002), p. 23.

[4] V. Orlov, and N. Sokov, eds., ''Nuclear Nonproliferation,'' Moscow, PIR Center (2000), p. 207.

[5] V. Orlov, R. Timerbaev, and A. Khlopkov, ''Nuclear Nonproliferation in U.S.–Russian Relations: Challenges and Opportunities,'' *PIR Library Series*, Moscow (2002), p. 23.

[6] 'Nerasprostraneniye yadernogo oruzhiya: sbornik dicumentov [Nonproliferation of Nuclear Weapons: Collection of Documents], *International Relations*, Moscow (1993), p. 228.

[7] Address by President of the Russian Federation Boris Yeltsin to the UN Secretary General, UN, A/47/77–S/23486, January 27, 1992.

[8] See: V. Orlov, ''Yadernaya Ukraina: bolshoy blef ili bolshaya ugroza?'' [Nuclear Ukraine: a Big Bluff or a Big Threat?], *Moscow News*, No. 45, November 7, 1993, p. A5.

[9] V. Obarevich, Records of the State Duma Hearings, November 1996.

[10] R. Timerbaev, ''Tales from the Past. Memoirs on Nonproliferation and Disarmament Talks and Many Other Things'' [in Russian] (Moscow: ROSPEN, 2007), pp. 28–30.

[11] Novyi vyzov posle kholodnoy voyny: rasprostraneniye oruzhiya massovogo unichtozheniya [The New Post-Cold War Challenge: Proliferation of Weapons of Mass Destruction]. Russian Intelligence Service (SVR) Report, Moscow, 1993.

[12] The Bushehr NPP was launched in September 2011.

[13] Dogovor o nerasprostranenii yadernogo oruzhiya: problemy prodleniya [NPT: Problems of Extension]. Russian Intelligence Service (SVR) Report, Moscow, 1995.

[14] Richard Stratford, ''Starting over Building a Nonproliferation Regime from Scratch'', Report at the conference ''How to Harmonize Peaceful Nuclear Energy Uses and Nonproliferation? Future of Nuclear Energy Development in Asia,'' March 8, 2001.

[15] John Ballif, ''Modulating U.S. Confrontation with Russia and Iran,'' National War College, 2001, http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA441517>, last accessed January 26, 2012.

[16] I mean, most importantly, the impending collapse of the Conference on Disarmament in Geneva, which has been unable for many years now to make any progress whatsoever on launching talks on the Fissile Material Cutoff Treaty (FMCT). Meanwhile, the Comprehensive Test Ban Treaty (CTBT) has yet to enter into force, and let us be honest, this is unlikely to happen in the foreseeable future. The total lack of progress on multilateral disarmament requires a surgical intervention. I am talking about a profound reform of the Conference on Disarmament or, failing that, its dissolution, with the subsequent formation of a new mechanism based on a new set of principles. Alternatively, the FMCT talks could be moved to some alternative forum. For now Russia does not seem to be ready for that, but the United States is preparing for just such a turn of events.

[17] Clearly, the fact that India is not a member of the NPT makes the situation rather delicate. But I have no doubt that BRICS could make a valuable contribution to nuclear energy development in tandem with nuclear nonproliferation.

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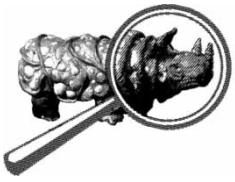

Nikolai Ponomarev-Stepnoi

GLOBAL NUCLEAR ENERGY ARCHITECTURE: A KEY TO ENERGY SECURITY

The future of nuclear energy has become a subject of much debate. Will nuclear power plants become the central part of our energy strategies, or will safety concerns spell the end of the *nuclear renaissance*?

Before discussing the problems facing nuclear energy, let us look at what energy security means in this day and age.

First, even if a certain primary energy resource is plentiful, it will not be in great demand if the associated costs are greater than a certain proportion of the GDP. This balance between GDP and energy consumption is key to economic development. The cost of primary energy has immediate repercussions for the rest of the economy. In the early 1980s spending on energy rose to more than 10 percent of GDP. The proportion was the same in 2008. Both periods were a time of economic crisis. Such high energy prices had proved too much for the economy and society to bear.

Second, the gap in energy consumption between the rich countries and the developing world is closing. Rapid economic growth in the developing countries is increasing global energy demand. Their per-capita energy consumption figures have been gradually catching up with the rich world's indicators for the past five decades. In the 1960s the average for the developing world was less than 5 percent of Western figures. It has now grown to about 15 percent. Industrial growth in the developing countries, which is the main engine of higher energy consumption, is now much more rapid than in the developed economies. That trend is being reinforced by the flow of investment and technologies from the rich world to the developing countries, where labor is cheap. There are now fewer barriers to cross-border flows of expertise, technologies, materials, and equipment. The circulation of information, know-how, and products has become much easier. As energy consumption in the developing countries catches up with the rich world, the demand for primary energy resources will see rapid growth. It will triple in as little as 10 years if the developing countries manage to maintain their GDP growth figures at their current level. If growth slows, that tripling might take up to 40 years.

Third, the problem of rapidly growing energy consumption can be resolved by diversifying our energy sources; renewables and nuclear energy will be especially important. Hydroelectric energy and coal will also have a role to play. The easiest way to meet growing demand would be to ramp up oil and gas output—but global oil production may have already peaked. Natural gas still has some room for growth, but gas alone will not be enough to plug the gap between energy supply and demand. There are still plenty of hydrocarbons left underground, but they are becoming increasingly costly to produce; at some point developing the untapped oil and gas fields in difficult geological conditions and harsh climates will simply become uneconomical.

Based on the three considerations outlined above, this article will analyze the role nuclear energy can play in energy security. It will also look into the obstacles on the way to increasing that role, and possible ways of addressing them.

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CURRENT AND POTENTIAL ROLE OF NUCLEAR ENERGY

It is clear that the world economy is facing a serious shortage of fossil fuels, which tend to be concentrated in a few energy-rich countries. One of the obvious solutions is renewable energy sources such as solar, wind, biomass, hydroelectric, and tidal energy. Their role will certainly continue to increase—but they still remain very costly, which slows their adoption.

Nuclear energy is not renewable, but by burning U-235 reactor fuel it is possible to produce new fuel from the U-238 or Th-232 isotopes, which are more plentiful than U-235 by a factor of several hundred. Fuel breeding allows for a far more efficient use of the nuclear materials already produced; it also makes more expensive resources economical to produce. The fuel breeding mechanism essentially makes nuclear energy inexhaustible, for all practical purposes. This unique feature of nuclear fuel makes it very promising in terms of meeting the world's growing energy requirements. The existing nuclear energy industry has already demonstrated that producing electricity from nuclear fuel is entirely economical. The possibility of producing hydrogen with the help of high-temperature nuclear reactors also expands the possible uses of nuclear energy beyond electricity. Hydrogen as an energy storage and as a chemical agent is key to a multitude of new technologies that can be used in industry, utilities and transport.[1]

Other advantages of nuclear energy include the abundance of fuel, many areas of commercial application, availability, technological maturity, and smaller environmental impact compared with organic fuels.

But for all these advantages, which attract growing interest in countries around the world, nuclear energy also has clear downsides, especially safety and security concerns. Public perceptions make a steady link between nuclear energy (even peaceful), nuclear weapons, and radioactive contamination. The public is concerned about the risk of civilian nuclear materials and technologies being diverted to nuclear weapons programs. That risk will grow as more countries adopt nuclear energy, especially if their nuclear energy programs involve such proliferation-sensitive nuclear fuel cycle elements as uranium enrichment and spent nuclear fuel (SNF) processing.

The radioactive contamination risks have been highlighted by several high-profile accidents at civilian nuclear energy facilities. The spread of radiation after the accidents at Chernobyl and Fukushima far beyond the national borders concerned has demonstrated the global nature of this threat.

Nevertheless, having weighed all the pros and cons, many countries, including those with no nuclear experience whatsoever, have informed the IAEA of their intention to start developing peaceful nuclear energy.[2] This growing global interest in nuclear power plants raises the need for the international community to develop a global civilian nuclear energy infrastructure that would enable as many people as possible to benefit from nuclear energy without exacerbating the existing safety and security risks.

LEAFING THROUGH THE OLD PAGES

MOHAMED ELBARADEI: We are trying to achieve a broad understanding of the advantages of nuclear energy from the environmental point of view compared to other energy sources. It is important for such comparisons of energy sources to be impartial and balanced. <...> We are determined to make sure that nuclear energy remains a viable source of energy production for countries which choose to use it. Nevertheless, it is also obvious that there are different opinions among the international community and among the IAEA members. It is not part of the agency's remit to foist nuclear energy or any other nuclear technology on countries which don't want these technologies. <...> But we do want a more active dialogue on nuclear issues with government leaders, NGOs and the general public because we believe that by raising awareness of the benefits of nuclear technologies we can make the collective search for solutions to the problems facing our planet more effective.

''The Nuclear Nonproliferation Regime Is Going through Difficult Times'', *Yaderny Kontrol* (Russian Edition), 2004, No. 1, p. 15

Nuclear energy safety and security is a broad definition, which includes accident prevention, nonproliferation, physical protection, accounting, and control of nuclear and radioactive materials. These requirements apply to every component of the nuclear energy infrastructure, including nuclear power plants and all nuclear fuel cycle facilities, and to every stage of their lifecycle, in line with the so-called cradle-to-grave approach.

It is obvious that the objective of such magnitude can be achieved only through joint efforts by the international community. Nuclear energy is a global phenomenon. Nuclear energy safety and security transcends national borders. The problem of developing nuclear technologies while also ensuring their safety and security cannot be resolved by individual nations in isolation. Besides, developing the entire nuclear fuel cycle, from mining the raw materials to nuclear waste disposal, is something only a few nations can do on their own. That is why it is necessary to develop a global nuclear energy architecture.

Efforts to develop that architecture will include two tightly intertwined components. The first is developing and improving the actual nuclear technologies. The second is building the organizational and regulatory framework to define the kind of conduct that is expected of every participant in the global nuclear energy infrastructure.[3] Let us now take a detailed look at these two components, and at the areas where technology and organization are inextricably linked.

TECHNOLOGICAL ASPECTS OF NUCLEAR ENERGY DEVELOPMENT

The Nuclear Fuel Cycle

The international nuclear community continues to debate the relative merits of the partial versus the complete nuclear cycle.

One of the main arguments being made by the proponents of the former is that it does not include the extraction of plutonium from spent nuclear fuel and its re-use in nuclear reactors. They believe that this solves the problem of proliferation. But such an approach also raises new problems: the resources of cheap natural uranium are limited, and the volume of spent nuclear fuel that will have to be stored somewhere will keep growing as enriched uranium production continues to increase. For example, if installed nuclear capacity grows to about 2,000 GW by 2050, annual uranium mining will have to increase to over 300,000 tonnes. More than 10 million tonnes of uranium will be consumed between now and 2050; separation capacity will increase to about 450 million SWU per year, and about 10 nuclear waste storage facilities similar in size to the Yucca Mountain repository will have to be built. The annual capacity of NFC facilities will have to grow in proportion to new generation capacity being installed, and new reactors will have to be supplied with fuel for the entire duration of their lifespan, which can be as long as 60 years.

All of this will put too much strain on the supply of cheap uranium fuel. Nuclear energy will essentially face the same constraint as fossil-fuel energy, i.e. fuel deficit. As for the spent fuel repositories, the Yucca Mountain project in the United States, which was to be able to accommodate about 70,000 tonnes of material, was facing huge difficulties and eventually had to be cancelled.

Finally, the increase in uranium enrichment capacity required by the partial nuclear cycle model runs counter to the main argument being made by its proponents regarding the need to take proliferation concerns into account. The United States is well aware of this problem; it is working to develop the modified partial cycle model, which includes spent fuel reprocessing and partial separation of the resulting products so as to use the uranium fuel more efficiently.

In contrast, a complete nuclear fuel cycle can accommodate the fuel supply requirements of a nuclear energy sector of any size without running out of cheap natural uranium. It also addresses the problem of radioactive waste disposal. The ability of fast breeder reactors to generate nuclear fuel in large quantities enables them to produce enough fuel to keep themselves in operation and even leaves a surplus that can be used to load the initial fuel batch into new reactors, and to supply the existing thermal reactors. This feature of breeder reactors can be used to establish the complete nuclear fuel cycle, which includes SNF processing and using the extracted newly generated fuel material and minor actinides to produce fresh fuel. The nuclear waste that results from SNF reprocessing is much more

compact than the original spent fuel itself; after a series of additional operations it can be moved to final storage. The initial fuel batch loaded into fast reactors will use plutonium produced by thermal reactors. There is already enough of it to load the fast reactors; some of it can also be added to the fuel mix used in thermal reactors.[4] For that reason we need to make a start on developing and introducing technologies for processing spent nuclear fuel—first from thermal, and then from fast reactors—and using the extracted plutonium in mixed fuel for improved thermal reactors and fast breeder reactors. In addition to centralized SNF reprocessing and fuel recycling facilities, research is also under way into the on-site nuclear fuel cycle at the nuclear power plants themselves. One important requirement of a complete nuclear fuel cycle, which defines how quickly the reactor plutonium can be returned to produce fresh fuel, is the duration of one complete cycle; it should take no longer than three years, if at all possible. The capacity of SNF reprocessing facilities could reach about 50,000 tonnes a year by 2050, and the amount of plutonium being re-circulated about 1,500 tonnes a year.

Nuclear Reactors

The nuclear energy sector is currently dominated by thermal (slow) light water reactors used for centralized production of electricity. In future thermal reactors can be used not only to produce electricity but also to supply energy to industrial facilities and utility services, to desalinate water, and to produce hydrogen. There will be a market for a broad range of reactor sizes: small and medium ones for autonomous and regional consumers, and big ones for centralized grids. It will be necessary for these reactors to be able to work in load-following mode. Thermal reactors will also need to become more efficient at burning their fuel (to get the reproduction ratio to about 0.9) and to be able to use different types of fuel (U, Pu, Th). These requirements can be met by improving the existing light-water technology, as well as developing new reactor types, including high-temperature gas reactors. Technological innovation in reactor design and nuclear fuel composition should also aim to improve safety, with a special emphasis on minimizing the risk of serious accidents.

The global nuclear energy architecture which relies on a complete nuclear fuel cycle should include fast reactors designed for both electricity generation and nuclear fuel breeding (Pu, U-233) with a complete nuclear fuel cycle for uranium, plutonium, and minor actinides. Due to the duel purpose of fast reactors, the optimum power output level for one such reactor is about 1 GWe, and it is better to keep them in the baseload operational mode.[5] The fuel breeding ratio for fast reactors can be as high as 2.0.[6] The choice of the exact type of fast reactor—i.e. the core coolant and the fuel type—and of the resulting breeding ratio is determined by the pace of nuclear energy development, the availability of natural uranium, the ratio of fast and thermal reactors in the nuclear energy sector, safety and security considerations, and various economic variables. Based on current projections for global nuclear energy development and its future structure, the breeding ratio of fast reactors should be at the level of 1.2–1.5. Fuel breeding by fast reactors, in combination with the local nuclear fuel cycle at the NPPs, imposes restrictions on exports of this technology. On the other hand, using fast reactors without fuel breeding, and with an enriched-uranium initial fuel load, will slow the pace of nuclear energy development due to the limited resources of natural uranium; it will also require additional uranium enrichment capacity.[7]

TECHNOLOGY PLUS INTERNATIONAL REGIME

Nuclear Nonproliferation

Measures and actions aimed at reducing the risk of nuclear proliferation must not be ad hoc or reactive. This requires continuous research into the existing and potential threats to the nonproliferation regime resulting from widespread adoption and development of nuclear energy. Such research should be based on a systemic analysis of nuclear energy development in order to identify and assess the proliferation risk factors. These factors include:

- ❑ growing number of countries which use nuclear energy;
- ❑ growing number of nuclear power plants;

- ❑ development of the complete nuclear fuel cycle, including SNF processing and recycling of nuclear materials;
- ❑ growing number of nuclear fuel cycle facilities, including enrichment plants;
- ❑ growing circulation and transport of nuclear materials;
- ❑ use of fast breeder reactors;
- ❑ growing volume of radioactive waste.

Systemic analysis should lead to recommendations regarding specific steps to strengthen the nonproliferation regime. Such recommendations will obviously have to be the product of a compromise, taking into account the economic and energy security benefits of installing additional nuclear capacity versus the potential damage that can be done unless the nuclear energy architecture is made more proliferation-resistant. To make these recommendations more reliable there needs to be an instrument that would enable comparative quantitative analysis of proliferation risks resulting from the adoption of various solutions.

At present, solutions to the proliferation problem are being sought using qualitative criteria first developed some 40 years ago. Nuclear technologies have come a long way since then, becoming cheaper and more widely available in the process. The international climate in which these old criteria were formulated has also seen substantial changes. Technological progress, greater availability of nuclear technologies, their falling costs, and less stringent secrecy associated with all things nuclear have changed the situation very dramatically. For example, the emergence of new technologies such as enrichment centrifuges has radically shifted the balance of proliferation risks associated with nuclear energy.

One recent proposal is to perform quantitative assessment of risks based on statistical processing of expert assessments.[8] The method has been applied to compare the risks of various types of materials being diverted to secret nuclear weapons programs, and thereby to spot the vulnerabilities in the existing nonproliferation mechanisms. Table 1 gives an example of such a quantitative approach being used for comparative assessment of proliferation risks depending on the type of nuclear materials being used.

This instrument of qualitative analysis of the risks can and should be used to develop institutional solutions aimed at addressing nuclear nonproliferation problems in the new era nuclear energy is now entering. It can also be used to compare the risks associated with various innovative reactor designs and nuclear fuel cycle technologies.

A great deal of research relying on quantitative analysis will be needed to assess and optimize various institutional solutions designed to facilitate widespread adoption and development of nuclear energy. Priorities in this area are as follows:

- ❑ To develop a concept of International Nuclear Fuel Cycle Centers in order to reduce proliferation risks by internationalizing the most proliferation-sensitive components of the nuclear fuel cycle. This includes uranium enrichment; an LEU bank; nuclear fuel manufacturing and supply; SNF storage; SNF processing; and fuel recycling.
- ❑ To introduce the practice of international regulation and control of global remote monitoring of nuclear materials at every stage of the declared nuclear activities. This must become a compulsory instrument of monitoring the stockpiles and any movements of fissile and radioactive materials so as to prevent secret stockpiling and diversion of nuclear materials, including detection of any possible theft during transportation or at any other stage.
- ❑ To introduce a compulsory requirement for all nuclear facilities (NPPs, NFC facilities, etc.) to be equipped with computerized anti-proliferation systems (accounting and control, physical protection, etc.).
- ❑ To regulate the spread of sensitive nuclear know-how.

Identical or similar approaches should be used for innovative reactor and fuel technology projects in order to develop recommendations regarding the criteria for assessing proliferation risks posed by such projects and technologies.

Table 1. ***Proliferation Risks Posed by Various Types of Nuclear Materials***

Material	Time T_H-T_B To	Cost F_H-F_B Fo	Secrecy S_H-S_B So	Safety D_H-D_B Do	Availability A_H-A_B Ao	Proliferation risk Ro5-R95 Ro
LEU	1.5–3 2.1	3–15 6.1	10–50 24	0.5–1 0.7	10–100 39	8.16–185 **53.3**
HEU	1	1	1	1	1	**1**
Reactor grade plutonium (Rpu)	3–10 5.2	8–60 19	0.2–0.9 0.46	0.2–0.9 0.46	0.1–5 1.25	0.00014–0.0139 **0.0028**
Weapons grade plutonium (WPu)	1.5–4 2.4	2–20 5.1	0.2–0.9 0.46	0.5–0.9 0.68	0.1–0.5 0.24	0.00095–0.0217 **0.0062**

Notes: **Time T**: Time required to build an arsenal of explosive nuclear devices; greater time translates into lower risk. **Cost F**: The cost of building a nuclear arsenal, including investment in every component of the program to build explosive nuclear devices from source material, plus the cost of the source material itself; greater cost translates into lower risk. **Secrecy S**: The feasibility of keeping secret the nuclear weapons program based on a given material. Greater feasibility translates into greater risks. **Safety D**: Technological safety of the program to build an arsenal from a given material; greater safety translates into greater risks. **Availability A**: The availability of the source material; the more available the material, the greater the risks. **Proliferation risk R**: a function calculated as: $\mathbf{R = (1/T) * (1/F) * S * D * A}$

Research aimed at developing new approaches to preventing nuclear weapons, materials and technologies proliferation is just as important for greater adoption of nuclear energy as measures to strengthen nuclear and radiation safety.

Nuclear and Radiation Safety

The serious accident at the Fukushima nuclear power plant has once again highlighted the crucial importance of safety for the broader adoption of nuclear energy. The catastrophic chain of events—an earthquake, the resulting tsunami, the failure of residual heat removal systems, overheating and disintegration of fuel, the release and several explosions of hydrogen, and the failure of protective barriers—caused a very serious accident which led to radioactive contamination of large territories far away from the NPP.

The Fukushima crisis has triggered a serious debate about the need for innovation not just in nonproliferation but in nuclear and radiation safety as well. Officials and the expert community are discussing proposals to set up new agencies, develop innovative control and management methods, and introduce compulsory international standards.

There is a clear need for detailed and comprehensive analysis of the Fukushima accident in order to develop new measures, including new technology and better regulation, so as to prevent a repeat of the crisis at the existing and new facilities. This requires openness concerning the process of assessing and stress-testing safety measures at the nuclear power plants. Nuclear energy is a global phenomenon, so safety requirements must be global as well. All assessments of the reliability and safety of NPPs must involve experts from foreign countries and international organizations. Such cooperation is also required during the approval of NPP safety requirements and inspection procedures.

The international nuclear safety regime, which is based on the Convention on Nuclear Safety and other agreements, depends on nations' willingness to follow its recommendations voluntarily. Even minor instances of these internationally accepted norms being ignored pose major risks for everyone. We must work to improve the regime and make it more stringent. There needs to be a single set of standards, and enforcement measures for those who ignore nuclear safety principles.

First and foremost, we need to make sure that the existing nuclear energy sector is safe. To that end stress tests are being conducted at existing nuclear power plants to ascertain their resilience to extreme conditions, including loss of external power supply, loss of coolant, etc. But stress tests are not a one-off exercise. Safety of nuclear power plants must be tested and ascertained on a continuous basis. This work should be conducted in an international format; joint efforts are required to improve the methods and criteria of stress-testing, and to exchange best practice. There must be total transparency in order to establish trust. That purpose can also be served by establishing international centers of expertise, which would participate in analyzing safety measures and provide support and assistance to nuclear operators if need be.

Another important area is providing assistance to newcomer countries that are only just beginning to adopt nuclear energy. There needs to be a set of clear requirements for countries that intend to develop nuclear energy. As a precondition for joining nuclear energy programs the newcomer countries must build the requisite infrastructure, introduce a licensing and safety supervision system, and build a comprehensive regulatory framework. Another important task these countries face is to train nuclear energy specialists.[9] Russia is now setting up an international center to train foreign specialists, including nuclear power plant operators. Efforts to improve NPP safety through technological innovation must be made on a continuous basis.

Hydrogen release is a common vulnerability of energy reactors that use water as coolant and contain zircon in fuel cladding. A release of hydrogen took place not only at Fukushima but also during the Three Mile Island and Chernobyl accidents. Hydrogen is a real and grave threat. Developing measures to prevent its release, or at least to ameliorate its consequences, is a problem the industry has faced for decades—but the recent disaster at Fukushima has served as another reminder that this problem requires an urgent solution. Other challenges that need to be addressed as a matter of priority are to improve the reliability of cooling systems and to prevent hydrogen detonation or combustion. In the medium time frame, the existing and future light water

reactors will require new types of fuel with better resilience to water vapor in emergency situations.

REGIONAL NUCLEAR ENERGY SYSTEMS

Access to cheap and reliable sources of energy, such as nuclear energy, is a critically important precondition of growth in the developing countries. More countries are expected to announce plans to launch nuclear energy programs or to add to their existing nuclear generation capacity. This raises the question of the role individual countries and whole regions can play in the global nuclear energy architecture.

Every country makes independent decisions regarding the structure of its nuclear energy sector. Some of the developing nations, such as China and India, have already made the decision; their nuclear programs include both the reactors and a more or less complete nuclear fuel cycle. But many other countries that have only just announced plans to adopt nuclear energy must decide which part of the nuclear technology complex they want to develop on a national level, and where to procure the rest of the services required by their nuclear energy industry. Developing and operating a complete nuclear fuel cycle on their own may prove too much of a burden for many individual countries. At present the trend towards international integration can be discerned, to greater or lesser extent, at every individual stage of the nuclear fuel cycle, starting from uranium mining. Only a relatively small number of countries have already mastered the complex technologies of enriching uranium, fabricating nuclear fuel, processing spent fuel, or producing mixed uranium–plutonium fuel. But new members continue to join the nuclear club. All of this, as well as concerns over the proliferation of fissile materials, calls for new solutions to the problem.

One of the most promising solutions is to set up large international NFC centers to help the developing countries in their quest for peaceful nuclear energy by addressing the problems of cost, safety, and proliferation risks. These centers could serve as nuclear fuel banks and production facilities; they could also store, process, and recycle spent nuclear fuel, offer actinides burnout services, lease out nuclear power plants, and even operate nuclear-powered hydrogen plants to supply hydrogen to various external customers.

As for the global NFC services system, it must be taken into account that various commercial and national interests are involved. The system in its current form consists of two separate industries, which correspond to two separate stages of the nuclear fuel cycle. The international market for the front end of the NFC is fairly mature; it includes uranium mining, conversion, and enrichment, as well as fabrication of nuclear fuel for various types of energy reactors. This industry has some spare production capacity at this time.

The tail end of the NFC is an entirely different matter. There is no proper market for services such as SNF processing and disposal, including radioactive waste disposal. The existing technologies in this segment date back to the 1950s and 1960s. The key problem is that the countries which have these technologies have no intention of leaving on their own territory the nuclear waste resulting from the processing of spent nuclear fuel received from other countries. The idea is that all nuclear waste should be returned to the country of origin of spent nuclear fuel. The economics of processing SNF and MOX fuel remain uncertain. It is clear, however, that global nuclear energy has no future without clear arrangements for the tail end of the NFC based on new technologies.

One team of researchers has assessed the prospects for regional nuclear energy systems.[10] It proceeded from the notion that by adding nuclear generation capacity the developing countries can close the gap with the rich world in terms of per capita electricity consumption. It analyzed a scenario whereby these countries achieve the per capita consumption figure of about 4,000 KWh per year, which the UN deems as a sufficient global average, only by building nuclear power plants. Under that scenario, new NFC facilities (enrichment, fuel fabrication, and SNF processing) are built only in those countries and regions that already operate such facilities (the United States, Western Europe, Russia, Japan, India, and China). Of course, various economic and political motives can lead to other scenarios. But the team's numerical assessment of the required new generation and NFC capacity, as well as of the flows of nuclear and radioactive materials, provides a preliminary basis for laying the organizational foundations and developing concepts of international NFC centers. Figure 1 shows one example of the assessment of key elements of an international nuclear fuel cycle.

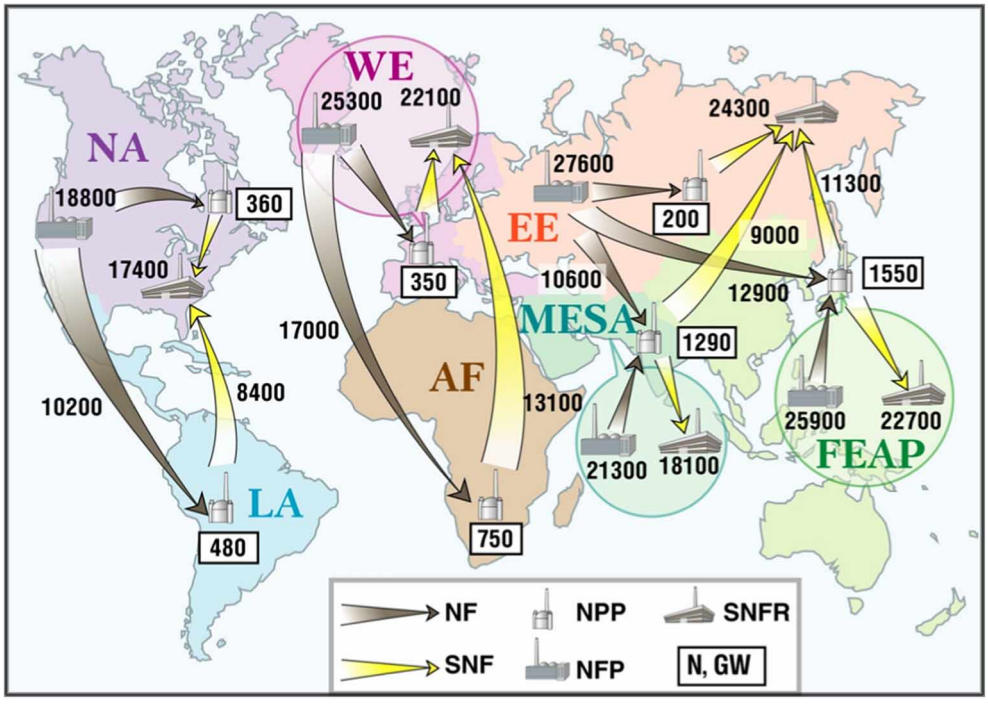

Figure 1. **Production and Trans-Regional Flows of Fresh and Irradiated Nuclear Fuel in 2100 (based on the ''*closing gap*'' model)**

Assessments summarized in Figure 1 suggest that the required scale of NFC operations (up to 100,000 tonnes a year) and transport flows (up to 50,000 tonnes a year) are at a technologically feasible level (for nuclear generation capacity of about 5,000 GWe).

It goes without saying that serious structural changes in the global nuclear energy sector can have an adverse impact on the level of nuclear and radiation safety, increase the availability of nuclear materials, and therefore exacerbate the risks of proliferation of nuclear technologies and materials.[11] New approaches and measures will have to be introduced to reduce those risks or, at the very least, keep them at their current level. Obviously, those measures must be applied in every area—political, institutional, and technological—of the nuclear safety, security, and nonproliferation regime.

MAINTAINING THE REGIME

Solutions to ensure safe and secure development of nuclear energy must involve governments, the state-owned sector, and the private sector. These solutions will need to take into account the often diverging interests of all parties, including governments, the general public, non-governmental organizations, and the private sector. Ways must be found to reconcile all these interests in order to remove the current and future obstacles to nuclear energy development.

The problems facing nuclear energy are being addressed by the international community at the level of international organizations and bilaterally. Russia is well aware of the importance of these objectives, and it is taking specific steps to achieve them. Based on the notion that uranium enrichment is one of the most proliferation-sensitive elements of the nuclear fuel cycle, Russia has launched the International Uranium Enrichment Center in Angarsk. The new approach is essentially a commercial offer based on the build–own–operate principle for NPPs in newcomer countries. That approach is the basis of the agreement between Russia and Turkey on the construction of a nuclear power plant in Akkuyu. In an effort to identify new solutions for sustainable global development of nuclear energy Russia is also participating in bilateral projects. As part of a joint project with the United States it is developing proposals for a new architecture in

the civilian nuclear energy sector and analyzing mutually complementary concepts of setting up international NFC centers and offering cradle-to-grave nuclear fuel services. This research will be coordinated with the IAEA and other international organizations to build upon these concepts and prepare them for a broader discussion.

The adoption of nuclear energy by countries that are not yet prepared to handle nuclear technologies in a way that ensures nuclear safety and minimizes proliferation risks can be facilitated by countries which already have the necessary experience. It will be necessary to develop the terms for supplying the required technologies that would ensure nuclear and radiation safety as well as minimize proliferation risks associated with nuclear facilities. These terms might be as follows:

- ❑ Exporters of nuclear power plants should also provide the full range of nuclear services (international nuclear fuel cycle centers, cradle-to-grave principle), including deliveries of fresh fuel, return of irradiated fuel, removal of radioactive waste from the NPP sites, and decommissioning.
- ❑ Nuclear technologies must be supplied only on the condition that they will be subject to international controls. This includes controls of all NPP and NFC facilities, including nuclear materials and radioactive waste in the exporter and recipient countries.
- ❑ Another compulsory condition of supplying nuclear technologies must be physical protection and continuous monitoring systems.
- ❑ Yet another condition must be the use of standardized, computerized accounting and control systems for nuclear and radioactive materials and radioactive waste, in combination with continuous remote monitoring and detection of all such materials.

All these issues must be addressed as part of an international effort. International cooperation is not limited to technology; it also includes developing a regulatory and organizational framework to define the conduct expected of all participants in the sustainable development of global civilian nuclear energy. It also includes monitoring compliance and ensuring that all participants have an adequate level of nuclear expertise and capability. Efforts must be made to develop various aspects of public–private partnership to achieve safe, secure, and sustainable development of nuclear energy in terms of the global NFC services and other components of the nuclear energy sector.

Much is already being done, and much has yet to be done to put in place the framework for the sustainable development of civilian nuclear energy, with adequate levels of nuclear and radiation safety, minimal environmental impact, and strong resilience to proliferation.

In order to make sure that nuclear energy can contribute to meeting the growing global energy demand, the following strategic objectives will have to be met.

First, uranium is a limited resource, so even a moderate, let alone an aggressive scenario for nuclear energy expansion will require a multi-component architecture of the nuclear energy system that relies on fuel breeding, a complete nuclear fuel cycle, thermal reactors, and fast reactors of various types. A key component of the global nuclear architecture with a complete nuclear fuel cycle is fast breeder reactors, which produce energy as well as fuel (Pu, U-233) and complete the nuclear fuel cycle for U, Pu, and minor actinides.

Second, in order to improve the reliability of recommendations on nuclear nonproliferation there needs to be an instrument that allows comparative numerical assessment of proliferation risks posed by various solutions. Based on numerical and qualitative analysis, the following anti-proliferation measures need to be developed:

- ❑ produce a concept of international NFC centers aimed at reducing the proliferation risks by internationalizing the most sensitive elements of the nuclear fuel cycle;
- ❑ introduce global remote monitoring of nuclear materials at every stage of declared nuclear activities;
- ❑ introduce a compulsory requirement for nuclear facilities supplied to customers to include computerized anti-proliferation systems (accounting and control, physical protection, etc.);
- ❑ regulate the spread of proliferation-sensitive nuclear know-how.

Third, massive structural changes in the global nuclear energy sector can have an adverse impact on nuclear and radiation safety, increase the availability of nuclear materials, and exacerbate the risk of proliferation of nuclear materials and technologies. We need to develop and discuss new approaches within the framework of the international nuclear safety regime formed on the basis of the Convention on Nuclear Safety and other agreements. Further efforts are required to strengthen the regime, using political, institutional, and technological measures. Continuous multilateral efforts need to be made to improve the safety of nuclear power plants by means of innovative technological solutions.

Fourth, there needs to be a clearer organizational and regulatory framework for relations between the supplier and the customer in the global nuclear energy infrastructure. We need to establish the requirements of energy consumers and the ability of energy suppliers to satisfy those requirements. Current projections envisage a sharp growth in demand for nuclear generation capacity in many countries around the world. There is also growing demand for small and medium-sized reactors in addition to the traditional large ones; for autonomous energy sources; and for various types of nuclear energy (i.e. other than electricity) for various applications. Every buyer of nuclear energy generation capacity will also require fuel supplies, SNF and radioactive waste management services, decommissioning services, and the training of specialists in areas such as nuclear engineering, management, control, and regulation. The suppliers must provide the entire range of services required by the customers; they must also bear the responsibility for and provide adequate guarantees of both quality and timeliness of these services.

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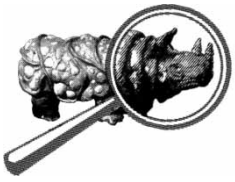

Eugene Miasnikov

PROSPECTS FOR U.S. AND RUSSIAN NUCLEAR CUTS IN VIEW OF NPT ARTICLE VI COMMITMENTS

The first Session of the Preparatory Committee of the 2015 NPT Review Conference will be held in Vienna on April 30–May 11, 2012. The agenda includes progress made by nuclear-weapon states on implementing the Action Plan contained in the Final Document of the 2010 NPT Review Conference.[1] The plan includes 64 individual actions in three sections:

- ❑ nuclear disarmament;
- ❑ nuclear nonproliferation;
- ❑ peaceful uses of nuclear energy.

It would therefore be interesting to discuss the conclusions published in October 2010 by experts of the Arms Control Association (ACA), an American NGO (see Table 1).[2] The ACA assessed the efforts being undertaken by countries which have acquired nuclear weapons and the so-called ''states of concern.'' There are 10 individual categories for each of the 11 countries (China, France, Russia, UK, the United States, India, Israel, Pakistan, North Korea, Iran, and Syria), with progress in each category graded from A (highest) to F (lowest). The authors of the methodology believe that the grades can be applied universally, although they have also tried to take into account the individual capacity of each individual country to contribute to nuclear disarmament in each category. Based on these grades the authors then assessed the overall contribution of each country.

The methodology has some clear drawbacks, but overall this piece of research provides a fairly accurate reflection of the international community's views and expectations with regard to the efforts being undertaken by the key countries to strengthen the nuclear nonproliferation regime. The average grade given to the official nuclear-weapon states, as a measure of their compliance with their commitments, is B. It suggests that these states are making greater efforts in the area of nuclear disarmament than the countries which remain outside the NPT, as well as the states of concern. Russia, however, earned a lower-than-average B-grade (as did China), which calls for an analysis of the reasons for such a situation.

This article discusses specific steps which could be undertaken in addition to Actions 3–6 of the action plan (see Annex 1), which apply to nuclear-weapon states. The 2010 NPT Review Conference called on the states which possess the largest nuclear arsenals to play the leading role in implementing the Action Plan.[3] The purpose of this article is therefore to look at the possible steps Russia and the United States could undertake in the near time frame in order to demonstrate their commitment to Article VI of the NPT.

Of course, both countries are already pursuing a broad range of efforts in line with their NPT commitments. These efforts are by no means limited to nuclear reductions, and this is clearly illustrated by the already mentioned ACA research. Nevertheless, the entry into force of the New START treaty and the beginning of its implementation (Action 4) undoubtedly represent the biggest achievement of 2011. Russian and American officials invariably emphasize this in their public pronouncements.[4]

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Table 1. **Assessment of Efforts Being Undertaken to Strengthen the NPT Regime**

	Nuclear-Weapon States					Non-NPT States			States of concern		
Standard	**China**	**France**	**Russia**	**UK**	**U.S.**	**India**	**Israel**	**Pakistan**	**DPRK**	**Iran**	**Syria**
Banning nuclear testing	B	A	A	A	B	D+	C	D+	F	B−	C
Ending fissile material production for weapons	B	A	A	A	A	F	F	F	F		
Reducing nuclear weapons alert levels	A	B	C	B	C	A	D+	A	D		
Nuclear force reductions	F	C+	B−	D+	B−	F	D	F	F		
Negative security assurances	B+	C	C	C	B	B+	D+	B	F		
Nuclear-weapon-free zones	B	B	C	B	C	C−	C−	C−	F	C−	C
IAEA safeguards						C+	C	C	F	F	F
Nuclear weapons-related export controls	C−	A	C	A	A	A−	A	F	F	F	F
Multilateral nuclear security commitments	B	B+	A−	A	B+	A	B	A*	D	D+	D+
Criminalization and illicit trafficking commitments	B+	B+	A	A	B+	A	B+	B	D	C	D+
Overall grade	**B−**	**B**	**B−**	**B**	**B**	**C+**	**C−**	**C−**	**F**	**D**	**D**

*This assessment does not take into account steps Pakistan has taken to address risks related to its internal political instability and the security of its nuclear arsenal, facilities, and material.

Source: Peter Grail and ACA Research Staff, ''Assessing Progress on Nuclear Nonproliferation and Disarmament,'' 2010.

The return to the framework of verifiable nuclear reductions which existed when the previous START treaty was still in force is clearly a major achievement; its significance is difficult to overestimate. But there are also some circumstances which are not entirely in line with the Action Plan adopted by the 2010 Review Conference.

To begin with, the Action Plan calls on the nuclear-weapon states ''further [to] enhance transparency.''[5] Unfortunately, it must be recognized that the level of transparency of the American and Russian nuclear forces has actually gone down compared with the situation when the previous START treaty was in force. Both sides exchange detailed information about the state of their strategic offensive arsenals twice a year—but that information is confidential, and only a brief summary of it is released to the general public.[6] It is very difficult to assess the progress being made by both countries in reducing their nuclear arsenals based on these short summaries. What is worse, this state of affairs can even create a misleading impression that the arsenals are actually being ramped up rather than reduced, even though the Action Plan calls on the parties to commit to the principle of irreversibility in relation to the implementation of their treaty obligations (Action 2).

During a briefing at the UN about progress being made in implementing the New START treaty the two sides unveiled aggregate numerical data concerning their strategic nuclear arsenals, accurate as of September 1, 2011.[7] If one compares these figures with the numbers released on February 1, 2011,[8] when the treaty entered into force (see Table 2), it becomes obvious that the number of deployed Russian nuclear warheads has gone up by 29, and the number of deployed and non-deployed delivery systems has increased by six. That has already caused a lot of raised eyebrows among our foreign colleagues,[9] and the Russian delegation will surely face many questions at the upcoming session of the Preparatory Committee. These questions could have been avoided had Russia made available to the general public a more detailed set of data, such as those that were released under the previous START treaty. It is hard to accept that this information is sensitive enough to warrant the current secrecy.

There is also another worrying development that has to do with the principle of irreversibility. The United States and Russia both have far-reaching plans for the modernization of their strategic arsenals. Washington intends to replace 12 strategic nuclear submarines at some point in the future, and to deploy new types of strategic bombers and ICBMs; these programs will cost an estimated $400 billion.[10] Russia has similar plans, although they will probably cost less than America's. But whereas Washington's plans are so far a matter of a fairly distant future, foreign experts believe that Moscow is already implementing its own programs at a rapid pace. Reportedly, Russia is now developing no fewer than five new strategic ICBMs and SLBMs, including the Yars; the Bulava; the Liner; an unknown new type of ICBM which was test-launched at Plesetsk in late September;[11] and a future liquid-fuel heavy ICBM. In the United States all these developments are cited to justify the need for further financing to speed up the modernization of strategic offensive weapons.[12] It is hard to say why exactly some Western specialists have formed such an opinion. It could be because of the deficit of official information regarding Russia's strategic offensive weapons modernization programs. Another possible reason is Russia's rhetoric in response to the deployment of missile defense in Europe. Nevertheless, that is the state of affairs we now have to face, and it hardly strengthens America's and Russia's positions at the upcoming NPT Review Conference.

The Action Plan adopted by the 2010 Review Conference requires Russia and the United States not only to seek the early entry into force of the New START treaty, but also to continue discussions on follow-on measures in order to achieve deeper reductions of their nuclear arsenals (Action 4). The Plan also outlines a commitment by the nuclear-weapon states ''to undertake

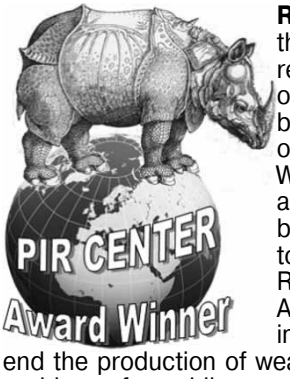
Table 2. **The U.S. and Russian Strategic Nuclear Arsenals**

	USA		Russia	
	Feb. 5 2011	Sep. 1 2011	Feb. 5 2011	Sep. 1 2011
Deployed ICBMs, SLBMs, and HBs	882	822	521	516
Deployed warheads	1,800	1,790	1,537	1,566
Deployed and non-deployed ICBMs, SLBMs, and HBs	1,124	1,043	865	871

further efforts to reduce and ultimately eliminate all types of nuclear weapons, deployed and non-deployed, including through unilateral, bilateral, regional and multilateral measures'' (Action 3) and to ''address the question of all nuclear weapons regardless of their type or their location as an integral part of the general nuclear disarmament process'' (Action 5b).

It has now been a full year since the two sides outlined their preliminary positions on further nuclear reductions. The ratification resolution of the U.S. Senate includes a paragraph under which the U.S. administration is to initiate, not later than one year after the entry into force of the New START treaty, negotiations with Russia on verifiable reductions of non-strategic (tactical) nuclear weapons.[13] U.S. officials have already made attempts to begin consultations with Russia on this issue.[14] The Russian side is not refusing to discuss the problem—but it sets forward a number of preconditions. Speaking at a plenary session of the Conference on Disarmament in Geneva, Russian Foreign Minister Sergey Lavrov said that Russia insists on ''taking into account several other factors which have a negative impact on strategic stability, such as plans for placing weapons in outer space, creating strategic offensive weapons with non-nuclear warheads, and deploying a unilateral system of global missile defense.'' ''Neither can we ignore the significant imbalances in conventional weapons, especially against the backdrop of dangerous conflict situations which remain unresolved in many parts of the world,'' the minister added. ''The same factors and their interplay must be taken into account in any discussion about the prospects for tactical nuclear weapons reductions,'' Lavrov said. Russia continues to believe that the first step in resolving this problem should be the removal of tactical weapons stationed abroad to national territory, and the dismantlement of the attendant nuclear weapons infrastructure on foreign territory.[15]

LEAFING THROUGH THE OLD PAGES



ROLAND TIMERBAEV: Can we count on the NPT being extended indefinitely? How realistic is that goal, which Russia and many other countries have set themselves? I believe that this extremely important objective can in fact be achieved. <... > What is needed for that to happen? First of all, it will require the completion of talks on banning nuclear weapons tests. This needs to be done before the start of the 1995 Review Conference, if at all possible. <... > Another important task, as part of implementing Article VI of the NPT, is to end the production of weapons-usable fissile materials. <... > The problem of providing security guarantees to non-nuclear weapon states came up back in the mid-1960s during the NPT talks. The commitment must be simple and unambiguous: nuclear weapon states must pledge not to use nuclear weapons against those countries which have undertaken - and are in compliance of - their obligation not to acquire nuclear weapons or any other explosive nuclear devices.

''NPT: the Treaty Must Endure, for Russia and the Whole World''
Yaderny Kontrol **(Russian Edition), 1995, No 1, P. 5.**

It is therefore becoming increasingly obvious that if the two sides begin to negotiate the next round of nuclear cuts the list of questions being discussed will not be limited to strategic offensive weapons. There will be other important issues on the table: first and foremost, missile defense, non-strategic nuclear weapons (NSNW), and strategic weapons with non-nuclear warheads.[16] Missile defense is the most important of the three. Any progress on this issue would facilitate the resolution of the other two. Conversely, without progress on missile defense there can be no dialogue on NSNW, strategic offensive weapons with non-nuclear warheads, or further strategic nuclear reductions.

Although consultations on missile defense continue, no discernible progress has been made, which is very unfortunate. Russia wants the United States to provide legally binding guarantees that the missile defense system now being deployed in Europe will not be directed against Russia.[17] Washington says it is willing to provide verbal and written assurances, but it stops short of any legally binding guarantees.[18] Given the current situation in domestic American politics it is

very difficult to see how the incumbent administration could issue such guarantees even if it wanted to.

It is possible that the missile defense problem can be resolved if, instead of trying to achieve their conflicting and very ambitious goals in one fell swoop, the two sides try to identify one specific technical task (even a small one) on which they could pursue practical cooperation. The United States and the Soviet Union had a long history of rivalry in space exploration. But even during the Cold War, back in the mid-1970s, they launched a small but very practical technical project, the ASTP (Apollo-Soyuz Test Project). It is largely thanks to that project that cooperation in manned space exploration between our two countries has now become so close and productive that Russia and the United States are indispensible to each other in this area. The two sides would do well to find something equivalent to the ASTP in missile defense—a small project that would not pose any risks to either side and could serve as a starting point.

LEAFING THROUGH THE OLD PAGES

SERGEY KORTUNOV: The best nuclear strategy for Russia at this moment would we non-aggressive, non-offensive and non-provocative (let us even say, friendly) but credible deterrence, aimed not just towards the U.S. but in all directions. That would be the Russian version of the classic French Gaullist doctrine of dissuasion, which is an alternative to the U.S. doctrine of deterrence though intimidation. Politically, effective dissuasion against the United States will not require Russia to maintain military-strategic parity in terms of the quality, quantity or military capability of its nuclear forces. Basic logic and common sense dictate that even if America were to acquire a massive superiority in nuclear weapons in the foreseeable future - provided of course that Russia retains a guaranteed capability to deliver a retaliatory strike - such a turn of events would not end the state of nuclear interdependence in the relations between the two countries. In other words, the prospect of exchanging nuclear strikes would still remain equally unacceptable to both sides.

''The Future of Nuclear Disarmament''
***Yaderny Kontrol* (Russian Edition),**
1996, No 17, P. 10.

If Russia and the United States manage to find a way of addressing the missile defense problem they will be able to launch substantive dialogue on non-strategic nuclear weapons.[19] One realistic option would be to undertake coordinated unilateral initiatives on nuclear weapons. Such initiatives would primarily involve the adoption and further enhancement of trilateral transparency measures (Russia, the United States, and NATO). In parallel with the implementation of these initiatives Russian and American specialists could work together on developing technical verification means and procedures for monitoring their nuclear warheads inventories.

It is also important to start discussing the problem of strategic non-nuclear weapons.[20] To begin with, Russia needs clearly to articulate which kinds of weapons with non-nuclear warheads, apart from ICBMs and SLBMs, it regards as strategic non-nuclear weapons. It remains unclear whether Moscow's definition of such weapons includes heavy bombers (HB), air-launched cruise missiles (ALCM), or sea-launched cruise missiles (SLCM). Russian generals believe that because these weapons can be deployed covertly and their time to target is relatively short, they also represent a substantial factor of instability. Neither is it clear whether Russia will insist on including in the negotiations some destabilizing non-nuclear high-precision weapons which are not covered by any control mechanisms. For example, should there be any restrictions on stationing bombers on the territory of new NATO members based on the notion that, with their short time-to-target, these bombers can threaten strategic Russian facilities when armed with high-precision weapons? Russia may also propose to restrict the patrol areas of cruise missile submarines so as to prevent the deployment of a large part of the American submarine fleet close to Russian territory.

Mutual understanding between Russia and the United States in their search for comprehensive solutions to all the aforementioned problems will be impossible to achieve unless both sides take each other's security concerns seriously. On the other hand, by taking these concerns into account and making progress on all the issues outlined above the two sides can build mutual trust and lay the foundations for another round of nuclear reductions, thereby strengthening the NPT regime. Such an approach would also help Moscow and Washington to leave in the past the

strategy of mutual nuclear deterrence, which continues to dominate bilateral relations despite proclamations about the end of the Cold War and the Reset policy.

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ANNEX 1. **EXCERPTS FROM THE FINAL DOCUMENT OF THE 2010 NPT REVIEW CONFERENCE**

Volume 1. Part I. Conclusions and recommendations for follow-on actions

I. Nuclear Disarmament

B. Disarmament of nuclear weapons

[...]

Action 3: In implementing the unequivocal undertaking by the nuclear-weapon States to accomplish the total elimination of their nuclear arsenals, the nuclear weapon States commit to undertake further efforts to reduce and ultimately eliminate all types of nuclear weapons, deployed and non-deployed, including through unilateral, bilateral, regional and multilateral measures.

Action 4: The Russian Federation and the United States of America commit to seek the early entry into force and full implementation of the Treaty on Measures for the Further Reduction and Limitation of Strategic Offensive Arms and are encouraged to continue discussions on follow-on measures in order to achieve deeper reductions in their nuclear arsenals.

Action 5: The nuclear-weapon States commit to accelerate concrete progress on the steps leading to nuclear disarmament, contained in the Final Document of the 2000 Review Conference, in a way that promotes international stability, peace and undiminished and increased security. To that end, they are called upon to promptly engage with a view to, inter alia:

a. Rapidly moving towards an overall reduction in the global stockpile of all types of nuclear weapons, as identified in action 3;

b. Address the question of all nuclear weapons regardless of their type or their location as an integral part of the general nuclear disarmament process;

c. To further diminish the role and significance of nuclear weapons in all military and security concepts, doctrines and policies;

d. Discuss policies that could prevent the use of nuclear weapons and eventually lead to their elimination, lessen the danger of nuclear war and contribute to the non-proliferation and disarmament of nuclear weapons;

e. Consider the legitimate interest of non-nuclear-weapon States in further reducing the operational status of nuclear weapons systems in ways that promote international stability and security;

f. Reduce the risk of accidental use of nuclear weapons; and

g. Further enhance transparency and increase mutual confidence.

Nuclear-weapon States are called upon to report the above undertakings to the Preparatory Committee at 2014. The 2015 Review Conference will take stock and consider the next steps for the full implementation of article VI.

Action 6: All States agree that the Conference on Disarmament should immediately establish a subsidiary body to deal with nuclear disarmament, within the context of an agreed, comprehensive and balanced programme of work.

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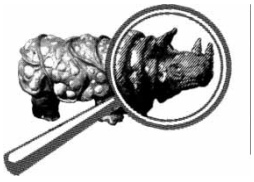

Alexander Kolbin[1]

CHINA AND NUCLEAR DISARMAMENT: IS REDUCTION OF CHINESE STRATEGIC NUCLEAR WEAPONS A POSSIBILITY?

Since the 2008 article by the Four Wise Men calling for a resurrection of the idea of *nuclear zero*[2] there has been a renaissance of many aspects of disarmament. For a variety of reasons many of them fell by the wayside in the early 2000s. But in the spring of 2009 Barak Obama became the first U.S. president to make *nuclear zero* part of the official discourse of American foreign policy. In April 2010 the United States hosted the first Nuclear Security Summit. The United States and Russia then signed the New START treaty in Prague, which entered into force in February 2011. Moreover, the 2010 NPT Review Conference produced the Action Plan on nuclear disarmament and nonproliferation.

The period from 2012 to 2020 could become even more important for nuclear disarmament than the previous decade. There will be two more NPT review conferences. The 2012 schedule includes another Nuclear Security Summit in South Korea, and a conference on setting up a WMD-free zone in the Middle East. By 2020 the United States is expected to complete all three phases of the deployment of the European segment of its global missile defense system[3]. In 2018 it will launch full-scale deployment of the advanced SM-3 Block IIA interceptors in the Asia Pacific segment of the system.[4] Finally, it is quite likely that the implementation of the New START treaty will be completed by the end of this decade, and, as Russian Foreign Minister Sergey Lavrov put it, the time will come for ''further talks on strengthening international stability and strategic parity.''[5]

Amid all these changes China, which has not made any significant changes to its nuclear strategy for the past 40 years, may find itself in a difficult situation. China has made substantial progress in every single area of national development; it has achieved steady economic growth, rapidly advanced its research and technological capability, and modernized its army. Many researchers have therefore come to view China as the only power that could conceivably challenge the supremacy of the United States over the coming decade. But China's impressive growth also presents many challenges to the country itself.[6] One of these challenges is adapting China's nuclear strategy to its breakneck growth and to the emergence of the new strategic environment, which the country will inevitably have to deal with by the end of this decade.

As part of the new nuclear disarmament agenda, in recent years China has been facing growing calls to engage more actively and constructively in the process of achieving a world free of nuclear weapons. But is Beijing ready for this? And will it be ready any time soon? This paper will focus on discussing the most dangerous challenges China's nuclear strategy may have to face in the period between 2012 and 2020. It will also consider the likelihood of progress towards a reduction of China's strategic nuclear arsenal over this decade.

CHINA'S 2010 NATIONAL DEFENSE WHITE PAPER

In March 2011 China announced a new edition of its National Defense White Paper to give the international community a better idea of its defense strategy. The first edition of this document was published in 1995. Starting from 1998 fresh editions have been published bi-annually. Experts who study China's nuclear policy have to parse each new edition for minute changes in

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the text.[7] One major difficulty for analysts is comparing the translations of these terms from Chinese into English to make sure that they are consistent. Another common difficulty frequently pointed out by experts on China's nuclear policy is its lack of transparency; there is not enough Chinese-language information available on the subject, making the task of accurate and reliable analysis of China's nuclear strategy very difficult.[8]

The Nuclear Disarmament section of the White Paper says that China has always advocated a universal ban on nuclear weapons and elimination of the existing arsenals. It stresses that the countries that possess the largest stockpiles of nuclear weapons bear special responsibility for nuclear disarmament. Beijing argues that these countries must significantly reduce their arsenals to make complete and universal nuclear disarmament possible. Once these conditions are in place the other nuclear powers must join multilateral talks on nuclear disarmament. Also, in order to achieve the goal of universal nuclear disarmament, ''the international community should develop, at an appropriate time, a viable, long-term plan with different phases, including the conclusion of a convention on the complete prohibition of nuclear weapons.''[9]

Given such a statement it is hard to imagine preconditions that would be more difficult to satisfy, thereby enabling China not to engage in nuclear disarmament for as long as it wishes. But that is not all. China also argues that in order to make a universal and complete prohibition of nuclear weapons possible, all the nations which possess nuclear weapons must refuse their policies of nuclear deterrence based on the possibility of first use of nuclear weapons. In other words, these nations must undertake a commitment ''that under no circumstances will they use or threaten to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones, and negotiate an international legal instrument in this regard.''[10]

As for Beijing's own nuclear strategy, the White Paper insists that China has never tried to evade its obligations in the field of nuclear disarmament, and that the country is following a transparent and responsible nuclear policy. In addition, China abides by its commitment of no first use of nuclear weapons, whatever the circumstances. It has never deployed nuclear weapons on foreign territory, and it has always exercised the utmost restraint in the development of nuclear weapons. It has never participated in any form of nuclear arms race, nor will it ever do so. It will limit its nuclear capabilities to the minimum level required for national security, and it will support the efforts of non-nuclear-weapon states in establishing nuclear-weapon-free zones.

Another paragraph in the White Paper outlines China's stance on missile defense. Beijing believes that a global missile defense system would be detrimental to the international strategic balance and stability, undermine international and regional security, and have a negative impact on nuclear disarmament. ''China holds that no state should deploy overseas missile defense systems that have strategic missile defense capabilities or potential, or engage in any such international collaboration,'' the document reads.[11]

This position was repeated almost literally in an official statement made by China during the 2010 NPT Review Conference.[12] Indeed, China has been voicing most of these arguments (except for the objections against the deployment of a global missile defense system) ever since it acquired nuclear weapons back in 1964.[13] To summarize Beijing's official position, the main obstacles preventing China from joining the nuclear disarmament process are as follows:

- The nuclear weapon states have not yet undertaken an obligation of no first use of nuclear weapons and to reflect this obligation in a multilateral agreement.[14]
- The United States and its allies are pressing ahead with the deployment of a global missile defense system.
- The United States and Russia, as part of their bilateral nuclear disarmament, have not yet reduced their arsenals to a level low enough to enable China to join a multilateral nuclear disarmament process.

These are the most obvious obstacles, which China has been highlighting for several decades now. But there are other problems as well. They are less obvious, but no less important for that. These problems are preventing China from joining the nuclear disarmament process, and some of them may be intensified depending on the political course chosen by the United States (on issues such as placing weapons in space[15] or recognizing Taiwan's independence), on the state of relations in the China–Pakistan–India triangle, and on the situation in North Korea. Also, in recent

years experts have started to mention possible joint Russian–U.S. efforts among the factors that could facilitate China's engagement in nuclear disarmament.[16]

NO FIRST USE OBLIGATION AND ITS STRATEGIC ROLE

China undertook the obligation ''never at any time or under any circumstances [to] be the first to use nuclear weapons'' on October 16, 1964, the day it tested its first nuclear device.[17] On October 17, 1964 it proposed an international summit to discuss the possibility of introducing a comprehensive ban on nuclear weapons and eliminating all the existing nuclear arsenals.

Any country that has undertaken the commitment of no first use of nuclear weapons should develop its nuclear forces based on the concept of a second (retaliatory) strike[18]—or, as the White Paper puts it, the strategy of ''attacking only after being attacked.''[19] The main objective of such a country's nuclear policy is to make sure that its nuclear forces can deliver a retaliatory strike. In the case of China, and taking into account its no-first-use commitment, this requires constant efforts to improve the survivability of its nuclear deterrent.

What, then, are the ways of increasing survivability? First, the country has to keep secret numbers and performance characteristics of its nuclear arsenal, as well as any plans for improving those characteristics. Second, it has to increase the mobility of its delivery systems. Third, it must make those delivery systems as hard as possible to detect. Fourth, it should place some of its nuclear weapons in well-protected underground silos which cannot be penetrated even by the most advanced weaponry.[20] Fifth, it must gradually increase the numbers of the delivery systems. Sixth, it has to develop a reliable command-and-control system for its nuclear arsenal; most of the elements of such a system should be placed either in space or in highly protected facilities. Finally, such a country should always be prepared for any strategic surprises. At this time these surprises include the possibility of the adversary rapidly improving its missile defense capabilities, placing weapons in space, and building up the capability of its non-nuclear high-precision weapons.

When China's nuclear doctrine was being formed the no-first-use commitment could be interpreted primarily as a political propaganda instrument; in the early stages the structure of the Chinese nuclear deterrent made it impossible to implement such a commitment in practice. However, later on that commitment started to gain real substance, although the process is still far from complete.[21]

Several researchers have identified three stages in the evolution of China's nuclear deterrence strategy.[22]

In the first stage China pursued the policy of so-called existential deterrence (*cunzaixing weishe*).[23] At that point China had already acquired nuclear weapons but possessed no effective delivery systems and no real capability to deliver a retaliatory strike. In the event of a crisis it could use its nuclear weapons only against targets close to its own borders. Such a situation remained essentially unchanged until at least 1982, when the first Chinese silo-based liquid-fuel intercontinental ballistic missile, the Dongfeng-5 (DF-5), entered service. Until that moment China's main delivery systems were the Hong-6 (H-6) strategic bomber, which was a copy of the Tu-16 made under Soviet license in China, and a family of intermediate-range liquid-fuel ballistic missiles (DF-1, DF-2, DF-3 and DF-4), regarded as the first generation of Chinese missiles.[24]

The second stage in the evolution of China's nuclear deterrence strategy came in the late 1970s–early 1980s, when China developed its first ICBM. That made it possible for Beijing to adopt the concept of minimal deterrence (*zuidi weishe*).[25] At that stage China already had the capability to deliver a retaliatory strike. It possessed ICBMs and intermediate-range ballistic missiles (IRBMs); any potential adversary therefore had to take into account that if some of those missiles were to survive the first strike Beijing would be able to use them to inflict unacceptable damage on the aggressor.

The beginning of the implementation of the second stage can be traced back to 1978, when the Chinese leadership first spoke of the need for ''a second generation of mobile missiles whose location can be kept secret and which would have a short time-to-launch.''[26] That objective required the deployment of mobile ground-based transporter-launchers, the development of nuclear-powered submarines armed with SLBMs, and an upgrade program for strategic bombers. The Chinese leadership also made the decision to use only solid fuel technology for

its future missiles (a resolution to that effect was adopted in 1983). Also, the country's missile industry launched an effort to standardize the components of its ground- and sea-based ICBMs and IRBMs.[27]

Speaking of China's transition to solid-fuel rocket technology in the early 1980s it has to be said that according to the results of comparative analysis of solid- and liquid-fuel technology (conducted more than once by various groups of specialists), each technology has its pluses and minuses. The key advantage of liquid-fuel rockets is their better energy characteristics. It means that liquid-fuel rockets can deliver more warheads to penetrate the adversary's missile defenses.[28] The disadvantage of liquid-fuel missiles is that they require complex and expensive fuelling equipment. The liquid fuel itself is a highly toxic substance which poses great danger to the people and equipment coming into contact with it.[29]

The key advantage of solid-fuel missiles is that they can be prepared for launch much quicker. Also, their launch itself is much less noisy, which is very important for nuclear missile submarines. Another advantage is that using solid-fuel missiles ''eliminates the need for nuclear missile submarines to be equipped with a whole number of complex systems, including gas analysis, irrigation and fuel drainage systems which are needed in case one of the missiles starts to leak fuel.''[30] Finally, the boost phase of solid-fuel missiles' trajectory is much shorter compared with liquid fuel technology (by a factor of 2 to 4), which translates into their greater ability to evade the adversary's missile defenses.[31]

China's decision to use only solid-fuel technology was seen as a signal of Beijing's intention to pursue a greater retaliatory strike capability of its nuclear forces by means of increasing the mobility of its ground-based ICBMs, making the future naval component of its nuclear triad harder to detect, and reducing the time to launch in the event of a nuclear conflict. On the whole the transition to solid-fuel technology gave China greater ability to comply with its no-first-use commitment.

As part of the second stage in the late 1980s–early 1990s China began the deployment of its first ground-based mobile solid-fuel IRBM, the DF-21, which entered service in 1991.[32] In 1988 the Chinese Navy took delivery of its first nuclear missile submarine, a Project 092 (Xia class) boat equipped with 12 vertical launchers capable of carrying Julang-1 (JL-1) SLBMs. But that sub was inferior in many ways to similar Western submarines, so it remained an experimental unit. It has never been on combat duty or left the inner Chinese waters.[33] Nevertheless, by the early 1990s the Xia and several other R&D projects had given China a solid foundation to develop the classic nuclear triad consisting of land, sea, and air components. The R&D focus during the second stage in the development of the Chinese nuclear arsenal was on mobile solid-fuel ground-based and sea-based missiles and on standardization of design and engineering solutions.

The third stage began in the mid-1990s and continues to this day. It is based on the concept of guaranteed minimal deterrence (*zuidi kexin weishe*).[34] In practice this means that China is now trying to make its retaliatory strike capability more reliable. To that end Beijing is increasing the proportion of mobile delivery means and systems whose location can be kept secret. It is increasing the size of its nuclear arsenal at a very moderate pace, while at the same time building up its performance characteristics very rapidly. R&D projects launched during the second stage are now entering service with the Chinese nuclear forces. China has also begun to develop new types of delivery systems and is pursuing extensive upgrade projects.

One of these new R&D projects is the JL-2, a new SLMB with improved flight performance and increased range. In 2000 an upgraded version of the DF-11 tactical missile, the DF-11A (increased range) entered service with the Chinese army. Also in 2000 China launched mass production of a modified DF-15 short-range ballistic missile, the DF-15A, with greater range and an ability to maneuver at the final stage of the trajectory. In 2002 it started to replace the already deployed DF-21 missiles with the DF-21A modification (greater range). In 2003 the DF-31 ground-based mobile ICBM entered service, significantly reducing the strategic missile technology gap between China and the two leading nuclear powers, Russia and the United States. A further modification of the missile, the DF-31A, entered service only three years later, in 2006.[35] Table 1 shows the status of China's nuclear arsenal in 2010.

During the same decade China also made great progress in improving the capability of the naval component of its strategic nuclear forces. According to some sources it also made efforts to upgrade the aviation component by equipping several H-6 and H-6M bombers with the new Changjian-20 (CJ-20) air-to-surface tactical cruise missiles capable of delivering tactical nuclear

Table 1. **China's Nuclear Arsenal in 2010**

Type of delivery system (NATO designation)	Number of deployed delivery systems	Range (km)	Number of warheads carried and yield	First deployed	Number of deployed warheads
Strategic delivery systems					**~180**
DF-4 (CSS-3)—liquid-fuel two-stage IRBM, mobile and silo-based	15–20	5.400	1 × 3.3 Mt	1980	~20
DF-5A (CSS-4 Mod 2)—liquid-fuel ICBM, silo-based	~20	13.000+	14–5 Mt	1981	~20
DF-21 (CSS-5) and modifications*—mobile solid-fuel IRBM (regional deterrence)	85–95	1.750+	1 × 200–300 kt	1991	~95
DF-31 (CSS-9)—mobile solid-fuel three-stage ICBM	10+	7.200+	1 × 200–300 kt	2003	~10
DF-31A (CSS-9 Mod 2)—mobile solid-fuel ICBM	10–15	11.200+	1 × 200–300 kt	2008-2010	~15
JL-1 (CSS-N-3)—SLBM (1 Xia Class nuclear missile sub, not fully deployed)	(12)[i]	1.770+	1 × 25–50 kt	1986	(12)
JL-2 (CSS-NX-5)—SLBM (up to 5 Jin Class nuclear missile subs at various stages of assembly or deployment)	(60)	7.200+	1 × 100 kt[ii]	2012[iii]	(60)
H-6 (and modifications)—bomber**	~82	3.100+	Up to 3 B-5 bombs × 2 Mt	1965	~20
Non-strategic delivery systems[iv]					**?**
Qiang-5 (and modifications)—fighter-bomber***	~120	Up to 400	1 bomb × 5–20 kt	1972	?
CJ-10 (DH-10)—surface-to-surface cruise missile	45–55	1.500+	1 × ?	2007	?
DF-15 (CSS-6)—SRBM****	90–110	600	1 × ?	1995	?
DF-11A (CSS-7)—tactical missile	120–140	300–450	1 × ?	2000	?

Notes: *This table also takes into account modified delivery systems capable of carrying both nuclear and conventional warheads.
**Several modifications of this bomber have been developed in China, but all of them were very similar to the Tu-16. Production ended in 1994. The project to develop a new bomber, which was launched quite a while ago, is still stuck at the engineering design stage.
***This fighter-bomber is a deeply upgraded version of the MiG-19, which China used to assembly under Soviet license (designated as the J-6). Mass production of the Q-5 fighter-bomber began in the 1970s. Following the acquisition of tactical nuclear weapons Beijing also launched a project to develop a modification of the Q-5 capable of carrying nuclear bombs with an estimated yield of 5–20 kt. The aircraft, which is still in production, has undergone several waves of upgrades. The new Q-7 fighter-bomber is being developed to replace the Q-5, but for now there is no information as to whether it will be used as a delivery system for nuclear weapons.
****The Second Artillery Force includes at least five active SRBM brigades. Another two brigades are serving with the Army; one is stationed in Nanjing Military District, another in Guangzhou Military District. All the Chinese SRBMs are deployed in the immediate vicinity of the Taiwan Strait.
[i]Most experts believe that the *JL-1* and *JL-2* SLBMs have not yet become fully operational. The Navy section of China's National Defense 2008 White Book (P. 32) claims that ''the Chinese Navy has several nuclear missile submarines''. In this table the nuclear warheads and delivery systems presumably carried by the Chinese nuclear missile submarines are not counted towards the overall tally of nuclear warheads and delivery systems.
[ii]Several open sources claim that the new *JL-2* SLBMs can be armed with MIRVed head sections with 3 or 4 warheads.
[iii]According to some reports tests of the missile are in progress.
[iv]Information about China's non-strategic nuclear weapons is limited and contradictory. Non-strategic nuclear weapons are in service with the Second Artillery Force, the Army and frontline (tactical) aviation.

warheads.[36] In December 2002 China launched the first Project 093 (Shang class) nuclear-powered submarine, which is based on the Russian Project 671RTM design. The sub entered service in late 2006. The Shang class was then used as a starting point to develop the Project 094 (Jin class) sub. Its only difference from Project 093 is a 30-meter long missile compartment with 12 vertical launchers for the JL-2 SLBMs. Project 094 is believed to be much superior to the older Project 092 (Xia class). It has a better nuclear power plant, more capable missiles and electronics, and is less noisy compared with its predecessors. The three-stage solid-fuel JL-2 SLBM shares many components with the DF-31 ICBM and can carry a single nuclear warhead with a yield of up to 1,000 kt. According to some sources China is now developing a MIRVed head section for this SLBM (three 100 kt warheads).[37] The first test launches of the JL-2 were held in July 2004, but they were largely unsuccessful, and the current operational state of that SLBM is unclear.[38]

As of early 2011 China's nuclear forces included land-based, sea-based, and air-based components, with both strategic and non-strategic delivery systems (see Table 1). After comparing data from various open sources it can be said with a fair degree of confidence that the Chinese nuclear arsenal now includes about 240 strategic delivery systems and about 375 non-strategic systems.[39] The overall number of Chinese warheads (deployed and in storage) that can be mounted on strategic delivery systems is about 260.[40]

In the future China is likely to continue its efforts aimed at improving its guaranteed minimal deterrence capability by means of further increasing the proportion of mobile and hidden delivery systems in its nuclear arsenal. The quantitative size of the Chinese strategic nuclear forces is likely to continue its moderate growth. Beijing will probably continue to develop new delivery systems and upgrade the existing ones. In any event experts believe that at present China does not yet have adequate nuclear capability to underpin its no-first-use obligation to the full extent and without damage to the implementation of the country's nuclear strategy.

IMPACT OF THE U.S. MISSILE DEFENSE SYSTEM

In 1972 the Soviet Union and the United States signed the Treaty on the Limitation of Anti-Ballistic Missile Systems. The treaty was based on the recognition of the fact that ABM systems can undermine strategic stability if they protect a country's territory from a massive nuclear strike by intercepting a large proportion of attacking missiles and warheads. If, on the other hand, ABM systems protect only ICBM, SLBM, and strategic aviation bases and the upper tiers of command-and-control systems they can strengthen strategic stability.[41] That is why Washington's decision to withdraw from the ABM Treaty in 2002 and to reject any restrictions on the development of missile defense systems can undermine international strategic stability. That stability is based ''not on quantitative parity of strategic weapons but on the parity of the two sides' capability to inflict guaranteed unacceptable damage on the adversary in a retaliatory strike, no matter how the nuclear conflict unfolds.''[42]

China, which has a limited number of nuclear warheads and delivery systems, is now faced with the deployment of elements of the U.S. missile defense system near the Chinese borders. This represents a serious challenge to China's nuclear deterrence capability. At present Beijing has about 40 ICBMs capable of reaching the U.S. mainland.[43] In the event of a hypothetical nuclear exchange between the United States and China at least some of those ICBMs will be taken out by the first strike, given American technological superiority in nuclear and high-precision weapons.[44] And the U.S. missile defense system capable of intercepting the Chinese missiles which survive the first strike would make the Chinese nuclear strategy incapable of ensuring the country's national security.

Since Washington's withdrawal from the ABM Treaty the United States ''has made great progress in improving its multi-layer missile defense system in Asia Pacific; that system can now intercept any type of ballistic missiles, of any range, and at any phase of their trajectory (boost, midcourse and terminal).'' At this moment the American missile defense system in Asia Pacific ''includes reconnaissance and information early warning means such as strategic radars capable of detecting ICBMs at a range of over 5,500km, as well as land and sea-based interceptors.''[45]

The United States is also providing assistance to its key allies in the region (primarily Japan, Australia, and South Korea, as well as Taiwan) in developing tactical missile defense systems and, potentially, strategic missile defenses. Japan already has a multi-layer missile defense system consisting of tracking systems, interceptors, early warning systems, and a command-and-control

system.[46] Also, the United States and Japan are jointly developing the next generation of interceptors, the SM-3 Block IIA, which is to be deployed starting from 2018. Australia is acquiring ships which can be made compatible with the Aegis system. Meanwhile, South Korea and the United States are conducting a joint assessment of missile threats in the region.

Theoretically there are at least two ways of reducing the threat posed by the American missile defense system in Asia Pacific to China's nuclear deterrence capability. The most obvious way is to rapidly increase the size of the Chinese nuclear arsenal by building more of the existing missile types and developing new ones capable of penetrating missile defenses. That includes missiles equipped with MIRVed and highly maneuverable warheads.[47] The U.S. Department of Defense believes that by 2015 China's nuclear forces will include an additional number of DF-31A ICBMs and improved DF-5A missiles.[48]

But if China chooses this path it will have to expend significant financial resources. Given the proclaimed task of ''coordinated development of the economy and national defense''[49] this could have a serious negative impact on the Chinese economy. Second, such a course of action would inevitably trigger a new wave of alarmism over the Chinese threat and damage China's existing positive image in the area of nuclear nonproliferation.[50] Third, any program to build large numbers of new warheads would require an additional amount of fissile material. That would push back even further the potential time frame for China's constructive involvement in negotiating a ban on the production of fissile materials for weapons purposes. It might even make fresh nuclear tests by China necessary,[51] making it impossible for the Comprehensive Nuclear Test Ban Treaty (CTBT) to enter into force.[52] Another thing to keep in mind is China's longstanding pledge never to participate in a nuclear arms race and to maintain its nuclear arsenal at a minimally sufficient level to ensure its national security.[53]

In any event, if China were to build up its nuclear arsenal, that would have negative effects for the entire system of regional security in Asia Pacific. Faced with such a scenario Japan and South Korea might try to acquire their own nuclear capability. Such a move by China could also trigger a nuclear arms race between India and Pakistan[54] and have a very adverse impact on Russian–Chinese strategic dialogue. Besides, a rapid increase in the numbers of Chinese nuclear weapons would disturb the strategic balance in Asia Pacific, prompting the United States and its allies to speed up their missile defense deployment in the region.

Finally, a sharp increase in the size of the Chinese nuclear arsenal would probably mean that Beijing has abandoned its current defensive posture, including its no-first-use commitment. At the very least, that commitment would become more of a propaganda tool than a practical strategy. Such an increase could signal a transition to the ''launch under attack'' strategy, whereby Beijing would try to reduce to a minimum the time between the enemy's strike and the launch of its own nuclear missiles. That would require advanced and highly reliable early warning systems—which, according to various sources, China either does not have at all or is only just beginning to deploy. According to some sources at present China stores nuclear warheads separately from the missiles. A number of researchers believe this is because China ''lacks reliable technical means for preventing unauthorized use of nuclear weapons.''[55]

The second path, which China is more likely to take, is to continue strengthening its guaranteed minimal deterrence capability. In practice that would translate into further efforts to increase the proportion of mobile delivery systems in the Chinese nuclear arsenal, and developing various measures to defeat missile defense systems, including MIRVed maneuverable warheads and anti-satellite weapons.[56] If China chooses this option it will continue increasing the quantitative size of its nuclear arsenal at a moderate pace, and pursue upgrade programs for weapons systems already in service. It will also focus on developing the naval component of its strategic nuclear triad to make sure that its nuclear weapons are mobile and hard to detect, while also abiding by its no-first-use commitment.[57]

According to some sources, by 2020 China will be able to deploy up to five Project 094 (Jin class) nuclear missile submarines.[58] Nevertheless, even if all five are successfully deployed, these subs will be able to deliver a guaranteed retaliatory strike against the United States only if they conduct their patrols relatively far away from the Chinese coast.[59] That will require adequate defenses against the adversary's anti-submarine measures in open seas.[60] At present the Chinese Navy is no match for American naval strength. The naval component of the Chinese nuclear triad has always lagged behind the other two components. For that reason the Chinese military have little experience in conducting such operations. Meanwhile, the U.S. Navy is constantly improving its

capability versus the navies of potential adversaries.[61] What is more, if the American missile defense system in Asia Pacific acquires sufficient capability versus the adversary's missiles the threat to the Chinese Navy from its American counterpart will increase even further; by containing the Chinese submarines in one geographic area the U.S. Navy would be able to target its missile defenses against China's main naval strength.[62]

THE NEW START TREATY—A VIEW FROM CHINA

Immediately after the signing of the new START Treaty by Russia and the United States, some experts and politicians in both countries began to declare that the time has come to involve the other nuclear powers, especially China, in the nuclear disarmament process. They argue that China remains the only official nuclear weapon state which, rather than reducing its nuclear arsenal, is actually continuing to increase it. They also pointed out that within the next decade the size of the Chinese nuclear arsenal is expected to reach the Russian and U.S. levels.[63]

Chinese experts, meanwhile, saw the signing of this treaty as an achievement limited mainly to Russian–U.S. relations. They said the treaty reflected ''a consensus achieved by the two largest nuclear powers.''[64] They were quite optimistic about the prospects for the treaty's implementation when it entered info force. But they also said the document had some clear drawbacks, including the fact that it limits only the deployed warheads, and does not cover the warheads in storage. They also regretted that the treaty does not address the problem of tactical nuclear weapons or conventional weapons; nor does it limit the deployment of missile defense systems. Taking into account such views on the New START treaty expressed by Chinese experts, it would be too soon to expect any significant progress on China joining the nuclear disarmament process in the near future. The above-mentioned White Paper, which was released in March 2011, i.e. after the entry into force of the New START treaty, only repeats China's calls on Russia and the United States to continue reducing their nuclear arsenals; the new treaty itself is not even mentioned in the document.[65]

Also, even though Chinese experts have been fairly optimistic about the prospects for the implementation of the new treaty, Russian and American politicians have since made plenty of statements that can weaken such optimism. Just recall the ongoing confrontation between the two countries over Washington's plans to station elements of its global missile defense system in Europe.

As for China's repeated demands for Russia and the United States to achieve significant reductions of their nuclear arsenals, it is not clear how deep those reductions should be to satisfy Beijing.[66] Some say that bringing the two countries' holdings of nuclear warheads to about 1,000 should be enough for China to consider joining the nuclear disarmament process in a multilateral format.[67] Others believe that the necessary level is 800 warheads, i.e. three times as many as China currently has.[68] Still others argue that China cannot participate in a phased nuclear disarmament process at all because its nuclear arsenal is too small as it is. They say that for China a more feasible approach might be to set a ceiling, to be followed later by complete elimination.[69] In other words, even if the New START treaty is implemented successfully and on schedule China is unlikely to be ready to reduce its own nuclear arsenal by 2020.

WILL THERE BE CUTS?

It seems unlikely that in the next decade China will show any willingness to reduce its strategic nuclear arsenal. There are many reasons for this, both external and internal.

The main internal reason is China's strategy of strengthening its guaranteed minimal deterrence capability by increasing the proportion of mobile and hidden delivery means and developing countermeasures against the potential adversary's missile defenses, including MIRVed warheads. Beijing will continue to increase the numbers of its nuclear weapons at a moderate pace, and carry on with upgrade programs for the existing weaponry. Most experts agree that over the next decade China will not acquire adequate deterrence capability to underpin its longstanding no-first-use policy. The country will therefore continue to increase the size of its strategic nuclear arsenal at a moderate pace until that capability is sufficient for the purposes of no first use.

The external factors include the deployment of missile defense systems in Asia Pacific and the outcome of the U.S.–Russian bilateral disarmament process.

Speaking of missile defenses, the most likely scenario is that China will not seek to build up its strategic nuclear arsenal in response to the deployment of BMD systems in Asia Pacific. Such a step would have too many negative effects for the security situation in the region and for China itself. Increasing the size of the Chinese nuclear arsenal at a moderate pace while at the same time improving its performance characteristics would be an adequate response; it would also be in line with China's no-first-use policy. But unless the American missile defense system in Asia Pacific is dismantled, or unless some way of establishing U.S.–Chinese cooperation on missile defense is found, Beijing will not join the nuclear disarmament process any time soon.

Finally, speaking of the nuclear disarmament process in the bilateral U.S.–Russian format and of China's reaction to it, we have to take into account that even if the New START treaty is implemented successfully and on schedule, China is unlikely to cut its own strategic nuclear forces after 2020. What is more, it is hard to see China taking part in multilateral nuclear disarmament after 2020 even if the United States and Russia reduce their arsenals below the ceilings agreed in the new treaty. There is a strong likelihood that even in such a situation some of the nuclear-weapon states will refuse to adopt the no-first-use policy, and that China and the United States will be unable to find a joint solution to the problem of missile defenses in Asia Pacific.

NOTES

[1] The author thanks Dr Victor Esin and Dr Sergey Ponamarev for their valuable comments on this paper, and Dr Julia Fetisova for invaluable help in working with Chinese-language sources.

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[4] Statement of Dr James N. Miller, Principal Deputy Under Secretary of Defense for Policy before the House Committee, on Armed Services Subcommittee on Strategic Forces. 2011, March 2, <http://armedservices.house.gov/index.cfm/files/serve?File_id=10a50d6f-ece1-475f-bb5e-00ab478aefdb>, last accessed February 22, 2012.

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[6] One interesting source is the ''Domestic Trends in the United States, China and Iran'' analysis prepared in 2008 for the RAND Corporation by a group of U.S. researchers. The paper names 2020 as the year when ''China will enter a 'perfect storm' of economic, environmental, and social problems largely of its own making. In the next 10–15 years, while trying to grow and transform its economy, China will confront the intertwined problems of premature depletion of its energy resources, faltering economic growth, inadequate provisions for its aging population, and the need to remediate an extensively damaged environment. China's ability to modernize and expand its military at the same time will be constrained by these domestic challenges.'' The paper is available at: http://www.rand.org/pubs/monographs/2009/RAND_MG729.pdf>, last accessed February 22, 2012.

[7] Based on the analysis of several editions published since 1998 experts have identified a rather significant evolution of the role and place of the terms ''deterrence'' and ''policy of deterrence'' in China's nuclear strategy. In the 1998 edition the words ''policy of nuclear deterrence'' had a distinctly negative connotation; they were used to describe only the nuclear strategies of other nuclear powers. In the 2000 edition the term ''deterrence'' did not appear at all. And in 2006, when China first made public the key provisions of its nuclear strategy, ''nuclear deterrence'' was highlighted as the main task of the Second Artillery Force. See, for example: Huaping Liu, ''The Evolution of China's Nuclear Strategy and Multilateral Nuclear Disarmament. Program on Strategic Stability Evaluation (POSSE),'' <http://www.posse.gatech.edu/sites/default/files/Liu_Jan15_Revision.pdf>, last accessed February 22, 2012.

[8] See, for example: Nikita Perfilyev, ''Transparency with Chinese Characteristics,'' *PacNet*, No. 5, January 24, 2011, <http://csis.org/files/publication/pac1105.pdf>, last accessed February 22, 2012.

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[11] Ibid.

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[13] See ''Statement of the Government of the People's Republic of China,'' October16, 1964, <http://www.nti.org/db/china/engdocs/nucsta64.htm>, last accessed February 22, 2012); ''China's Instrument of Accession to the Non-proliferation Treaty,'' March 11, 1992, <http://nuclearthreatinitiative.org/db/china/engdocs/nptdec.htm>, last accessed February 22, 2012. For more details about the evolution of Chinese policy on nuclear nonproliferation, see Evan S. Medeiros, *Reluctant Restraint: The Evolution of China's Nonproliferation Policies and Practices, 1980–2004* (Stanford: Stanford University Press, 2007); Mingquan Zhu, ''The Evolution of China's Nuclear Nonproliferation Policy,'' <http://irchina.org/en/xueren/china/view.asp?id=653>, last accessed February 22, 2012.

[14] Detailed analysis of the possibility of such an agreement being signed is offered in Chapter 19 of the paper: A. Arbatov, and V. Dvorkin, eds., *Nuclear Reset: Arms Reduction and Nonproliferation* (Moscow: ROSSPEN, 2011), pp. 351–366.

[15] At least until 2009 the United States actively worked on the development of weapons systems capable of triggering an arms race in space. That is especially true of anti-satellite weaponry, air and space-based laser weapons, the placement of some elements of the missile defense system in space, and the placement in space of weaponry capable of destroying targets on Earth. However, following the election of President Barak Obama most of those programs have been suspended. The United States has since unveiled a new national space initiative with an emphasis on developing international cooperation in space. For more details, see A. Arbatov and V. Dvorkin, eds., *Space: Weapons, Diplomacy and Security* (Moscow, ROSSPEN, 2009), pp. 66–76, <http://carnegieendowment.org/files/12659outer_space_arbatov.pdf>, last accessed February 22, 2012.

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[18] Arbatov and Dvorkin, op. cit., p. 60.

[19] ''China's National Defense in 2010,'' op. cit.

[20] A detailed study of the current state of the system of storage of nuclear warheads in China was completed in March 2010 by the Project2049 Institute. See Mark A. Stokes, ''China's Nuclear Warhead Storage and Handling System,'' <http://www.project2049.net/documents/chinas_nuclear_warhead_storage_and_handling_system.pdf>, last accessed February 22, 2012.

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[35] Shunin, op. cit.

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U.S.–RUSSIAN SECURITY DIALOGUE IN 2012: STEPS TO BE TAKEN, STEPS TO BE EXPECTED, AND STEPS THAT WILL NOT BE TAKEN

What can be expected from the year 2012 for U.S.–Russian relations in the field of security—the year of presidential elections in both Russia and the United States? The future of the Russian–U.S. strategic dialogue after the election year was the main topic of the meeting of the Sustainable Partnership with Russia (SuPR) Group held by the PIR Center together with the Ploughshares Fund on December 6–7, 2011 in Washington, D.C.

Do the opportunities to solve those problems in the bilateral relationship exist? And what does the long-term outlook for Russian–U.S. relations look like? These and other questions were addressed by the participants: former Head of the International Treaty Directorate of the Main Directory for International Military Cooperation in the Russian Ministry of Defense (2002–2009), PIR Center Senior Vice-President Lieut.-Gen. (ret.) Evgeny Buzhinskiy; President of the* Ploughshares Fund *Joseph Cirincione; Senior Fellow for Regional Security Cooperation at the International Institute for Strategic Studies (IISS) Michael Elleman; Member of the Board of Directors of the* Ploughshares Fund *David Holloway; Advisor to the Director General of the Russian State Atomic Energy Corporation Rosatom Vladimir Kuchinov; PIR Center President, Editor-in-Chief of the* Security Index *journal Vladimir Orlov; Senior Fellow of the Brookings Institution Steven Pifer; Director and Senior Fellow of the Proliferation Prevention Program in the Center for Strategic and International Studies (CSIS) Sharon Squassoni; and Director of the Moscow Office of the* John D. and Catherine T. MacArthur Foundation *Igor Zevelev (in person).

PRESIDENTIAL ELECTIONS AHEAD

BUZHINSKIY (PIR CENTER): U.S.–Russian relations in the field of security, as of early 2012, are still full of contradictions. On the one hand the reset policy in bilateral relations, which was initiated by the Obama administration three years ago, has brought specific and very optimistic results, such as the Prague Treaty on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, and documents of the NATO-Russia Council Lisbon Summit.

On the other hand the deadlock in bilateral consultations on the European missile defense system may block any further arms control talks (conventional weapons, non-strategic nuclear weapons, etc.), which is declared by both sides to be one of their foreign policy priorities.

Russia refuses to start practical cooperation on missile defense, which would include renewal of joint exercises, creation of joint data-exchange centers, joint missile threat assessment, technological cooperation, etc., in the absence of clear legally binding guarantees that the future U.S./NATO European missile defense system is not targeted at the Russian deterrence potential. Moreover, Russia insists on specific limitations in the number of interceptors, their speed and range, areas of sensors, and interceptors' deployment. This leads to a deadlock in the negotiations since a document containing guarantees and limitations as requested by Russia, even if signed by Obama (which is highly problematic in light of the coming U.S. presidential elections) has practically no chance of being ratified in the U.S. Senate.

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This situation is rooted in the fundamental absence of trust between Russia and its Western partners, first of all the United States. But it is very difficult to build a strong foundation after approximatey 50 years of stalemate. Nevertheless, if there is enough political will on both sides, the present deadlock may be unblocked. I think that Russia may demonstrate such will and make its position on guarantees more acceptable for the U.S. (e.g. signing a document on anti-ballistic missile cooperation at a level of heads of states and governments, like the Rome Declaration of 2000). This will require reciprocity. Adjustment of the American Phased Adaptive Approach for Europe, namely giving up the deployment of interceptors and sensors in Poland and the Baltic sea envisaged by Phase Three, may be considered as a reciprocal step.

Unfortunately I have to admit that the year 2012 is a bad one for breakthroughs in the U.S.–Russian dialogue on security issues, and especially for missile defense compromises. The reason is obvious—the year of presidential elections in the United States is not the best time for a president running for re-election to make compromises on the most sensitive national security issue. In Russia conditions for the present and the future president to make such compromises are more favorable.

The dialogue on missile defense cooperation, conventional arms control in Europe, and NATO–Russia relations will continue in the year 2012. But I hardly envisage real progress on any of these topics. And I practically exclude the start of a dialogue on non-strategic nuclear weapons because of the sensitivity of the issue for the Russian Federation and dependence of any compromise on it on the progress in other security and arms control issues. The same goes for the possible consultations as regards further reductions of strategic offensive weapons.

Nevertheless, the bilateral relations with the United States are still among the main priorities of Russian foreign policy. The international security situation, strategic stability, and the effect of joint response to the new threats and challenges rely to a very large extent on these relations. Taking into consideration the degree of influence of the United States, the system of its allied security and economic commitments, the quality of U.S.–Russian relations turns out to be one of the key factors for creating favorable external conditions for steady socio-economic development in Russia.

Instead of the constant search for illusionary parity or friendship with the United States or, on the contrary, the perception of Washington as the source of all evil, Russia should learn how to cooperate with the United States for the sake of its own national interests. It is obvious that without cooperation and reaching new security and arms control agreements with the United States, Russia will not be able to fulfill such important foreign policy targets as securing global military-strategic stability, building up new European security systems, preventing possible conflicts in post-Soviet space and effectively fighting extremism and terrorism. In the long term, without support and assistance from the United States and its allies it will be much more difficult for Russia to carry out economic modernization on the basis of high technologies and innovation.

Overall, the relations between Russia and the United States in the field of security will remain contradictory, combining elements of cooperation and principal discrepancies. But I am sure that fundamental interests of Russia and the United States are not antagonistic. I believe these interests coincide on the majority of modern security issues.

ZEVELEV: Partnership with Russia may prove sustainable if the reset in Russian–U.S. relations survives the election period of 2012. Both American and Russian policymakers should keep an eye out for some of the key issues characterizing the bilateral relationship so as not to allow short-term factors to undermine the tangible policy achievements brought about over the past three years.

There will be major challenges to the reset process in 2012.

Since the reset can be characterized as a ''move or die'' phenomenon, a mere pause may prove to be a mortal blow to the entire dynamic. The U.S.–Russia partnership needs impulses from the top political leadership of the two countries in order to continue.

The politicians during the election season are concerned mainly about their domestic audiences at the expense of international ones. The candidates absorb the concerns of their societies and build coalitions. They cannot afford to commit to anything that may have harmful effects at home. No politician can look ''soft'' on national security issues during the campaign. This often leads to

aggressive foreign policy pronouncements and threats to protect what is perceived as national interests.

The Obama administration is vulnerable to the criticism over the reset. The Republicans' attacks usually focus on the undemocratic nature of the political regime in Russia and the dubious benefits of the new START treaty that may potentially limit the freedom of maneuver in developing nuclear strategy and missile defense. It is not easy to convince an average American that U.S. national interests, including strategies towards Afghanistan and Iran, require Washington to be fully engaged with Moscow, despite all its alleged flaws.

Putin's imminent return to the Kremlin is viewed by many skeptics in the United States as a threat to bilateral cooperation and a blow for the reset. Indeed, the worldviews of Medvedev and Putin have appeared to differentiate a bit in 2009–2011, with Medvedev more in the liberal camp and Putin, who cherishes his ''tough guy'' image, definitely in the ''great power balancer'' camp.

Finally, the biggest challenge to the reset is the scenario that includes social unrest in Russia and the attempts to suppress it by force. Though it does not look likely, mass protests immediately after March 4, 2012 cannot be ruled out. In this case, Washington may face a difficult dilemma: acknowledging the election results or siding with the protesters.

Both American and Russian policymakers, in spite of the election period challenges, must focus on consolidating the progress that has already been made, and expanding this progress to gain new momentum in cooperation after the elections pass. Even this meager agenda is already a difficult one to follow, but it is a realistic and practical plan for the following reasons.

First of all, the change in Russian attitudes towards the United States had nothing to do with the fact that Putin, with his allegedly hawkish agenda, was no longer at the forefront of Russian policy. Rather, the change came about because the Obama administration had taken into account Russia's interests and because the global economic crisis made Moscow less prone to confrontational foreign policy. Moreover, Putin is not necessarily one-sidedly anti-Western, and there was a brief period in which he propagated his own version of the reset in Russian–U.S. relations in 2001–2002.

Second, in the United States, the Obama administration is unlikely to take initiative and take any steps that would derail the reset. However, there will be growing pressure from the Republican side, especially in the wake of the March 2012 presidential elections in Russia, which they will certainly portray as not free and unfair. At the same time, most Republican presidential candidates understand that in the event of their success they will have to pursue a relatively restrained foreign policy, no matter what his or her election campaign rhetoric is.

Third, balancing China's global clout by fostering partnerships with existing and rising great powers will be one of the major challenges to U.S. foreign policy in the twenty-first century. The best strategy for engagement with China may be for the United States to invite a number of other international actors to the negotiating tables of world affairs. The China factor will increasingly shape U.S. attitudes and policies towards Russia. The United States should view Russia as a potential balancing partner against an ever-growing China. This may be one of the key ways to reinvigorate the reset.

At the same time, there is no reason to expect the new Russian president and Obama, stuck in the quagmire of political battles at home, to take any new significant steps in the U.S.–Russia bilateral relationship in 2012. This must be a year of practical work at other levels: ministerial, legislative, and at the level of civil society. The following two main steps may help the United States and Russia to endure the difficult election year and ultimately serve the two powers' long-term goals.

First Step: The Bilateral Presidential Commission, which Presidents Obama and Medvedev established in July 2009, must pursue new joint projects and actions that strengthen strategic stability, international security, economic well-being, and the development of ties between the Russian and American people. A structured mechanism to advance the highest-priority bilateral objectives through 20 working groups and numerous sub-working groups chaired by senior government officials from a variety of agencies and ministries must be fully engaged throughout 2012.

Second Step: The legislative bodies of the two countries will bear special responsibility during the period of change in the executive branches. The new Russian Duma elected on December 4, 2011 might take the lead. Russian lawmakers must approve Russia's WTO membership in early

2012. The U.S. Congress would still need to work out an agreement to eliminate the Jackson–Vanik Amendment. In general, the Russian legislature has not left a significant mark on Russian–American relations. Nothing comparable to the ground-breaking Nunn–Lugar Cooperative Threat Reduction Program has ever come out from the State Duma or Federative Council. The year 2012 may be the right moment to change the historic pattern.

As to enhancing continuing dialogue and engagement between the two countries' civil societies through the U.S.–Russia Civil Society Partnership Program (CSPP) and various exchange programs (the Open World, Fulbright, Future Leaders, etc.), the Russian side has to expand similar government-supported and independent programs that would allow the American public, first and foremost the youth and professionals, to get to know Russia better.

MISSILE DEFENSE: WHERE IS THE COMPROMISE?

PIFER (BROOKINGS INSTITUTION): Lieut.-Gen. Buzhinskiy has mentioned missile defense. I would like to dwell on this stumbling block. Despite the reset in U.S.–Russian relations, missile defense remains a difficult issue. As of late 2011, discussions on possible NATO–Russia missile defense cooperation were at an impasse over Moscow's insistence on a legal guarantee that U.S. missile defenses would not be directed against Russian strategic missile forces.

In contrast, discussions on practical cooperation reportedly have found significant convergence, including on transparency, joint exercises, and joint NATO–Russian missile defense centers. A cooperative missile defense would yield transparency that could reassure Russia regarding U.S. missile defense capabilities, bolster European defenses against ballistic missiles, and prove a ''game-changer'' in ending Cold War stereotypes.

Moscow should accept Washington's offer of a political assurance in place of a legal guarantee. The United States and NATO should offer maximum transparency on their missile defense plans and stop saying that a cooperative missile defense would have no impact on those plans; it may be possible to adopt some Russian suggestions without sacrificing NATO's ability to protect its member states. The United States, NATO, and Russia should move to design and implement a cooperative missile defense system.

When U.S.–Russian relations hit their nadir in 2008, differences over missile defense posed one of the most contentious issues on the agenda. The Obama administration adopted the reset policy in February 2009. It later decided to reconfigure U.S. missile defense plans for Europe based on a reassessment of the Iranian ballistic missile program. Instead of the ground-based interceptors and X-band radar proposed for deployment in Poland and the Czech Republic by the Bush administration, Washington adopted a ''phased adaptive approach'' based on the Standard SM-3 missile interceptor.

Russian officials seemed more relaxed about the new plan. The SM-3 has a range significantly less than the ground-based interceptor. The X-band radar—which could have covered Russia to the Ural Mountains—is to be replaced by an AN/TPY-2 radar in Turkey that just looks toward Iran. Russian rhetoric against U.S. missile defenses cooled.

President Medvedev and NATO leaders agreed in November 2010 to explore possible NATO–Russian missile defense cooperation. Discussions began in 2011; the locus of the talks shifted quickly to bilateral U.S.–Russian channels. In the spring, U.S. officials hoped a joint statement on principles for cooperation could be agreed by Obama and Medvedev at their May meeting in Deauville but they could not finalize the statement. Bilateral discussions continue but appear to be at an impasse.

The Obama administration has not accepted the Russian demand, as any legal agreement would have to be ratified by the U.S. Senate. There is no chance of the Senate ratifying anything that looks like a limit on missile defense. U.S. officials have instead offered a political assurance that American missile defenses would not be directed at Russian missiles, which could be reflected in a written statement signed by the president.

U.S. officials also contend that the SM-3 interceptor—including Bloc IIB, which in 2020 is planned to have some capability against rudimentary ICBMs—poses no threat to Russian strategic missiles. Moscow thus far has not been persuaded by Washington's arguments and continues to

insist on a legal guarantee. U.S. officials sound less optimistic about the prospects for concluding an agreement on missile defense cooperation than they did in the spring.

It is not clear how the current impasse will be broken. In the meantime, the United States and NATO are implementing the ''phased adaptive approach.'' Moscow has consistently expressed a desire to be in at the beginning as the missile defense architecture is designed and implemented, but the impasse means that Russian officials are not yet involved and thus have no chance to influence or shape the architecture.

Although the sides appear stuck over the question of a legal guarantee vs. political assurance, their views reportedly converge significantly on what practical NATO-Russia cooperation would entail. The folliwing points are the policy recommendations for all the sides.

For the Russian government: Drop the demand for a legal guarantee and accept a political assurance. If Moscow later concludes that U.S. missile defense capabilities do pose a threat to its strategic forces, it can always withdraw from the arrangement.

For the U.S. government and NATO: Offer maximum transparency about planned missile defenses, leave the door open for cooperation, and stop saying that missile defense cooperation with Russia will have no impact on U.S. or NATO missile defense plans. While that may reassure the Senate of the administration's commitment to missile defense, it may also reduce Russian interest in cooperation.

For the United States, NATO, and Russia: Move to agree on and implement practical cooperation arrangements, including: transparency regarding missile defense plans and systems, where one side would inform the other well in advance of any planned increase in numbers (for Aegis class warships, ''well in advance'' would be measured in years); joint NATO–Russia missile defense exercises; a jointly manned NATO–Russia ''data fusion center'' to combine data from NATO and Russian radars and other sensors and make the enhanced data available to both; a jointly manned ''planning and operations center'' to explore how to deepen cooperation. The last one could include development of a joint protocol—or joint computer algorithms—that could integrate a NATO decision to launch a NATO interceptor with a Russian decision to launch a Russian interceptor.

Finally, if an agreement on missile defense cooperation is not possible in the near term, the United States, NATO, and Russia should work to contain the fallout so that differences over missile defense do not undermine their broader relationships.

ELLEMAN (IISS): Washington's withdrawal from the Anti-Ballistic Missile (ABM) Treaty in June 2002 and subsequent plans to place missile defense assets in Europe really are a source of tension and a barrier to transforming the U.S.–Russian strategic relationship. Moreover, Russian officials asserted that missile defense threatens to undermine the nuclear disarmament progress codified in the New Strategic Arms Reduction Treaty (New START) of 2010.

President Obama's September 2009 decision to shelve the Bush administration's ''Third Site'' in favor of the Phased Adaptive Approach (PAA) reduced some of the tension and mistrust held by Russian officials. However, many in Moscow view Phase IV of the PAA as a potential threat to Russia's nuclear deterrence forces. Debate still rages as to the real performance characteristics of the interceptors slated for Phase IV—the technical parameters are yet to be established by Washington—and whether Moscow's concerns are valid. Russian suspicions will be allayed (or proven) only after the U.S. begins producing and testing prototypes of the SM-3 Block IIB interceptor, when the real technical capabilities of the Phase IV system can be accurately determined.

U.S.–Russian cooperation on European missile defense has been offered as a means for enhancing transparency and generating trust between Washington and Moscow. Limited progress has been made to date in building a joint framework for future missile defense deployments, despite the strong advocacy for cooperation expressed by Presidents Obama and Medvedev. This is not surprising, as many technical, institutional, and political hurdles stand in the way of progress. Overcoming the barriers to cooperation is possible, but requires time to identify and implement the fundamental changes to the institutional incentives and bureaucracies driving each side's national security bureaucracies. Unfortunately, time is in short supply, as the U.S. and NATO continue to surge forward implementing the PAA on the ambitious schedule laid out by President Obama and the U.S. Congress. Supporters of missile defense in the U.S. Congress are

unlikely to compromise or allow delays, regardless of potential opportunity costs associated with rapid deployments. Consequently, barring any dramatic changes to U.S. perceptions of the Iranian missile threat, missile defense is destined to complicate the U.S.–Russian arms control agenda for the foreseeable future.

Diplomatic or arms control measures that forestall—with reasonable confidence—Iranian attempts to develop field ballistic missiles capable of reaching Western Europe and U.S. territory offer an effective means for changing threat perceptions in Washington and delaying the implementation of Phase IV, though continuing a robust R&D effort. A prolonged delay might provide the United State and Russia the time needed to develop greater trust, establish the mechanisms needed to promote missile defense cooperation, and, ultimately, further the nuclear arms reduction agenda.

According to a leaked diplomatic cable summarizing the December 2009 U.S.–Russian Joint Threat Assessment meeting, government officials agreed on the general technical parameters and performance characteristics of Iran's current inventory of ballistic missiles. Both countries concluded that the Shahab-3/Ghadr-1 missiles, derived from the North Korean Nodong, have a maximum range of roughly 1600km. And both viewed the solid-propellant, two-stage Sajjil missile as being able to deliver a reasonably sized warhead (700–1000kg) about 2000km, once it is developed fully. However, officials could not reach consensus on Iran's future capabilities. Moscow believes that Tehran has neither the intent nor the capacity to build intermediate- and intercontinental-range missiles in the near future. Washington, on the other hand, says little about Tehran's intentions, but concludes that Iran could exploit existing technologies and hardware to develop field missiles capable of threatening Western Europe within the next few years. The creation of an operational ICBM could occur soon thereafter.

Countries wishing to create new ballistic missiles, with or without foreign assistance, must undertake, as part of the development process, flight-test programs to validate performance parameters, verify reliability under a wide-range of operational conditions, correct inevitable design flaws, and train military forces on the basic operational function of the missile. Flight tests, which cannot be concealed, provide outside observers the data needed to characterize missiles under development and to project future capabilities with considerable confidence. Further, a study of development programs conducted elsewhere, most notably those undertaken by Germany, the United States, the Soviet Union, China, France, India, Iraq, and Iran, reveals that flight testing requires a dozen launches, or more. Equally importantly, historical data show that such testing efforts entail a three- to five-years timescale. There are exceptions, of course, but they are rare, involve minor modifications to existing systems, or can be explained by conditions that do not exist in Iran. In any case, the minimum time, regardless of circumstances, is about two years.

The need to conduct flight-test programs to develop an operational system suggests that if Iran can be persuaded to forego such activities it could not create the field longer-range systems without assuming considerable risk. There is nothing in Iran's history of missile development to indicate that it would accept such risks. Tehran did not induct the Shahab-3 into military service until 2003, some five years after receiving Nodong missiles from North Korea and initiating test launches. Modifications to extend the range of the Shahab-3, resulting in the 1600km-range Ghadr-1, required three to five years. And development of the Sajjil-2, which continues today, has been ongoing since it was first flight-tested in late 2007. It therefore seems reasonable to conclude that if Iran were to fashion a small nuclear arsenal, it would not fit them to missiles with unproven performance or reliability.

The United States and Russia should exploit this testing requirement and together promote regional flight-test bans of intermediate- and longer-range ballistic missiles. The range-payload characteristics of an intermediate-range missile would have to be defined by all of the parties involved in the final agreement, though a 3000km–500kg envelope seems reasonable.

Two regions, the Middle East and the Korean peninsula, would have to be included in the test ban to ensure that Iran could not develop and test launch missiles in North Korea, or purchase long-range missiles developed by Pyongyang. In response to Iranian acceptance of the test ban, Israel and Saudi Arabia would have to eliminate in a verifiable manner their Jericho-III and DF-3 missiles, respectively. U.S. and Russian participation in the elimination efforts would assist the verification process.

The United States and Russia should seek to persuade countries in the Middle East and the Korean peninsula to accept a verifiable regime that prohibits the possession or flight-testing of intermediate- and longer-range ballistic missiles. Success in achieving such a regime would significantly delay the need to implement Phase IV of the Phased Adaptive Approach to European missile defense. While Russia might continue to worry about the impact of ballistic missile defenses on its strategic nuclear deterrent, the breathing space offered by the proposed regional flight-test ban regime could facilitate cooperation on the short- and medium-range missile threat and the building of greater trust and confidence between Moscow and Washington. This enhanced trust should make it easier to resolve the more difficult issues associated with long-range missiles, and in the process support the arms-control objectives of both parties.

NUCLEAR ENERGY: THIS IS WHERE COOPERATION WILL BE MUTUALLY BENEFITIAL AND REALISTIC

SQUASSONI(CSIS): I would like to turn discussion to the field of nuclear energy, which is strategically significant for both sides. The United States and Russia face similar challenges in nuclear energy—how to revitalize manufacturing capabilities and an ageing workforce, how to best position themselves to sell new nuclear reactors at home and abroad, and how to keep a potential nuclear renaissance from contributing to nuclear proliferation. The nuclear cooperation agreement (the so-called 123 Agreement) that entered into force in January 2011—an agreement that was impossible years ago and controversial in the United States for the last few years—should be used to encourage collaboration that might help both retain their considerable influence in this vital field.

From a proliferation perspective, sensitive fuel cycle facilities pose the greatest risk. Uranium enrichment and spent fuel reprocessing can be used to produce material for peaceful fuel or for nuclear weapons. In contrast, the spread of light water reactors is usually regarded as posing little proliferation risk because nuclear safeguards can detect a diversion of fuel in a timely fashion. Safeguards on bulk-handling facilities like enrichment and reprocessing facilities provide less confidence in timely detection of the diversion of significant quantities of fissile material. There are few technical fixes for this—new enrichment technologies like laser enrichment may present new proliferation challenges, and some of the so-called ''proliferation-resistant'' technologies for reprocessing can be defeated relatively easily by a clandestine reprocessing program.

Fortunately, only about a third of countries with commercial nuclear power plants now enrich or reprocess commercially—the nuclear weapon states plus Japan, (enrichment and reprocessing), the Netherlands, Brazil, and Germany (enrichment). Other countries enrich and/or reprocess for weapons purposes (India, Pakistan, Israel, DPRK, Iran). With the exception of Japan, the Netherlands and Germany, all the other enrichment/reprocessing programs began their lives as military programs.

In the past decade, the United States stepped up efforts to restrict transfers of enrichment and reprocessing technology, motivated largely by revelations that A.Q. Khan had transferred enrichment and weapons technology to Iran, DPRK, and Libya, among others. The G-8 moratorium on transfers of enrichment and reprocessing technology was short-lived, torn asunder by states' unwillingness to give up their future options. A similar sentiment ensured that new Nuclear Suppliers Group (NSG) criteria for transferring enrichment and reprocessing equipment and technology were watered down to accommodate NSG members' future equities. Most countries in the NSG interested in acquiring enrichment or reprocessing would meet all of Paragraph 6 and be ''eligible'' for transfers. This is hardly an improvement over the previous policy of restraint on transfers.

Part of the difficulty in getting countries to commit not to enrich or reprocess is that choices about nuclear energy can have an impact for decades. A reactor's life can now extend to 60 or 80 years; fuel can be stored in dry casks for possibly 100 years. A lot can change in that time, making states reluctant to make choices now about the future. In democratic countries, the change in political leaders every few years may make it difficult to focus on long-term issues, like how and where to store or dispose of spent nuclear fuel. On the back end of the fuel cycle, most countries have adopted a ''wait and see'' approach, which is politically easier, but only delays the day of reckoning, sometimes creating even more difficult hurdles to overcome.

Another difficulty is that choices about nuclear energy are regarded as national sovereignty issues. Nuclear energy retains an element of prestige for many countries and, in particular, uranium enrichment is considered a technical accomplishment (e.g. Iranian national pride). Given the importance of energy to any economy, choices about electricity generation are conflated with choices about energy security. Finally, many states fall back on Article IV of the Nuclear Non-Proliferation Treaty (NPT), which states that nothing in the treaty will affect the inalienable right of countries to the peaceful uses of nuclear energy. Most countries will continue to rely on market services because to do otherwise would be costly and ineffective.

For many years, countries have collaborated in nuclear technology to spread the investment costs (e.g. Generation IV International Forum, INPRO). These fora have considered the proliferation implications of technology development. There has been less enthusiasm for the institutional side of fuel cycle collaboration. The Angarsk fuel bank and the IAEA fuel banks have been created, yet these help solve only a very small portion of the problem on the front end of the fuel cycle.

Countries need to move beyond nuclear sovereignty toward more collaboration, specifically on institutional arrangements for the fuel cycle.

First, relying on the market as we have done for three decades to dampen enthusiasm for spreading fuel cycle capabilities is a short-term approach to a long-term problem. If we look ahead toward a world free of nuclear weapons, it is clear that capabilities in enrichment and reprocessing will have to be restricted before we get to zero because of the break-out capability they offer. Restrictions could take the shape of a more stringent verification system if that can be devised, bans on certain kinds of technologies or a ban on purely nationally owned facilities. On the path to zero, it is possible that national enrichment/reprocessing may be considered too risky and that multinational approaches or international control could become the norm.

Second, absent significant progress toward a world free of nuclear weapons, it is still imperative to limit the proliferation of sensitive fuel cycle capabilities. Even if NSG guidelines were perfect and perfectly implemented, legitimate trade of enrichment and reprocessing is possible. Moreover, countries outside the NSG may still trade in this sensitive technology. This is a particular danger that North Korea and Iran pose, but the lesson of A.Q. Khan is that manufacturing of sensitive equipment can take place outside of the usual nuclear suspects. Any further spread of capabilities beyond where they are now would pose additional risks.

Third, most countries have not solved the problem of final disposal of nuclear waste (regardless of the form). It strains credulity to imagine 30 nuclear repositories around the globe, the current number of states with nuclear power plants. Yet many more states have research reactors, and the IAEA suggested before Fukushima that 65 additional countries were interested in nuclear power. At a minimum, regional collaboration will be necessary.

Exports of nuclear goods and services (enrichment, storage, reprocessing, disposal) have long been a source of leverage for suppliers over recipients through the terms of their nuclear cooperation agreements and/or contracts. In the U.S. case, the Atomic Energy Act specifies nine requirements in nuclear cooperation agreements, most of them related to physical protection and safeguards. Russia has been able to secure the spent fuel from the Bushehr reactor by virtue of its contract with the Iranians. Inherent in those exports is a relationship with recipients that can be enhanced through research, development, and training.

The biggest potential source of leverage would be through provisions of cradle-to-grave nuclear fuel services. For recipients, provisions of waste disposal could be a huge incentive to choose one supplier over another. Russia can currently provide the fullest range of fuel services, including holding onto nuclear waste generated from reprocessing. However, it is not clear where Russian policy now stands, beyond tying take-back to specific reactor contracts. France reprocesses but returns the high-level waste to customers (as per domestic law). The United States has taken back U.S.-origin foreign reactor fuel, but has not successfully attempted to take back commercial power reactor fuel.

Three potential areas for collaboration between the United States and Russia to help create a sustainable nuclear energy future that does not contribute to nuclear proliferation include: alternative fuels for fast reactors, nuclear cooperation agreements transparency, promotion of multiple paths for ''cradle-to-grave'' fuel services.

Alternative Fuels for Fast Reactors: Most of the designs considered for fourth generation reactors will use plutonium or highly enriched uranium as fuel. MIT's 2010 report, ''Future of the Nuclear Fuel Cycle Study,'' suggested that low-enriched uranium alternative fuels could be profitably explored. Although commercialization of fast reactors is decades in the future, China and India are operating pilot plants and other countries like South Korea are conducting research and development. The time to influence future developments is now. U.S.–Russian R&D in this area could be influential.

Nuclear Cooperation Agreements Transparency: U.S. peaceful nuclear cooperation agreements specify nonproliferation requirements, including consent rights and physical protection. Just as there is variability in national atomic energy laws, there is variation in the content of peaceful nuclear cooperation agreements. Member states of the NSG should improve transparency and seek greater consistency among all cooperation agreements. The United States and Russia could spearhead this effort.

Multiple Paths for Cradle-to-Grave Fuel Services: Rather than each supplier trying storage/disposal benefits to individual reactor contracts, it would be useful to develop multiple paths for a ''cradle-to-grave'' approach to diminish the dependence of recipient states on one supplier and to enhance collaboration rather than exacerbate competition. The United States did this out of necessity with its nuclear cooperation agreement with the UAE, designating the UK and France as countries where UAE spent fuel could be reprocessed. Disposal was not included, so it was therefore a partial plan. The United States and Russia can collaborate in this fashion now by virtue of their peaceful nuclear cooperation agreement. Key issues to resolve will be international availability of interim storage and geologic disposal, and a relative emphasis on reprocessing versus direct disposal of spent fuel.

The United States and Russia could build on Russia's 2006 Global Nuclear Power Infrastructure Initiative, which envisioned Russia hosting, as joint ventures, four different types of international fuel cycle centers (enrichment, a reprocessing/storage center, a training and certification center, and a research and development center). Internationalizing this initiative so that other supplier states could designate existing capabilities as part of a global network could be a useful start to creating multiple paths for cradle-to-grave fuel services.

KUCHINOV(ROSATOM): As Lieut.-Gen. Buzhinskiy has mentioned in finalizing his statement, Russian and U.S. strategic interests coincide on the majority of modern security issues. A good example of such interest and cooperation in the area of nonproliferation is the mutual support of Russian and U.S. initiatives on the establishment of the low enriched uranium (LEU) fuel banks for assured supply under IAEA control to provide fuel to NPPs in any country to which regular fuel shipments are interrupted for political reasons unrelated to any violations of the nonproliferation regime by a given country.

The very important step in the development of cooperation was the signing of the ''Joint Statement of the State Corporation for Atomic Energy Rosatom and the U.S. Department of Energy on Strategic Areas of Cooperation in the Nuclear Field'' in September 2011 in Vienna. It is mentioned that with the entering into force of the 123 Agreement a new era has begun, opening many opportunities for cooperation between the two countries on a wide range of issues related to nuclear power, nuclear safety and physical protection, management of spent fuel and radioactive waste, scientific research, and commerce.

In the area of spent fuel and radioactive waste management the objective of cooperation is to work out joint approaches to decommissioning of contaminated sites and development of technical solutions such as specialized engineering and technical barriers or decontamination of radioactive and toxic soil. Research in the area of new technology for NPP spent fuel management is also envisaged with the possibility of conducting joint tests and experiments, including irradiation of construction materials and nuclear fuel at U.S. and Russian facilities.

The Working Group on Nuclear Energy and Nuclear Security established under a bilateral Presidential Commission set up in July 2009 by the presidents of Russia and the United States remains an efficient coordinating mechanism for cooperation in the nuclear field. The first Action Plan of the Working Group was endorsed by its Co-Chairs in October 2009 and submitted to both presidents. Currently, the Third Action Plan is under implementation. The results will be reviewed during the Working Group meeting in early 2012, as well as the Fourth Action Plan that provides for specific collaborative activities for 2012.

It is expected that action in the sphere of civil nuclear power will be put into this plan in 2012 to implement the Joint Statement along with activities traditionally associated with nuclear safety, security protection, physical protection, and nonproliferation. Expert meetings on technical issues and issues related to the assessment of global nuclear energy architecture are also in the plan.

Talking about commercial cooperation it is worth mentioning that the United States runs the park of 104 power reactors which is the largest market for nuclear fuel cycle services. The Russian supplier of uranium products TENEX has already signed long-term contracts with U.S. utilities for the shipment of uranium products following the termination of HEU-LEU contract in 2013. It is an important segment of the nuclear market, but not the only one. The commercial companies of both countries need to explore opportunities to supply nuclear technology and services to U.S. and Russian markets to cover other segments as well. For example, one of the potential commercial areas is innovative power reactors, including fast reactors. Russia has accumulated significant expertise in this area which could be of interest in the United States.

The entering into force of the 123 Agreement has had a positive impact on the expansion of peaceful uses between Russia and other countries that use U.S. nuclear technology and material. It may be assumed that this provides new opportunities to U.S. companies that operate in the markets of such countries and allows them to be actively involved in cooperation.

For more information on Russia's nuclear energy cooperation, please, visit the section "Development of Russia's Nuclear Exports" of the PIR Center website:
atom.pircenter.org/eng

At the same time the 123 Agreement is a framework document, not a project agreement on, for instance, the construction of an NPP or a contract for the supply of a certain material. It simply defines the intention of the Parties to cooperate in the field of peaceful uses in general, providing a legal basis for such cooperation for at least 30 years (see Article 20, paragraph 1).

The implementation of specific areas of cooperation may require the development of supplementary so-called implementing arrangements related to specific contracts. For instance, currently an administrative arrangement concerning the transfer of nuclear materials and specialized equipment is under development, which means that the provisions of the 123 Agreement are being implemented.

THE MIDDLE EAST WMD-FREE ZONE: STILL ON THE AGENDA?

ORLOV(PIR CENTER): The fast-moving controversial developments in the Middle East and North Africa seem to be sidelining the search for responses to some fundamental security challenges in the region. This refers, among many other issues, to the discussion of steps for the preparation and successful conduct of the 2012 conference on the WMD-Free Zone in the Middle East. Furthermore, some think that there is not a favorable environment for such a conference now or in the foreseeable future. Almost two years have passed since the Review Conference adopted the Final Document. Preparations for the conference have just begun.

Some experts also suggest that it would be expedient to postpone the conference to a later date—2013. Different arguments are put forward. Some say that the current events in the region will for a long time distract many Middle East states from the issue of nuclear weapons, weapons of mass destruction, and a WMD free zone. Others believe that the year 2012 is extremely inappropriate as it is a year of presidential elections in the United States and during the election campaign the incumbent president will be constrained in his moves with regard to Israel. Still others think that Iran's chairmanship in the Nonaligned Movement, which will start at the height of next year, could be an impediment: Iran, they say, will be vehemently rocking the boat of multilateral diplomacy. There may be a grain of truth in each of these approaches but all of them are the result of the implicit admission of the lack of readiness for an important conversation and therefore the wish to postpone its start under any pretext.

However, as a representative of the UN Secretariat who was in charge of the 2010 NPT Review Conference mechanism commented, there is a resolution by the signatories to the NPT. It mentions the year 2012 in no uncertain terms. It would be against the document to postpone the start of the conference to a later date.

The first step in this direction has already been made. On October 14, 2011, UN Secretary-General Ban Ki-Moon announced in New York that Finland's Undersecretary of State Jaakko Laajava will facilitate preparations for the 2012 conference on a zone free of weapons of mass destruction in the Middle East.

Finland will most likely host the conference, the convening of which is mandated by the Action Plan adopted at the 2010 NPT Review Conference. The exact date of the conference, its agenda, and participants are yet to be agreed.

It would be wise to start the Conference after the U.S. presidential elections—perhaps in December 2012. It may also bring it into 2013, which is fine. For most players from the Middle East, however, having it in the middle of a cold Finnish winter is unattractive. There is still time to think of multiple options—say, to hold it in Finland, but in two phases: one in later 2012 and the next one six months after.

Talking about the possible participants it is obvious that both Israel and Iran should have motivations, or carrots, to come to the Conference. This should not be ignored or declined by the United States and Russia. However, there is a risk that Israel would demand too much from the United States, blackmailing with the threat of not participating, and the same would apply to Iran vis-à-vis Russia. Limits of such concessions in preparation for the conference should be agreed upon between Russia and the United States (as well as the UK and Mr Laajava) in advance.

However, even if it is well prepared and has a full-fledged makeup of participants, the 2012 Conference cannot be expected to become a panacea for the region. The best it can be is the long awaited first step toward the practical implementation of the 1995 resolution. The conference should make several decisions showing the way forward. Russia and the United States, together with the UK and, possibly, with the facilitator, could start working on drafting such a decision—reasonable compromises—at an early stage.

First of all, there could be a decision to establish a permanent regional confidence-building mechanism in the nuclear sphere, as well as chemical and biological weapons.

Second, nuclear safety issues should be considered as crucial and urgent for the region, which has entered into the nuclear age by constructing new NPPs (Iran, UAE, Jordan, and then possibly others). Discussion on how it would be better to approach this topic at the conference should be launched by the United States and Russia soon, through both track 1 and track 2.

The third decision could be a joint statement by all conferees to refrain from attacks on all of the nuclear installations they have declared as well as from the threat of such attacks. The recent course of events around Iran's nuclear program, which was attacked with information weapons (the Stuxnet virus), both confirms the relevance of this issue and raises the question of defining the scope of such attacks.

Fourth, there could be a decision to develop a ''roadmap'' pointing the way to gradually placing all installations of the nuclear infrastructure in the region under IAEA safeguards. Of course such a decision will be impossible without Israel's consent to place the Dimona facility under IAEA safeguards. At the same time, it would not be reasonable to insist that Israel necessarily declare its entire nuclear arsenal.

Fifth, conference decisions may include a recommendation for all states in the region to ratify Additional Protocols to the IAEA Safeguards Agreements as a matter of urgency. An example might be set by Iran, which could, in the spirit of goodwill, finally ratify the Additional Protocol before the conference.

Sixth, another step, possibly on the margins of and in parallel with the Conference, could be unilateral parallel statements by Israel, Egypt, and Iran about their readiness to ratify the Comprehensive Test Ban Treaty (CTBT) in the very near future.

Finally, the conference could make a decision to establish an intergovernmental group on drafting the text of a treaty on a nuclear-weapon-free Middle East with the understanding that in the course of that all states in the region will join the Chemical and Biological Weapons Conventions.

Of course, no efforts will be crowned with success unless the states in the region themselves show enough will for cooperation in the development of the nuclear energy sector and the promotion of peace in the region free from conflict and weapons of mass destruction. However, this issue would be a good field for strategic cooperation between Russia and the United States to

approach the 2015 NPT Review Conference that should ''gauge'' the effectiveness of the efforts over the preceding five-year period.

FUTURE TRENDS

HOLLOWAY (PLOUGHSHARES FUND): The *reset* has certainly had some important consequences: the 123 Agreement, which has been mentioned, adopting the new START, cooperation on Afghanistan, cooperation on Iran with an emphasis on a more positive tone to the relationship, and WTO accession. These discussion points are important checkmates. The level of importance for each issue has caused some disagreements; some are more pessimistic about the present and future trends, and some are more optimistic. But it is clear that missile defense has come to an impasse. The talks have, as the Russians say, reached a stalemate and that really is not an issue that can be put aside since there are plans for deployment, and deployment will go ahead. Well, let the United States go ahead with phases 1 and 2, which Russia is not objecting to, and then they must take a look again at phases 3 and 4 and see if there is some possibility to devise effective missile defenses against Iran or against North Korea which would not impinge on the Russian deterrent. Once this is accomplished they can then take a fresh look at the forward acting defense for stages 3 and 4 which would deal with the U.S. goal of defending against a potential attack from Iran without antagonizing Russia.

This strategy might become a possibility if it links to budget re-pressures on the defense budget and therefore on the missile defense program. But the budget re-pressures alone will not suffice as there is no alternative policy which is more cost effective or less politically disruptive than the present policy. This problem should be the current focus of all parties.

A second point is that we have the Chicago NATO-Russian Summit coming up in May 2012. This will be a very important meeting within the framework of the upcoming election, which will make progress on the missile defense issue rather difficult. This meeting will need to highlight issues of predictability in the relationship, the issues of mistrust, and the nature of the relationship now, for example the issue of missile defense should facilitate a kind of equal security and equality in the relationship. There is a need to concentrate on these key areas of concern and resolve them through negotiation on the specific arms control issues and this depends heavily on the development of deeper, broader relationships across the political and economic issues.

ZEVELEV: Both sides agreed that going beyond deterrence actually means working in concrete areas where we can build mutual understanding and trust. We cannot simply abolish deterrence by a presidential decree. We need to build up mutual trust, which would facilitate the process. There is a need for some concrete recommendations including areas of collaboration in nuclear energy, working on fast reactors or so-called old generation reactors, a nuclear cooperation agreement, transparency, and multiple paths for providing nuclear fuel services.

Nuclear arms control looks easier in comparison with areas such as cyberspace arms control. The United States must be more attentive to the views of other powers on cyber security. The inclusion of Russia in the Preventing Cyber Crime Convention may help to create a cooperative dialogue that will instigate the whole progress. The views might be different and this can be a positive starting point to open constructive discussions on the differences and the various definitions.

ELLEMAN: The inherent assumptions are as follows: Obama might win and Putin might win. Within this context it is difficult to predict the course of the year 2012, we are trying to figure out how everything might develop and there is no reason why better relations around missile defense will not develop.

There is some general agreement that during the election season international security issues will not be of major importance. Therefore the U.S.–Russian relationship is not likely to be the centerpiece of that discussion. We have also observed that during the election season at least in the United States (but to a certain extent even in Russia) politics tends to be more nationalistic. Politics around election time seems to be a little more right-wing. This creates an unstable environment where fragile endeavors such as reset are open to attack. It is really important for us to keep this in mind as we watch the debates that follow. And we need to try to minimize the damage.

It is also important to acknowledge that politicians' foreign policy declarations during an election are not necessarily reflective of the action taken during their time in office. An example of this is the change in behavior of President Reagan in 1970–1980 during his campaign, which turned out to be quite different from the Reagan we saw in 1986–1987. The issue of budgetary pressures may also act as an external influence on political decisions on how much we want to invest in missile defense.

One of the things that united us was the need to repeal the Jackson–Vanik legislation. It seems to me remarkable that it still exists and remains in place. I don't know whether we will see movement on that over the next year.

CIRINCIONE (PLOUGHSHARES FUND): Over the course of our discussions, we've raised several sets of ideas about how the U.S. and Russia can continue to cooperate on security issues, even in an election year.

The first set of ideas revolves around resolving the ballistic missile defense impasse. The Obama Administration has developed a Phased Adaptive Approach (PAA), and the plan should actually be adaptive. The U.S. should move forward with implementation of Phases I and II, but then pause to evaluate the emerging threats before moving forward with the later phases. The U.S. could also be more transparent about the capabilities of the systems. For example, the U.S. has invited Russia to monitor the U.S. missile tests, an important step. However, the details of what kind of equipment the Russians can bring to the tests must be elaborated on, as well as what types of tests they can see. There must be more an in-depth dialogue between the U.S. and Russia to provide Russia with confidence that the observations would actually achieve something worthwhile.

With respect to U.S. and Russian strategic forces, the New START treaty was an important step, but the treaty's limits are a ceiling, not a floor. Moving forward, even before the next round of negotiations, the U.S. and Russia could further reduce nuclear arsenals below New START levels. Both sides could also agree to additional reciprocal nuclear reductions, similar to those implemented in 1991 by Presidents Bush and Gorbachev through the Presidential Nuclear Initiatives.

We also discussed the possibility of extending the Intermediate-Range Nuclear Forces (INF) treaty to the Middle East, an idea that Michael Elleman raised. The U.S. and Russia could work together to promote regional flight-test bans of intermediate- and longer-range ballistic missiles. Such bans could help constrain Iran's potential nuclear ambitions and limit future advancements in North Korea's nuclear weapons program.

Finally, the U.S. and Russia can increase cooperation on the broader security agenda. Continuing to work on advancing shared interests – including improving trade, cooperating on cyber security issues, and working toward a productive Middle East Weapons of Mass Destruction Free Zone Conference in 2012 – can facilitate an open dialogue between the U.S. and Russia, and build the confidence and momentum necessary to tackle tough issues in arms control and elsewhere.

ORLOV: I would probably not use the word ''bad'' because relations are complex and often go in different directions. However, I would not be very optimistic on the arms control agenda. We have, I believe, excellent recommendations which the SuPR Group made in February 2011 on missile defense and on further and quite ambitious arms reductions. Maybe in early 2013 we can use this productive dialogue with a few alterations within a more encouraging political framework. But at the same time there are areas which can and should unite and enhance our relationship. Next year will come with political changes and obstacles that will hopefully pave the way for better cooperation by 2013. One of them was and is nuclear energy.

The next set of issues that we have not discussed is regional cooperation within Central Asia. This should be a very significant area for our attention and discussion where proliferation, terrorism and the Islamist threat is concerned. And, of course, it is productive that our

discussion will be placed within the broader context of the economic relationship between Russia and the United States. One element which actually bridges security and economic areas is cyber security or, as we say, global internet governance and international information security. Here we have identified some useful but very limited areas of cooperation between Russia and the United States. This should also be another area that requires attention when we discuss not only missile defense but also outer space—both outer space security issues and the arms race in outer space. 

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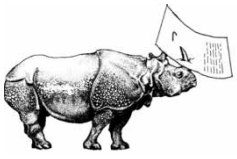

Sam Nunn

NTI NUCLEAR MATERIALS SECURITY INDEX: A FRAMEWORK FOR ASSURANCE, ACCOUNTABILITY AND ACTION

The prospect is almost unthinkable: one of the world's great cities devastated at the hands of terrorists armed with a crude nuclear weapon built of out materials stolen or bought on the black market.

On that dreadful day, with the consequences of nuclear catastrophe reverberating around the globe, citizens and world leaders alike would ask, ''What could we have done, and what should we have done, to prevent it?''

Amid the destruction, we could not plausibly argue that the threat was not clear. In fact, there is evidence today that the elements of a perfect storm are in place: There is a large supply of plutonium and highly enriched uranium—weapons-usable nuclear materials—spread across hundreds of sites in 32 countries, too much of it poorly secured. There is also greater know-how to build a bomb widely available, and there are terrorist organizations determined to do it. It is not easy for terrorists to do, but it is far from impossible, and nuclear materials security is our number one defense.

We know that to get the materials needed to build a bomb, terrorists will not necessarily go where there is the most material; they will go where the material is most vulnerable. Thus, global nuclear security is only as strong as the weakest link in the chain.

We also know that the best defense against catastrophic nuclear terrorism begins with securing weapons and materials in every country and at every facility where they are stored. The work to secure the materials, however, does not end there. All states must accept responsibility, and all must participate in the global effort to combat this threat.

In my view, we are in a race between cooperation and catastrophe. As Mohamed ElBaradei, former Director General of the International Atomic Energy Agency, has noted: ''a large percentage of the materials reported as lost or stolen are never recovered''—and, perhaps even more alarming, he added, ''a large percentage of materials which *are* recovered have not been previously reported as missing.''[1]

If terrorists succeed in blowing up a large city somewhere in the world, the result would be catastrophic—in the human toll of hundreds of thousands dead and injured, in disruptions to global commerce and global confidence, in long-term environmental and public health consequences, and in probable new limits on civil liberties worldwide.

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THE GOOD NEWS: PROGRESS HAS BEEN MADE

Thankfully, there is some good news to report.

- The United States and Russia, through the Nunn–Lugar Cooperative Threat Reduction program, turned their historic rivalry into a cooperative effort to reduce their nuclear arsenals and secure, consolidate, and eliminate nuclear materials worldwide—all in an effort to reduce the vulnerability of nuclear materials.

It is critically important for the United States and Russia to work together as partners. If you look at where Russia was 20 years ago, we should congratulate the leaders in the Russian military, the Russian laboratories and others in Russia who were dedicated patriots during a period of huge economic hardship and prevented a nuclear incident from occurring. Chances were pretty high that, amid the chaos of transition, there would be some type of nuclear incident, if not disaster, coming out of the huge stockpiles of highly enriched uranium, plutonium, and weapons. Where Russia was 20 years ago and where it is now is a remarkable achievement.

- Ukraine, Belarus, and Kazakhstan returned the nuclear weapons they inherited from the former Soviet Union and joined the Nuclear Non-Proliferation Treaty.
- South Africa dismantled its nuclear weapons program.
- To date, 20 countries have eliminated their weapons-usable materials.
- The past decade has seen the creation of new and innovative approaches to combating the threat, such as the Proliferation Security Initiative in which more than 70 countries participate, including Russia.
- In 2010, new momentum was injected into nuclear security efforts when leaders from 47 countries committed to take steps toward better nuclear materials security at the first-ever Nuclear Security Summit, held in Washington, D.C., an event that helped build much-needed political awareness and increased capacity within many governments.
- As President Medvedev said at the time, ''The issues that united us were so obvious—nuclear terrorism, cooperation in countering countries that are trying to obtain [nuclear] technologies by illegal means—all these topics are equally understood. There was no polemic.''[2]
- Since the first Summit, 12 additional countries have joined important international treaties on nuclear materials security, the United States and Russia have destroyed enough highly enriched uranium to make thousands of nuclear weapons, and more than a dozen nuclear security training and research centers have opened around the world.
- A second Nuclear Security Summit was held in Seoul, South Korea, in March 2012, bringing added attention to the threat—and providing an opportunity for important additional progress toward preventing catastrophe.

THE NTI NUCLEAR MATERIALS SECURITY INDEX

Despite this welcome new attention to the threat, however, many governments face stark political and financial challenges and, as a result, still struggle to secure the dangerous materials that can be used to build nuclear weapons. In addition, there is no global consensus about what steps matter most to achieve security and no agreed international system or globally accepted practices for regulating the production of, use of, and security requirements for weapons-usable nuclear materials.

The Nuclear Threat Initiative recently released the NTI Nuclear Materials Security Index, which we believe can serve as a solid foundation to help inform this urgent and ongoing work. The NTI Index is a country-by-country assessment of the status of nuclear materials security conditions around

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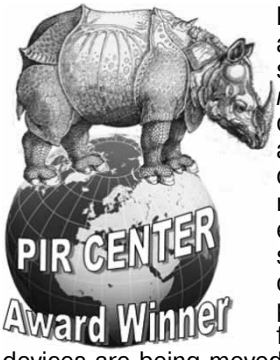

EVGENY MASLIN: What is nuclear security and safety? Accounting and control of nuclear materials is only one aspect of security and safety. If we take a broader view, *nuclear security and safety of nuclear weapons* also means built-in characteristics of a nuclear device which - provided that the operational requirements are adhered to – rule out an accidental or unauthorized nuclear detonation under any circumstances, and also reduce the risk of a radioactive contamination of the environment in the event of emergency. What are the measures required for that degree of security and safety? *First* of all, we are talking about the actual design of the nuclear device. *Second*, storage conditions. *Third*, personnel selection. *Fourth*, physical protection of the storage facilities. Fifth, the use of special transport whenever nuclear devices are being moved from one location to another. *Sixth*, there must be a whole set of rules for handling the device. *Seventh*, there must be a proper system accounting and control of nuclear devices.

''Not a Single Nuclear Device Has Been Stolen or Gone Missing in Russia so far''
***Yaderny Kontrol* (Russian Edition), 1995, No 5, P. 9.**

the world. This type of in-depth index has not been produced before: it takes a broad approach in defining nuclear materials security; it is comprehensive, and it is transparent.

NTI worked in close cooperation with the Economist Intelligence Unit (EIU) in producing the index. In addition, to ensure that the project maintained an international perspective throughout, we sought guidance and leadership from experts around the world. This included an international panel of highly respected nuclear materials security experts from nuclear states—including Russia—and non-nuclear weapons states, from countries with and without materials, and from developed and developing nations. NTI also conducted briefings with and sought feedback from governments and a host of other experts worldwide. This support strengthened the intellectual framework for the index and enhanced its accuracy.

With this index, NTI is proposing a framework that we hope will define the essential elements of a greatly strengthened global nuclear materials security program, spark an international discussion about priorities required to strengthen security, and, most importantly, encourage governments to provide assurances and take actions to reduce risks.

To be clear, the index is not a facility-by-facility review of ''guns, guards, and gates'' or an on-the-ground review of materials control and accounting practices. Those are all crucial measures, but their effectiveness must be evaluated by governments. The index takes a necessarily broad view of security and assesses and scores each state across a broad range of publicly available indicators of a state's security practices and conditions.

INDEX METHODOLOGY

NTI and the EIU created this index by developing five categories comprising 18 indicators to offer an initial objective assessment of the contribution of 176 countries toward global nuclear materials security.

Working with the independent group of international experts, we identified key factors which fundamentally affect a state's nuclear materials security conditions. Then we assessed their relative importance. These factors address the following questions:

- ❑ How much weapons-usable material does the state have and at how many locations?
- ❑ What kind of requirements for protection are in place?
- ❑ What international commitments related to materials security has the state made?

- What is the ability of that state to fulfill those international commitments?
- Finally, could a given country's societal factors—such as corruption or government instability—undermine its security commitments and practices?

Certainly, not every country or every expert agrees with all of our assessment or with the exact order of our priorities. We welcome debate on these essential questions. We also welcome constructive suggestions for improvement.

FINDINGS AND RECOMMENDATIONS

In producing the Index, NTI sees signs that governments are becoming more engaged on this issue. However, there is not a shared consensus about what security measures matter most. The lack of shared priorities undercuts the ability of governments to take urgent and effective action.

Most importantly, to build a framework for assurance accountability and action, government leaders should determine robust new ways to do the following:

- Create a global dialogue and build consensus on a new security framework on material security.
- Hold states accountable for their progress.
- Build a practice of transparency that includes declarations and peer reviews. I want to make it clear that we understand that some information must be protected—like specific security practices at individual sites. But there is a lot of information that should be shared with the public and certainly other governments to build confidence and inspire actions by other countries.

When we briefed governments about the Index, several questions consistently came up.

First, ''Are governments cooperating with you?'' The answer is a qualified ''yes.'' In developing the Index, we offered briefings to the 32 countries with weapons-usable nuclear materials, and 28 accepted this offer. More than half of those countries also validated the data collected by the EIU to ensure that they were accurate. We also kept South Korea informed as host of the most recent Nuclear Security Summit. In the future, we hope that more governments will engage in this process.

Second, ''Why did you rank 144 countries that don't have weapons-usable materials?'' Even countries without weapons-usable nuclear materials must avoid becoming safe havens, staging grounds, or transit points for illicit nuclear activities. While Russia and the United States have special responsibilities as countries with the greatest amount of weapons-usable nuclear materials, every country can and must do more to help protect these materials.

At this time, governments and international institutions have not undertaken a global assessment of nuclear materials security. Over time, the NTI Index can be improved, and we hope that, at some point, comprehensive updates will be performed on a regular basis by an independent international body. Until that occurs, NTI intends to update the index periodically.

The Index is not about congratulating some and chastising others. Instead, it should be used as a tool for initiating discussion, analysis, and debate, as well as beginning to help build a global consensus. My bottom line: If the world is to succeed in preventing catastrophic nuclear terrorism, all countries can and must do more to strengthen security around the world's most dangerous materials.

These issues are especially salient for Russia and the United States. Both countries have suffered from terrorism over the last decade, and both countries are targets for terrorist groups seeking nuclear weapons.

As citizens and as leaders, we need to ask ourselves this question: If we had a catastrophic nuclear terrorist attack on Moscow or New York, on Tel Aviv or Jakarta, or on any other city in the world, the day after, what steps would we wish we had taken to prevent it? Securing weapons-

usable nuclear materials is the most critical step, and we hope the NTI Index will make a significant contribution toward this imperative goal. 

The NTI Index website – www.ntiindex.org – includes an NTI report with the full results, findings and recommendations in an easily accessible format, including all country summaries as well as interactive tools for visitors to select their own priorities and weighting of categories and indicators.

NOTES

[1] M. ElBaradei, ''Reviving Nuclear Disarmament,'' *Nuclear Security Project*, 2008, February 26, <http://www.nuclearsecurityproject.org/publications/reviving-nuclear-disarmament>, last accessed February 27, 2012.

[2] D.A. Medvedev, Interview with Izvestiya newspaper, *Kremlin.ru*, 2010, April 14, <http://news.kremlin.ru/transcripts/7467/print>, last accessed February 27, 2012.

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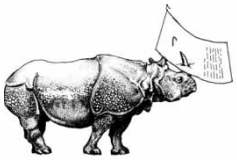

Adriaan van der Meer

THE HUMAN DIMENSION OF NUCLEAR SECURITY

The Nuclear Security Summit in Washington of April 2010 mentioned the importance of the human element in contributing to nuclear security. Its documents referred to the improvement of a security culture as an important factor. The further promotion of such a culture was on the agenda of the 2012 Summit in Seoul.

The proliferation of weapons of mass destruction (WMD) is potentially the greatest threat to our security. The matter is subject of discussion at almost every G8 summit. The latest summit at Deauville adopted a Declaration on Non-Proliferation and Disarmament.[1] The G8 have expressed determination to make every effort to overcome the danger of proliferation of WMD by upholding, strengthening, and universalizing all relevant multilateral nonproliferation and disarmament instruments.

Nonproliferation and disarmament, in particular when it comes to WMD, has always been a subject of high sensitivity and political importance. It continues to be at the top of the international agenda. The challenges of today do not only relate to the rapid spread of nuclear science and increased access to such knowledge. Attention also has to be paid to the rising number of actors involved and the relationships between them. The amount of information that is accumulating thanks to the rapid advances in science and technology is staggering. There is a need to respond to these developments.

In an article in the *Financial Times* in 2005, the former Director General of the International Atomic Energy Agency (IAEA) Mohamed ElBaradei observed that in recent years three phenomena have radically altered the security landscape: the emergence of a nuclear black market, the determined effort by more countries to acquire the technology to produce the fissile material used in nuclear weapons, and the clear desire of terrorists to acquire weapons of mass destruction.[2] This trend necessitates a review and strengthening of the international counter-proliferation regime.

On January 15, 2008 four former high level U.S. politicians wrote in the *Wall Street Journal* that the accelerating spread of nuclear weapons, nuclear know-how and nuclear material has brought us to a nuclear tipping point: ''We face a very real possibility that the deadliest weapons ever invented could fall into dangerous hands.''[3] On February 2, 2011 they wrote also that:

> The likelihood that non-state terrorists will get their hands on nuclear weaponry is increasing. In today's war waged on world order by terrorists, nuclear weapons are the ultimate means of mass devastation. And non-state terrorist groups with nuclear weapons are conceptually outside the bounds of a deterrent strategy and present difficult new security challenges.[4]

Therefore, the key questions today are:

- How do we best prevent untrustworthy or unreliable people from gaining access to WMD?
- How do we best prevent them using that capability should they nevertheless have acquired it?

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- How do we best prepare to mitigate the impact of those weapons if they were to be used?
- How do we persuade such actors not to seek to obtain WMD in the first place?

Progress in answering these questions would be inconceivable without cooperation by the international community.

POLICY EFFECTIVENESS

Nowadays a wide range of tools is available to prevent, to control, to eliminate, or to respond to the proliferation of WMD. There are multilateral treaties and verification mechanisms, national and international coordinated export controls, cooperative threat-reduction programs, political and economic levers (including trade and development policies), interdiction of illegal activities, and, as a last resort, coercive measures in accordance with the UN Charter. As the EU has acknowledged in its nonproliferation strategy, while all instruments are necessary, none is sufficient in itself. There is a need to strengthen them across the board and to deploy those that are most effective in each case. Some experts argue that there is little question that the international security and counter-proliferation measure needs innovation and to be adapted to the new developments. New tools need to be developed to effectively deal with today's changing threats. The 2010 NPT Review Conference touched on these issues and an action plan was adopted.

With respect to the peaceful use of nuclear energy, the events at Fukushima underlined the need to further promote nuclear safety and nuclear security management. There was a call for example by President of the European Commission José Manuel Barroso on April 19, 2011 to intensify multilateral efforts in the sphere of nuclear safety, also in terms of emergency assistance. Later on, in September 2011, the IAEA adopted a nuclear safety action plan that is currently under implementation.

All this (legal) work is to be fully supported and each of the activities forms an important cornerstone of the over all worldwide policy of nuclear nonproliferation. However, it is important to include in the discussion on these and other related matters the individuals and their institutes that on a day-to-day basis deal with such highly sensitive materials and technologies. It is necessary to take these underlying factors into account when dealing with nuclear nonproliferation. Prevention is more cost-effective than a cure, as experience in other policy areas has shown. The aim is to further develop a culture of responsibility among scientists and engineers and institutions dealing with high risk and sensitive materials. This grassroots approach would be more positive and cost effective than other measures relating to the nonproliferation policy chain.

HUMAN ENGAGEMENT

It is common knowledge that dealing with high-risk materials and technologies, including know-how, has the potential for inappropriate and unauthorized use that could result in great harm. The human factor is a key element of an effective nonproliferation regime. Actions directly targeted at the grassroots level, i.e. individual scientists and engineers, are crucial.

Measures to foster a non-proliferation culture are therefore essential. At the level of individual institutes, in most countries standards of oversight, including peer reviews, are in place for individuals working in the fields of science and technology. However, the effects of globalization, such as increased mobility of scientists, raise doubts about the effectiveness of such standards on a worldwide level.

Therefore, the initiatives taken in this field at the Nuclear Security, i.e. to the human dimension as a way to prevent proliferative activities at an early stage, should be given adequate follow-up at Seoul.

Moreover, in 2009, G8 members recognized the need to implement scientist-engagement projects globally and agreed to Recommendations for a Coordinated Approach in the Field of Global WMD Knowledge Proliferation and Scientist Engagement.[5] At Deauville in 2011, in an assessment of the future programming of the Global partnership, the G8 further developed these

recommendations. It called *inter alia* for the strengthening and the promotion of awareness and responsibility among chemical, biological, radiological, and nuclear (CBRN) scientists. Best practices and collaboration in CBRN security among the international scientific community are to be promoted. A safety and security culture is to be developed.

At the international level, few programs exist to ensure that institutes cultivate such a culture of responsibility. The International Science and Technology Centers in Moscow and Kiev work to instill such a culture. Since becoming operational in the mid-1990s, they have been engaged in the promotion of research for civilian—nonproliferation—purposes. They have supported greater responsibility and raised awareness of nonproliferation norms among scientists from the former Soviet Union by integrating them into the world scientific community. In today's world, with easier access to know-how, a drastic rise in the establishment of new research facilities, and a greater emphasis on high-risk research, these aspects of the work of the International Science and Technology Center (ISTC) in Moscow and the Science and Technology Center in Ukraine (STCU) have become even more relevant.

With this in mind, ISTC has developed a program of responsible science management. Its content is coordinated with other partners inside a network under the aegis of IAEA, the so-called INSEN Network. Educational materials and special training programs have been developed. The work of a faculty on nonproliferation studies at the Russian National Research Nuclear University (MEPhI) in Moscow has been supported.

THE ROLE OF ISTC: TODAY AND TOMORROW

ISTC is a non- and counter-proliferation mechanism that deals with the scientific aspects related to nonproliferation. It is a research funding agency that works at the crossroads of international non-proliferation policy and international scientific cooperation. It is an intergovernmental organization in which Canada, the EU, Japan, Russia, the United States, and various countries of the former Soviet Union work together.

The Center assists through its activities in the achievement of the objectives of the UN SCR 1540 on Global Non-Proliferation and Counter-Terrorism, in particular the implementation of paragraph 8(d) that deals with industrial and academic, scientific, and engineering personnel.

Today the work at the Center differs considerably from the situation in the mid-1990s when ISTC was created. This is not only related to the shift in security risks but also the increasingly global nature of the non-proliferation challenges we face. The financial and economic situation in some countries of the former Soviet Union has changed for the better. Initiatives have been taken to better adapt existing tools and methods to the current state of affairs targeting dual-use knowledge, including young scientists.

ISTC is used to implement activities under the Nuclear Security summit and as defined for the new G8 Global Partnership program beyond 2012. ISTC's lessons learnt and accumulated know-how are to be made available to other regions in the world. This will allow for new avenues of collaboration and human engagement in nuclear nonproliferation matters.

Since 2007 ISTC has been working on a new strategic vision and transformation process. Scientists' engagement programs (outreach, training, education) and the upgrading of security levels in laboratories were among the priorities of a transformed organization to be built on principles of partnership and equality inclusive of Russia. The design of the new organization, its architecture, and the geographical scope of the organization is still under discussion, including work modalities. However, this process was impacted negatively after the announcement in 2010 by Russia to withdraw from the organization in 2015.

Any new type of organization should be a Centre of Excellence for scientific and technological support for CBRN mitigation and scientist engagement and has to work on a global basis. There is still time left to work on and discuss those issues. Let us work further on this concept for the sake of enhancing the human dimension of nuclear security as part of the overall nuclear nonproliferation policy worldwide that faces new challenges.

NOTES

[1] Declaration on Non-Proliferation and Disarmament, G8 Summit, Deauville, France, May 26–27, 2011, <http://www.g20-g8.com/g8-g20/g8/english/the-2011-summit/declarations-and-reports/appendices/declaration-on-non-proliferation-and-disarmament.1352.html>, last accessed February 22, 2012.

[2] Mohamed ElBaradei, Seven Steps to Raise World Security, *Financial Times*, February 2, 2005, <http://www.iaea.org/newscenter/statements/2005/ebsp2005n001.html>, last accessed February 22, 2012.

[3] George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn, ''Toward a Nuclear-Free World,'' *Wall Street Journal*, January 15, 2008.

[4] George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn, ''A World Free of Nuclear Weapons,'' *Wall Street Journal*, February 2, 2011.

[5] Recommendations for a Coordinated Approach in the Field of Global WMD Knowledge Proliferation and Scientist Engagement, Global Partnership Working Group, 2009, <http://www.g8italia2009.it/static/G8_Allegato/Annex_B,2.pdf>, last accessed February 22, 2012.

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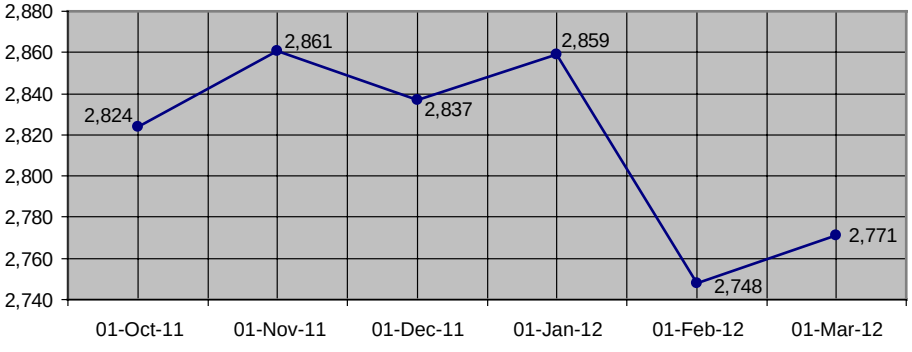
REVIEW OF RECENT WORLD EVENTS: DECEMBER 2011–JANUARY 2012

Figure 1. **The International Security Index (*iSi*) October 2011–February 2012**



ISI INDEX DECEMBER 2011–JANUARY 2012

The iSi index is calculated weekly and monthly. The results with the brief comments explaining Index fluctuations are published at the PIR Center website: www.pircenter.org

At the end of 2011 the PIR Center team and members of the International Expert Group once again took stock of the changing military, political, terrorist, economic, natural and man-made threats, and updated the new basic value of the international security index (*iSi*) for 2012. To determine the *iSi* basic value, the researchers analyze the probability of such events as a total nuclear war, a large-scale military conflict between nuclear powers, a sharp deterioration in relations between the leading global powers, a large terrorist attack, etc. They also take into account the economic and environmental situation, man-made, and natural disasters.[1]

The basic *iSi* value for the year stood at **3195 points** in 2009, **3228 points** in 2010, and **3284 points** in 2011. The basic value for 2012 is **3115 points**.

The decline reflects the ongoing crisis in the Middle East and North Africa amid an outbreak of popular discontent which has led to a change of regime in Tunisia, Egypt, Libya, and Yemen. Other contributing factors include a catastrophic earthquake in Japan, which led to a tsunami and a major accident at the Fukushima-1 nuclear power plant; a deteriorating economic situation in the Eurozone; and the growing likelihood of a double-dip recession in Europe and the United States. The international security situation was also affected by the deadlock in Russian–U.S. talks on missile defense in Europe. Speaking at a NATO-Russia Council meeting in June 2011, Anders Gogh Rasmussen said the alliance had no intention of issuing any legally binding guarantees that the missile defense system would not threaten the Russian strategic deterrence capability. Russia responded by putting a military radar in Kaliningrad on combat duty.

- **Africa and the Middle East.** Tensions continued in **Libya** despite the toppling of the Gaddafi regime and the end of NATO's military operation in November–December 2011. There were armed clashes between the various tribal groups and Col. Gaddafi's supporters. There was also growing confrontation between the army and the rebels who

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fought to topple Gaddafi. Meanwhile, on December 18 the UN Security Council lifted financial sanctions against Libya.

In **Yemen** on November 23, 2011 President Ali Abdullah Saleh and the opposition signed an agreement on peaceful power transfer. The leader of the opposition, Mohammed Basindwa, was appointed interim leader. Despite Saleh's departure clashes continued between the army and the opposition, which demanded that the president be put on trial. The opposition also clashed with groups refusing to support the new national unity government. Casualties were reported on both sides.

Egypt saw mass protests in November against the growing role of the military. There were clashes between the protesters and the police; more than 750 people were injured during attempts by security forces to disperse the rallies. The Egyptian cabinet resigned, unable to take the situation under control. The new Cabinet is led by Kamal al-Ganzouri. The first round of parliamentary elections was held on November 28, the second on December 14–15. Early results give victory to the Muslim Brotherhood's Justice and Freedom Party.

Kuwait saw mass demonstrations on November 23; the protesters demanded the government's resignation and political reforms. Parliament was dissolved in an effort to stem the crisis. There was a major outbreak of political tensions and a series of terror attacks in **Iraq** following the pullout of U.S. troops. **Nigeria** saw clashes between Islamist radicals and the police. There were anti-government demonstrations in **Bahrain** and **Saudi Arabia**. In **Turkey** the army conducted a large operation against Kurdistan Workers Party (PKK) rebels.

Iran. In November the IAEA published a report which said that the country is developing nuclear weapons. On November 29, shortly after the release of the report, Iranian students ransacked the British embassy in Tehran. In response the UK ordered the closure of the Iranian embassy in London. Meanwhile, the EU imposed new sanctions on Iran; Israel threatened a pre-emptive strike. On December 23, 2011 Iran began naval exercises in the Strait of Hormuz. Tensions rose even further on December 28, when the Iranian first vice-president, Mohammad-Reza Rahimi, said that the Iranian Navy was ready to block oil shipping via the strategically important strait if the West acted on its promise to impose sanctions on the country's oil industry. On January 2, 2012 Iran test-launched a medium-range surface-to-air missile. The United States imposed sanctions in the Iranian financial sector, including the country's central bank. On January 10, 2012 the IAEA said Iran had begun to enrich uranium to 20 percent at an underground facility in Fordow, near Qom. The UN demanded that Tehran prove the peaceful nature of its nuclear program. The United States and its allies accused Iran of violating UN and IAEA resolutions. Russia also expressed concern at Iran's actions.

*Evgeny **Buzhinsky** (**Russia**), Lieutenant General, PIR Center Senior Vice-President—by phone from Moscow*: The start of the presidential campaign in the United States will influence the level of security in the world. Rising or falling chances of Barack Obama for re-election depend on the degree of U.S. involvement in the Middle East crisis. As for Israel, radical Islamists coming to power in Egypt and Syria is an undesirable outcome; Obama can distance himself from active intervention in the internal affairs of these countries and ease the pressure on its leaders. On the other hand, for the same reason, the United States could provide military assistance to Israel if the latter accepts a decision to attack Iran's nuclear facilities. With a deepening of the economic crisis and growing political problems, the EU can cut down its activity in the anti-Syrian and anti-Iranian direction.

- **Israel and the Arab world.** Israel and Hamas reached an agreement on exchanging Israeli serviceman Gilad Shalit, who was captured in Gaza five years ago, for Palestinian prisoners. Hamas secretary-general Khaled Mashasl said the movement was changing the

tactics of its struggle for the liberation of Palestine and relinquishing direct armed violence in favor of talks.

Negotiations between Israeli and Palestinian representatives took place on January 4, 2012 in the capital of Jordan. Both sides agreed to continue dialogue. UN Secretary-General Ban Ki-moon welcomed the talks and called for their continuation. U.S. President Barack Obama reiterated America's readiness to facilitate further contacts between Palestine and Israel.

- **Afghanistan–Pakistan.** On December 28, 2011 Afghan President Hamid Karzai announced the decision to disband irregular police forces created by NATO, after accusing them of extorting money from ordinary citizens. On January 8, 2012 the Afghan authorities accused U.S. servicemen of abusing prisoners held at the Bagram military base.

- **Koreas.** North Korean leader Kim Jong-il died on December 17, 2011. His youngest son Kim Jong-un has taken over. The new North Korean leadership has admitted that the country is in the middle of a food crisis. South Korea said it is ready for talks with the North, but only on the condition that Pyongyang abandon its nuclear weapons program.

On December 19 North Korea test-launched a short-range missile from a site on the eastern coast of the Korean Peninsula.

*Chun-Sheng **Tian** (**China**), Deputy Director and Professor at the China Association for Economic Studies on Russia & Central and Eastern Europe— by e-mail from Beijing*: The European economy continued to suffer from the European debt crisis. Starting from 2012, the world may be entering a crucial economic and political turning point for adjustment and many institutional problems need to be solved in the Euro area. In the next year, the developed economies, particularly that of the European Union, will hardly see big improvements, but the global economy is not in recession; for the U.S. economy it is difficult to quickly overcome the consequences of the financial crisis. Emerging economies face a slowdown in GDP growth; China's economic growth rate will slow down, reaching the level of about 8%. China's economic and social problems are becoming more complex, and there will be a great need for the authorities' attention. The year 2012 will pass under the rubric of looking for new solutions for the global economy.

- **Europe.** The sovereign debt crisis sent shockwaves across the global markets and had major repercussions for security on the continent. At a summit in Brussels in December the EU leaders approved a set of budget and tax reforms for the Eurozone. Seventeen Eurozone countries and another six EU members who are outside the euro signed up to the budget stability pact. The EU also decided to give an additional €200 billion of financing to the IMF. The UK opposed the reform. Efforts to save the euro in 2011 included five key decisions: to create the permanent European Financial Stability Fund; to launch the European financial stability mechanism; to approve the first bale-out package for Greece to the tune of €110 billion; to write off 50 percent of Greek debt, i.e. €100 billion; and to sign the Eurozone budget pact.

- **Former Soviet republics.** Russia saw mass protests on December 10 and December 24 against the outcome of the parliamentary elections. Armed clashes broke out on December 18 in western Kazakhstan between the police and oil workers demanding higher wages; a state of emergency was declared in parts of the country following days of unrest.

On December 16 Russia signed a protocol of accession to the WTO.
At a CSTO summit in Moscow on December 20 the member states agreed that from now on they will allow foreign military bases to be deployed on their territory only after securing the consent of their CSTO partners.

- **Natural and man-made disasters.** A tropical storm killed more than 500 people in the southern Philippines in December. There were floods in Central America and Thailand, and

*Andrey **Kortunov** (**Russia**), Director General of the Russian Council on Foreign Affairs— by phone from Moscow*: The internal political situation in Russia, exacerbated after the elections to the Duma on December 4, is another threat to security situation. Demonstrations in Moscow where participants expressed their disagreement with the election results had a direct impact on global financial markets and aggravated Russian's foreign policy cooperation with the EU and the former Soviet Union. Our partners in the CIS are accustomed to a model of managed democracy which has prevailed in Russia in recent years. It seemed that this model guarantees stability. But mass demonstrations in the Russian cities led to the feeling that widespread control of the situation in Russia has been shaken. This would make many of the CIS leaders rethink their relations with Moscow and overestimate the prospects of the various integration projects on the former Soviet Union.

The main challenge for Russia is to offer a new attractive model of modernization development. It will allow us to stand in the center of this integration group. But still there is no such a model. A set of tools that Moscow is trying to use to organize a Eurasian Union is very limited: trade, cheap energy, security threats. But it is important to create something new and more attractive. Russia should seriously think about the fact that many CIS countries face the possibility of political transition— a change in generation of leaders. The matter of how to avoid such shocks and crises during the transition of power influences the success of integration projects in the former Soviet Union.

a powerful earthquake off the Indonesian island of Bali. Iraq, Pakistan, Afghanistan, Nigeria, and Somalia all saw devastating terrorist attacks.

Galiya Ibragimova

*Konstantin **von Eggert** (**Russia**), Member of the Royal Institute of International Relations— by phone from Moscow*: The project of creation of the Eurasian Union in the post-Soviet countries, voiced recently by Vladimir Putin, has no obvious advantages for Russia. The whole idea looks more like a PR campaign by the Russian prime minister, who wants to enter history as a collector of former land. However, for the Russian electorate, this topic lost its urgency about five years ago. The Eurasian Union idea can be attractive only for such countries as Kyrgyzstan and Tajikistan. They hope to gain some privileges and ease the plight of their migrants working in neighboring countries.

NOTE

[1] The December 2011 review of the international security index (*iSi*) was conducted by the following PIR Center researchers and members of the International Expert Group: Irma Arguello, Evgeny Buzhinsky, Pal Dunay, Dayan Jayatilleka, Halil Karaveli, Andrey Kortunov, Vladimir Orlov, Evgeny Petelin, Antonio Jorge Ramalho, Chun-Sgeng Tian, Evgeny Satanovsky, Farhod Tolipov, Nandan Unnikrishnan, Konstantin von Eggert, and Albert Zulkharneev.

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Yury Fedorov

TIMES ARE CHANGING…

Tempora mutantur, nos et mutamur in illis, the Romans used to say 2,000 years ago as they observed events in their own empire and farther afield.[1] The saying comes to mind as one attempts to comprehend the dynamics of today's international relations. It seems, however, that the times are not just changing but actually approaching a major turning point. Many of the basic notions, strategic assumptions, and stereotypes which determined the course of international politics after the Cold War have turned out to be obsolete. They are hardly effective as instruments for restoring global financial stability; preventing the collapse of the nonproliferation regime; neutralizing the dangerous trends originating in the Muslim world; or preventing another bout of military and political tensions along the borders of the former Soviet Union. One needs to understand and accept the fact that new thinking and new policies are required to meet these and other challenges of the twenty-first century.

Two ongoing international crises deserve special attention. The first, in the Persian Gulf, is being fuelled by Iran's progress towards acquiring nuclear weapons. This results in the growing likelihood of a military operation to put an end to the Iranian nuclear program, prevent a blockade of the Strait of Hormuz, and, in the broader context, eliminate the Iranian regime, which has for many decades been like a cancer in the Middle East. The debate is now focused on the possible scenarios and, more importantly, the possible consequences of using military force against Iran.

The second major escalation is unfolding in Europe as a result of Moscow's attempts to stymie the missile defense in Europe program, dubbed in Russia as EuroABM. The situation will become especially dangerous if Russia makes good on the promise made by President Dmitry Medvedev in November 2011 to deploy *Iskander* missiles in the Kaliningrad exclave and unspecified ''modern offensive weapons systems'' in the south of Russia. Such a move would most likely trigger a new military-political crisis along the lines of the 1970s–1980s missile crisis. Several other important questions need to be answered. For example, what is the reason for the sharp anti-Western turn Russia's foreign policy took in the second half of 2011, with the Kremlin reacting so hysterically to the EuroABM program? Can that trend be halted or reversed without abandoning the current strategy of engaging Russia in constructive relations with the West?

THE ENDGAME IS NEAR

After years of simmering, the crisis over the Iranian nuclear program was nearing the endgame in early 2012. It has become clear that Iran is only a short distance away from acquiring nuclear weapons, and that all the sanctions imposed on the country, including those decided by the UN Security Council, have failed to achieve the desired effect. That is the conclusion that can be drawn from the November 8, 2011 report by IAEA Director General Yukiya Amano. The report states that by early November 2011 Iran had accumulated almost 5 tonnes of uranium hexafluoride enriched to 3–5 percent of U-235 content, plus another 80 kg enriched to 20 percent.[2] If Iran were to enrich all of its uranium to 90 percent, it would have enough material to make three or four first-generation nuclear devices. Meanwhile, Iran is not only pressing ahead with enrichment but actually adding new enrichment capacity. In January 2012 it launched centrifuges at a heavily protected underground bunker near Fordo. The report also contains evidence that Iran is developing an implosive-type nuclear device. It is quite likely that the IAEA, the Western countries, and Israel also have other worrying information about the Iranian nuclear program which they have chosen not to disclose for now.

It is beyond any doubt that the Iranian leaders are deliberately sabotaging all attempts at resolving the nuclear problem though compromise. For example, in the summer of 2011 Tehran walked out after almost three years of negotiations on a so-called *uranium deal* under which the country was supposed to stop enriching uranium to more than 5 percent of U-235 content. Under the terms of the proposed deal about four-fifths of the low-enriched uranium produced in Iran would be

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Pál ***Dunay****, (****Hungary****), Head of the International Security Program of the Geneva Center for Security Policy—by e-mail from Budapest*: The IAEA reports, similar to most other assessments, are based on an interpretation of information and as seen many times in past years, they meet the political expectations of the information providers (compared with the Iraqi WMD.) The impression that Iran has misled the international community for several years and has come dangerously close to acquiring nuclear weapon(s) may induce action unless the foundations of the report are reassessed and turn out to be demonstratively unfounded. This presents the problem, however, that actions are planned based on such reports. If some states are under the impression that this is the last chance action may be taken to prevent the completion of a nuclear weapons program, this might be interpreted as providing impunity.

shipped to Russia and France. In return the two countries would supply Iran with uranium enriched to 20 percent, to be used for various medical purposes.

As a result, in the second half of 2011 the international community was facing an urgent need for a new approach to the Iranian nuclear crisis. The Western countries have formulated three strategic principles for dealing with Iran. First and foremost, they have agreed that Iran must be prevented from acquiring nuclear weapons. In essence, they have given their final answer to the question of whether coexistence with a nuclear-armed Iran would be acceptable—a question that has been debated by Western politicians, the military establishment, and analysts for many years.

A military operation to prevent Iran from going nuclear is seen as something extremely undesirable but perhaps unavoidable if all other options fail. A typical example of this stance is reflected in a statement made by French President Nicolas Sarkozy in August 2011: ''[Iran's] military nuclear and ballistic ambitions constitute a growing threat that may lead to a preventive attack against Iranian sites that would provoke a major crisis that France wants to avoid at all costs.''[3] This is a tough and uncompromising message, which contrasts sharply with the usual elegant ambiguity of French diplomacy and indicates the extreme irritation and concern caused by Tehran's actions in Paris.

In Israel, meanwhile, a heated debate over the right course of action on Iran is no longer limited to political circles. Many argue that a military strike is not only acceptable but inevitable. President Shimon Peres, Prime Minister Benjamin Netanyahu and Defense Minister Ehud Barak have all said that a military operation against Iran is a distinct possibility. Peres, who is more of a dove than a hawk, emphasized that "the possibility of a military attack against Iran is now closer to being applied than the application of a diplomatic option.''[4]

President Barack Obama, for his part, has reiterated that ''America is determined to prevent Iran from getting a nuclear weapon''. ''I will take no options off the table to achieve that goal,'' the president pledged.[5] There is growing speculation in the world media about the need for a military strike against the Iranian nuclear facilities and about the various scenarios for such an operation. Of course, that speculation could be—and probably is—one of the instruments for putting pressure on Tehran so as to steer the Iranian nuclear program towards an internationally acceptable course. But if the economic sanctions and diplomatic pressure on Iran fail to achieve that outcome, the West will genuinely have no other choice left but to launch a military operation. Judging from publications in the world media and experts' analyses, the first strike on Iranian nuclear facilities will be delivered by Israel as a country that is primarily threatened by Iranian nuclear weapons; at least, many in Western capitals hope so. In their turn, the United States and perhaps some European countries as well as Saudi Arabia will enter into the war depending on Tehran's reaction to the Israeli operation.

For the immediate future, however, the main emphasis is on cranking up the pressure of economic sanctions on Iran. In late 2011–early 2012 the United States augmented the existing measures (a ban on almost all imports from Iran; on exports to Iran of petrochemicals, weapons and dual-use technologies; and on investment in the Iranian oil and gas industry, etc.) with a ban on investment in the Iranian petrochemical industry and, even more importantly, on all operations with Iranian banks. Washington also froze all Iranian assets in the United States and those controlled by American financial institutions abroad. This measure will also affect foreign financial institutions: those who continue dealing with Iran will not be able to do business with American companies.

In January 2012 the European Union banned new contracts for the transportation, purchase, and import into Europe of Iranian oil and petrochemicals, as well as all the attendant financial and insurance operations. All the contracts already in force must be completed by July 2012. Europe has also banned exports to Iran of equipment for the country's energy and petrochemical sectors, as well as all investment in those sectors. The Iranian central bank's assets have been frozen, and many new items have been put on the list of dual-use technologies that cannot be exported to Iran. Several European countries and Canada have imposed additional sanctions beyond those already listed. For example, in November 2011 the UK government banned all financial operations with Iranian banks.

Theoretically the ban on imports of Iranian oil is the most effective method of putting pressure on Tehran. Iran's oil revenues reached $73 billion in 2010, accounting for about 80 percent of the country's export earnings and half of the Iranian budget revenues. But most of the Iranian oil is bought by China, Japan, and India (see Table 1). In 2011 the EU was the destination of only about 20 percent of all Iranian oil exports, which stood at about 2.2 million barrels a day in the second half of the 2000s.[6]

Japan and South Korea have said they will work to secure alternative sources of oil and reduce imports from Iran. China nearly halved its own oil imports from the country in January 2012, but that was apparently due to a price dispute. India, however, has increased imports of Iranian oil. In other words, Tehran is unlikely to be left without any buyers for its oil in the coming months. But in the longer time frame, given the ongoing instability in the Persian Gulf and the growing likelihood of a military operation against Iran, Asian countries will probably try to reduce their dependence on Iranian oil so as to minimize their exposure in the event of a crisis.

Meanwhile, sanctions aimed against the Iranian financial system have turned out to be more effective. In January 2012 the Iranian Rial plunged 40 percent against the U.S. dollar. Even more importantly, Iran is now facing a shortage of hard currency earnings to pay for imports, including foodstuffs. In some cases it has even had to resort to barter contracts.

It is hard to predict how effective these sanctions will turn out to be in the long run. Tehran's initial reaction has been aggressive. The Iranian leadership has threatened to ''strike at the United States all over the world,'' which is an obvious bluff. It also said it would target Saudi oil operations, launch missiles against Israeli cities, encourage Syria, Hamas, and Hezbollah to launch devastating terrorist attacks against Israel, and even block all shipping in the Strait of Hormuz, thereby cutting off three-quarters of all oil transit from the Persian Gulf. Tehran has even conducted a series of naval exercises to make its point. The United States has responded by sending another aircraft carrier to the region. It has warned that any attempt to block shipping in the Strait of Hormuz will be viewed as a *casus belli*, and pledged to use force if necessary to keep the shipping lanes open.

It is safe to expect that Tehran will use the backing of Moscow and Beijing to try to engage the West in another round of fruitless talks. It will make some token concessions on its nuclear program, all the while trying to intimidate Western public opinion and politicians with unpredictable consequences in the event of an armed conflict in the Strait of Hormuz. But the key question of whether the Iranian nuclear program can be stopped by sanctions alone still remains to be answered. The military option therefore remains on the table.

Table 1. **Main Destinations of Iranian Oil Exports, 2010 (%)**

Country	Share of Iranian oil exports	Share of Iran in the country's oil imports
China	20	11
Japan	17	10
India	16	10
Italy	10	13
South Korea	9	10
Others	28	

Source: Energy Information Administration, 2011.

THE IRANIAN THREAT

Western elites appear to have reached the conclusion that the consequences of Iran going nuclear are more dangerous that the consequences of a military operation against the country. That raises two questions. First, what exactly is the nature of the Iranian nuclear threat? And second, what would be the consequences of a war against Iran?

The Iranian nuclear program constitutes the greatest challenge to the Nuclear Non-Proliferation Treaty (NPT) and the entire system of international institutions, agreements, and procedures that make up the nuclear nonproliferation regime. In practice that system has already been undermined by the acquisition of nuclear weapons by Israel, India, Pakistan, and North Korea. But if Iran joins that list, the NPT and the nonproliferation regime will be completely discredited.

Formerly the nonproliferation regime was not compromised by the acquisition of nuclear weapons by Israel, India, and Pakistan because all of these countries remain outside the NPT. North Korea's withdrawal from the treaty and its subsequent testing of nuclear weapons can be put down to the irrational nature of the regime in Pyongyang, from which no one really expected any better. But Iran is developing nuclear weapons while remaining a member of the NPT, thereby demonstrating that the nonproliferation regime can easily be circumvented.

A collapse of the nonproliferation regime would cause some nasty political fallout—but in and of itself it would not be that much of a blow for international security. The NPT, the IAEA, the UN Security Council resolutions, the numerous conferences, the various inspections, and sundry other measures introduced by that regime have turned out to be little more than window dressing. They have created an illusion of energetic action to stop the spread of nuclear weapons and related technologies. But they have failed (and could not but fail) to stop the development and manufacturing of those weapons by the countries determined to go nuclear. In essence, the entire complex mechanism of the nonproliferation regime can do little more than monitor how honestly any country that has voluntarily pledged not to develop nuclear weapons abides by its own commitments.

The real problem is that Iran's motivation for developing nuclear weapons is quite different from the motives of other countries which have gone nuclear. For example, China saw nuclear weapons as a great-power status symbol and, even more importantly, a deterrent against a Soviet or American nuclear attack. India acquired nuclear weapons primarily to deter a nuclear-armed China, and Pakistan to deter a nuclear-armed India. Israel saw a nuclear arsenal as an *ultima ratio regum*.[7] The Israeli arsenal can be brought to bear only if the country is on the brink of destruction, i.e. if its conventional forces are defeated by the Arab armies—or to deliver a pre-emptive strike against the Iranian nuclear arsenal if Iran goes nuclear. Finally, North Korea developed nuclear weapons mainly as an instrument for preserving the regime in Pyongyang and preventing any external interference in the event of an internal political crisis.

In other words, all these countries had—and still have—some rational political motives which form their nuclear policy. It is therefore possible to build relations with them in a way that will minimize the risk of a nuclear conflict. In the case of Iran, however, nuclear weapons would end up in the hands of fanatics led by archaic millenarian ideas. The Shi'a followers of this teaching await an imminent coming of the Hidden Imam, a messiah and a harbinger of doom and disaster who will usher in the Judgment Day and start a holy war against the Great Satan. During that war all the Forces of Darkness will be destroyed, and a just and fair Islamic rule will be established across the whole world. Amid these apocalyptic visions, President Ahmadinejad and his rivals among the Mullahs, including the Supreme Leader of Iran, Ayatollah Ali Khamenei, keep bickering as to which one of them is the most loyal follower of the Hidden Imam, and therefore who has the greater right to rule the country.[8] The rulers of Iran view nuclear weapons not only as an instrument for achieving certain geopolitical goals but also as a weapon of Armageddon, the last and decisive battle of Light against Darkness. These medieval ideas are compounded by rabid anti-Semitism. As recently as February 2012 Ali Khamenei compared the ''Zionist entity,'' i.e. Israel, to a cancerous tumor, and pledged to ''excise that cancer.''[9]

Naturally, not everyone in Iran wants to formulate the country's foreign policy on the basis of antediluvian eschatology. This leads to hopes that Tehran could relinquish its nuclear ambitions if the country's top leadership were to be replaced. But even among the less odious circles in Iran many politicians do not want their country merely to become a normal state, well adjusted to the realities of the twenty-firsy century and playing a constructive role in the complex globalized

world. Their goal is the rebirth of the once-great Persian Empire, which at its zenith ruled the entire Middle East, the northeast of Greece, Turkey, Armenia, Afghanistan, part of Pakistan, and Iran itself. For that section of the Iranian elite and the Iranian public in general, nuclear weapons are an instrument of political and territorial expansion; their immediate goal is to establish Iranian control over the entire Persian Gulf. If Tehran acquires nuclear weapons, the ability of neighboring states to resist its expansionism will be greatly diminished, and powers outside the region will be deterred from intervening in any regional conflicts or crises.

Another important thing to consider is that, if Iran goes nuclear, its main regional rival, Saudi Arabia, will feel compelled to follow suit by developing nuclear weapons or, more likely, acquiring them from abroad. This will give rise to a regional nuclear triangle consisting of Iran, Israel, and Saudi Arabia; Turkey may eventually join the group. Since all these countries hate and fear each other, the strategic situation in the Middle East will become extremely unstable, with a high likelihood of a regional nuclear war triggered either intentionally or simply because someone has misinterpreted signals from one of the rivals and jumped the gun. Such a war would be a massive shock for the global energy market. In the worst-case scenario, i.e. if nuclear strikes cripple the oil and gas infrastructure in the Persian Gulf, a long and devastating global energy crisis will be inevitable. Its economic consequences defy any detailed forecasting, but they will certainly be catastrophic. That is why putting an end to the Iranian nuclear program through diplomatic, economic, or military means is becoming a global security imperative.

SCENARIOS OF THE WAR WITH IRAN

The most probable scenario for a new war in the Middle East begins with a preventive Israeli airstrike against the Iranian nuclear facilities. According to various sources, the Israeli Air Force has 250 to 350 combat aircraft capable of mounting a bomb and missile strike against targets in Iran (see Table 2).

Of course, Israel is not disclosing any details of its plans for an attack against Iran. But it can be assumed than there will be several waves of air raids. Each wave will involve from several dozen to a hundred F-15 and F-16 aircraft, refueled halfway to their targets in Saudi airspace or over the Persian Gulf. It is also clear that the first wave of the air raids will target key Iranian air defense facilities, including radars, command centers, and launchers of the S-200 SAM systems, as well as Iran's Shahab-3 missiles launchers. The success of that first wave will largely determine the subsequent losses of the Israeli Air Force, the effectiveness of its strikes against the Iranian nuclear facilities, and the extent of the damage inflicted on Israeli cities by the retaliatory Iranian missile strike.

The Iranian air defense system is weak. It includes F-14 Tomcat fighters (25–45 units) and MiG-29 fighters (25–35 units), the woefully obsolete S-75 SAM systems, and four to seven batteries of the S-200 SAM systems, which entered service with the Soviet military back in the 1960 and were retired by the late 1980s. The first war in the Gulf in 1991 and NATO operations against Yugoslavia have demonstrated that the MiG-29s are no match for the F-15's and the F-16s. There is next to no information available about the real-world performance of the S-200 SAM system. Judging

Table 2. **The Israeli Air Force's Attack Capability (2010–2011)**

		In service since	A	B	C
F-16 A/B Netz	Multirole fighters	1980/1986	107	108	118
F-16C/D Barak		1990	136	101	
F-16I Sufa		2004	101	102	100
F-15I Ra'am		1998	25	25	25
KC-707 и KC-130H aerial refueling tankers			7	9	12

Sources: (A) Israel. Military balance files, Institute for National Security Studies, Tel-Aviv University. <http://www.inss.org.il/upload/(FILE)128498651.pdf>, last accessed February 13, 2012; (B) *The Military Balance 2010*. IISS, 2010, February, p. 256; (C) *World Air Force 2011/2012*. Special report, Flight International. Flightglobal/Insight, p .17.

from open-source information, it has never seen real action. It is known, however, that the S-200 systems operated by Libya were easily taken out by U.S. aircraft in March 2011, and no attempts were made to use them against NATO forces.

*Mehdi **Sanaei** (**Iran**), Head of the Iranian Center for Research on Russia, Central Asia and the Caucasus, Professor of Tehran University—by phone from Tehran*: Revolutions in the Middle East and North Africa determined the security situation in the region and in the world in 2011. Less than in a year after the overthrow of the regime of Hosni Mubarak, Egyptians were able to vote in the first free elections and identify their destiny. The situation in Libya after Muammar Gaddafi's murder is different from Egypt. On the one hand Libyans have achieved freedom, but on the other nothing has changed. American stooges have replaced Colonel Gaddafi. Syria is another country on the blacklist of anti-Western regimes. The world should support peaceful reform in Syria, but to prevent a new military conflict. Russia and China are behaving most prudently with respect to the situation in the region. These countries have also taken a unified position on the new IAEA report on Iran, saying its conclusions were political in nature. In fact, this report is only a prerequisite for new sanctions against Iran and perhaps the outbreak of military actions. But the United States and its European allies should realize that the economic situation in the world could not bear another military adventure. It is high time to start a dialogue and move on to real cooperation. Iran is ready to cooperate with the IAEA and the world community and we openly declare this.

Turkey's decision to host U.S. missile defense elements is another negative factor that threatens the security of not only Iran but the entire Middle East. It is noteworthy that the United States manipulated the subject: they convinced Russia that the missile defense system was created against Iran, but to persuade new NATO members they have openly stated that the ABM was created for protection from Russia. It is clear that to achieve global stability in the absence of consensus among actors in international relations becomes an almost impossible task.

It is therefore safe to assume that the Iranian air defenses will be crippled or completely disabled during the very first wave of Israeli air raids. That will give Israel a relatively free hand against the Iranian nuclear facilities. But it is unlikely that Iran's entire nuclear infrastructure will be destroyed. The Israeli Air Force has only 55 bunker-busting bombs. That will hardly be enough to destroy the underground enrichment facility near Fordo and other heavily protected underground facilities.[10] Nevertheless, the Iranian nuclear program will sustain serious damage, pushing back any potential time frame for Iran's acquisition of nuclear weapons.

The subsequent scenario will largely depend on Iran. The Iranian leadership will have two options. The first is to launch an energetic political and propaganda campaign against Israel, launch missile strikes against Israeli cities, and encourage Hezbollah, Hamas, and Syria to attack the Israelis (see Table 3). The second option is to launch missiles and airstrikes against Saudi oil facilities, and to block shipping in the Strait of Hormuz.

The only Iranian missile that can potentially reach targets in Israel is the Shahab-3. That situation is unlikely to change any time soon. At this time Iran has 10 to 12 Shahab-3 launchers and about 300 missiles. It cannot be ruled out that some of these launchers will survive the first wave of Israeli air raids, especially since they are probably hidden underground. It is therefore likely that during the first day or two of the campaign some of Iran's Shahab-3 missiles will penetrate the Israeli missile defenses and hit targets inside the country. Israel will sustain a certain amount of damage, but certainly nothing comparable to the devastation an Iranian nuclear strike would cause.

Syria is preoccupied with its own civil war and is unlikely to attack Israel regardless of any Israeli action against Iran. The situation with Hezbollah and Hamas is more complicated. They hate Israel and are Iran's allies, of course, yet it is far from certain that the leaders of the two organizations will want to provoke a massive Israeli retaliation against their fighters, infrastructure, and command centers simply in the name of solidarity with Tehran. Both groups—especially Hezbollah—may also find it difficult to act because their supply lines from Iran would be cut off due to the crisis in Syria. And if the Iranian regime collapses they will have to go cap in hand to the Sunni monarchies of the Persian Gulf, which are all earnestly hoping for Iran's defeat.

Table 3. **Iran's Missile Capability**

Type	Throw weight (kg)	Range (km)	Launchers	Missiles	Status
Shehab-1/Scud-B	1,000	315	~20	300	Deployed
Shahab-2/Scud-C	730	500		100	Deployed
Shahab-3	760–1,100	800–1,000 –1,500	~10–12	300	Deployed
Shahab-3M/Ghadr-1	750	1,600			Tests
Sejil/Ashura	750	2,200–2,400			Tests
Ra'ad/Silkworm	500	105			Unknown

Source: Design Characteristics of Iran's Ballistic and Cruise Missile Inventory. NTI, <http://www.nti.org/country-profiles/iran/delivery-systems>, last accessed February 13, 2012; Iran. Military balance files. Institute for National Security Studies, Tel-Aviv University, <http://www.inss.org.il/upload/(FILE)1317902891.pdf>, last accessed February 13, 2012; *The Military Balance 2010*, p. 252.

After launching several Shahab-3 missiles against Israel, Tehran will have to choose between essentially accepting defeat or escalating the conflict by taking the war to the Persian Gulf. But launching missile strikes against the Saudi oil fields or trying to block shipping in the Strait of Hormuz will cause the United States to join the conflict. Some other Western states and Saudi Arabia may well follow suit. None of them can risk another energy crisis, least of all amid the ongoing global financial instability.

A prolonged blockade of the Strait of Hormuz would have grievous consequences. Some 16–17 million barrels of oil pass through the strait every day. If that route is blocked, between 2.5 and 3 million barrels a day can reach the world market via the Petroline oil pipeline between the Saudi oil fields and the Red Sea port of Yanbu. The pipeline has been tested to 5 million barrels/day but is currently operated below capacity moving roughly 2 million barrels/day.[11] Another 2 million barrels a day theoretically can be pumped via the existing yet deactivated pipelines which connect the Persian Gulf states with ports in the Mediterranean. The remaining 12–12.5 million barrels a day of oil supply, which constitutes about 15 percent of the average global oil consumption over the past few years, will be lost. That is about three times the scale of the worst disruption caused by various crises since the end of World War II (see Table 4).

In the event of a blockade of the Strait of Hormuz oil consumers will not be affected overnight. Oil reserves held by the developed countries (or to be more precise, by members of the International Energy Agency) stood at about 4.2 billion barrels of oil as of late 2010, which is equivalent to about three months of imports.[12] This means that the United States and its possible allies will have at least several weeks to restore oil transit via the Strait of Hormuz and resume oil production in Iran before the disruption really starts to bite.

Table 4. **Disruption of Oil Supply during Crises in the 1950s–2000s**

Oil shock			
Start	End	Cause	Loss of supply
11/1956	03/1957	Suez Crisis	2 m barrels/day
06/1967	08/1967	Six Day War	2 m barrels/day
10/1973	03/1974	Arab oil embargo	4.3 m barrels/day
11/1978	04/1979	Iranian revolution	5.6 m barrels/day
10/1980	01/1981	Beginning of Iran-Iraq war	4.1 m barrels/day
08/1990	01/1991	Iraqi invasion of Kuwait	4.3 m barrels/day
06/2001	07/2001	Disruption of exports from Iraq	2.1 m barrels/day
12/2002	03/2003	Venezuela strike	2.6m barrels/day
03/2003	12/2003	War in Iraq	2.3 m barrels/day

Source: IEA Response System for Oil Supply Emergencies. International Energy Agency, 2011, p. 11.

Technically, a blockade of the Strait of Hormuz can be achieved either by mine-laying, which will take several days, or by threatening to use anti-ship missiles against any tanker that risks the passage. But there is no reason to doubt that the United States will make good on its own threats if Iran attempts a blockade. American forces will not only put a swift end to any mine-laying, but also destroy all Iranian weapons and military infrastructure along the coast of the Persian Gulf. There is also the question of who takes control of the Iranian oil fields in the Gulf itself and along the Iran–Iraq border. It cannot be ruled out that they will be taken under international management.

Neither the United States, nor Europe, nor Israel is interested in an utter defeat of Iran. The latter is a strategic counterweight to the Sunni monarchies of the Persian Gulf motivated by Wahhabi fundamentalism, seeking domination in the Arab world, dreaming of sweeping Israel from the face of the Earth, and at heart hostile to the West. Yet the prospect of the future developments depends not so much on Israel or the United States, as on Tehran. In the case of limited armed conflict between Iran and Israel the Iranian leadership will be faced with a dilemma—either to carry out its threat to block the Strait of Hormuz and attack Saudi oil fields, or accept the fact that Iran's nuclear program is considerably slowed down. In the first case the United States will inevitably be involved in the war; Iranian armed forces stationed along the coast of the Persian Gulf will be put to rout, and possibly oil fields along the Iraqi border will be lost. The other option will be perceived as a tremendous humiliation of the country and will result in a growth of political instability, the outcome of which is hardly predictable. It may lead to a consolidation of society around the ruling clique, yet also to a regime change. Such a dilemma will challenge the Iranian leadership at every stage of the escalation of armed confrontation.

INVITATION TO DIALOGUE *À LA RUSSE*

The Iranian nuclear crisis is now the greatest source of international tensions, but not the only one. Another such source, which is potentially just as dangerous, is now taking shape in Europe.

In November 2011 President Dmitry Medvedev once again accused the United States and the NATO countries of ignoring Russia's concerns over the EuroABM program. The key points of his statement were as follows:

- He had instructed the Defense Ministry immediately to put the missile attack early warning radar station in Kaliningrad on combat alert.
- ''Protective cover of Russia's strategic nuclear weapons will be reinforced as a priority measure under the program to develop our air and space defenses.''
- The new strategic ballistic missiles commissioned by the Strategic Missile Forces and the Navy ''will be equipped with advanced missile defense penetration systems and new highly-effective warheads.''
- He had instructed the Armed Forces ''to draw up measures for disabling missile defense system data and guidance systems if need be. These measures will be adequate, effective, and low-cost.''
- ''If the above measures prove insufficient, the Russian Federation will deploy modern offensive weapon systems in the west and south of the country, ensuring our ability to take out any part of the U.S. missile defense system in Europe. One step in this process will be to deploy Iskander missiles in Kaliningrad Region.''[13]

Commenting on this statement by President Medvedev, Russian Deputy Defense Minister Anatoly Antonov described it as an invitation to continue dialogue. ''The statement by Dmitry Medvedev is a timely signal to our partners,'' he said. ''The president merely wanted to send a message, and to invite our partners to step up dialogue on looking for a mutually acceptable solution [on the missile defense issue].''[14] The deputy minister may have intended this as a joke, but there is nothing funny about it. And if it was not a joke after all, the commentary is a perfect illustration of the style and methods of Russian diplomacy these days. Both are more befitting of a thug who invites a girl for a dance and threatens to cut her face up with a razor if she declines.

Nevertheless, the message sent by President Medvedev deserves careful study. Neither the early warning radar in Kaliningrad, nor the defenses covering the Russian strategic nuclear forces

can neutralize the real or imaginary threat to these forces resulting from the EuroABM program. The interceptors to be deployed in Europe simply do not have the range to reach the launch sites of the Russian strategic missiles. Other measures, including the plan to equip the Russian ICBMs and SLBMs with ''advanced missile defense penetration systems and new highly-effective warheads'' (which is probably a reference to maneuverable warheads), and the promised ''measures for disabling missile defense system data and guidance systems,'' make perfect sense if the Russian leadership believes a massive exchange of missile strikes with the United States or missile attack on Europe to be real possibilities and if it is taking serious measures to prepare for them. So the question is, what could possibly cause a Russian–American confrontation that would be serious enough to spiral into a nuclear war?

In one of my recent articles in *Security Index* I argued that the only scenario for such an escalation is an armed intervention by the United States and/or NATO in a conflict between Russia and its neighbors. Indirectly that assumption has been corroborated by General Nikolay Makarov, chief of the Russian General Staff. Speaking at a Public Chamber meeting on November 17, 2011, he had this to say: ''There is now a much greater likelihood of armed conflicts along almost the entire perimeter of our borders.... I cannot rule out that under certain conditions these local or regional armed conflicts could spiral into a large-scale war, including the use of nuclear weapons.''[15] President Medvedev's threat to deploy Iskander missiles in Kaliningrad Region is yet another indication that Moscow is preparing for an armed confrontation in the south of the Baltic region (see Figure 1).

The Iskander missiles deployed in Kaliningrad can be used to deliver a pre-emptive nuclear strike against the AMB interceptor launch sites in Poland; almost the entire Polish territory lies within their range. But that vulnerability can be avoided by adjusting the layout of the EuroAMB elements—for example, by deploying the interceptors near the Polish–Slovak border or moving them to the Czech Republic, Slovakia, eastern Germany, etc. The Russian General Staff must be aware of this as well. It appears, therefore, that the reasons for the deployment of the Iskander missiles in Kaliningrad Region are not limited to countering the alleged EuroABM threat. In fact, the more important goal pursued by the Russian leadership is to change the balance of military power in the southern Baltic. Another piece of evidence of the same sort is the Russian MoD's decision in February 2012 to deploy a new batch of the S-400 Triumf SAM systems in Kaliningrad Region rather than near Moscow, as previously planned.[16]

Serious questions have also been raised by the Russian plans to deploy ''modern offensive systems that can take out the European component of the ABM system'' in the south of the country, most likely not far from the Black Sea coast in Krasnodar Territory. These ''offensive systems'' could be either tactical bombers or, more likely, new missiles. Aircraft are not a suitable weapon to use against EuroABM components because it will take Russian planes at least an hour to reach their targets across the Black Sea once the pilots have received their orders. The orders will therefore have to be issued before information about the launch of American strategic missiles has been received, otherwise these orders become pointless. But if Russia truly intends to station ballistic missiles on the east coast of the Black Sea in order to take out targets in Romania and possibly even Bulgaria, such a move would be in breach of the 1987 Intermediate Nuclear Forces (INF) treaty. The treaty bans the manufacturing, testing, and deployment of ballistic and cruise missiles with a range of over 500km. But the distance between the westernmost point of the Russian Black Sea coast near the Kerch Strait and the future launch site of American interceptors at the Deveselu Air Base in southern Romania is about 1,000km. A violation of the INF treaty could trigger another missile crisis along the lines of the events last seen 30 years ago. Back then the Soviet Union deployed SS-20 ballistic missiles; the United States responded by deploying in Europe its own missiles which could reach the Kremlin within 8–10 minutes. In the end the Soviet generals were forced to agree to the elimination of the entire intermediate-range class of missiles—something they bitterly resented at the time and continue to recall with great sadness to this day.

LESSONS IN PHYSICS, GEOGRAPHY, AND POLITICS FOR BEGINNERS

Of course, one could choose simply to ignore Dmitry Medvedev's November statement. Ever since the announcement on September 24, 2011 the man has been a *quantité négligeable,* even though he continues to appear out of nowhere from time to time and make what he imagines are politically significant statements. But the ideas he voiced in late November 2011 have been

Figure 1. **Territories within Range of the *Iskander* Missiles Deployed in Kaliningrad Region**

repeated on numerous occasions by other Russian leaders, diplomats, and senior officials. Lately these officials have been trying to make their arguments hold water by references to the laws of physics and geography.

For example, in January 2012 Deputy Foreign Minister Sergey Ryabkov spoke of the ''incontrovertible physics of the flight of objects which accelerate, and which are targeted by missiles and interceptors.'' He ploughed on to say that an effective ABM system ''requires a correct choice of launch sites and deployment areas. If we accept what the Americans say, i.e. that this system is targeted against some missile threats from other countries lying to the south of Russia, and not against Russia, then geography as we understand it dictates that the anti-missile elements must be stationed as far to the south and the southeast as possible.''[17]

The Russian officials who are in charge of formulating the Russian position on EuroABM seem to have some very strange ideas about the potential capabilities of the anti-missile systems which Washington plans to station in Europe. Dmitry Rogozin, who was recently appointed deputy prime minister, had this revelation to make: ''The deployment areas of ABM elements, the deployment design, as the Americans say, is such that from their planned launch sites the interceptors will be able to cover the entire European territory of Russia, all the strategic bases on our territory all the way to the Urals.''[18]

But let us take things one at a time. Russia has reacted very angrily to the upcoming deployment of ABM elements in Europe, and announced its own plans to deploy new missiles in the west and south of the country. The arguments it has put forward in recent months to explain such an angry reaction are twofold.

First, Russia says that the United States, NATO, and the West as a whole ignore legitimate Russian interests and concerns. They refuse to provide legally binding guarantees that the future missile defense system will not threaten Russian strategic forces. That, Moscow says, is why it has to take

countermeasures, including the deployment of new weapons in western and southern regions of Russia.

On the outside these arguments sound persuasive. But if all the previous arms control negotiations are any guide, developing the legally binding guarantees which Russia demands will take several years at the very least. The two sides will have to come to an agreement on dozens if not hundreds of tactical and technical specifications of the future ABM system, the geographic zones where this system's elements can or cannot be deployed, and numerous other details. Given that the interests of the United States, NATO, and Russia are different in so many ways, the outlook for such negotiations is bleak.

More importantly, is the West obliged to take Russian concerns into account? It is definitely so would Russia be its ally, or at least a constructive and honest partner in resolving the international problems that now top the Western agenda. But Russia is neither. In fact, Russian diplomacy has made a virtue of deliberately and steadfastly opposing American and European efforts in the Middle East and some other parts of the world, including the former Soviet republics. It is therefore quite naive to expect Washington and Brussels to accommodate Russian interests, even if those interests are completely rational and legitimate.

Second, Russian diplomats and generals have been citing the laws of physics and pointing at the map in an effort to prove that the closer the interceptor launch sites are to the launch sites of the target ballistic missiles, the higher the chances of a successful intercept. That is why, their argument goes, if the EuroABM system is genuinely designed to protect only against the Iranian missile threat, its elements must be stationed as close to Iran as possible. Conversely, if these elements are deployed in Poland or in the northern seas, this allegedly proves that their purpose is to undermine Russia's ability to deliver a retaliatory strike. Such arguments suggest that either the Russian generals have a poor understanding of the basic principles of missile defense systems, or they are deliberately misleading the Russian political leadership, members of parliament, and the general public.

In actual fact, deploying the interceptors close to the launch sites of the target missiles makes sense only if those missiles are to be intercepted during few first minutes of their flight, i.e. while their engines are still firing or just after that. But, according to prominent Russian expert Aleksey Arbatov, ''the closer the interceptor launch site is to the launch site of the ballistic missile, the less time the ABM system has to perform the mind-boggling task of detecting the launch, calculating the target's trajectory, sending the flight program to the interceptor, launching that interceptor to approach the target, and performing the final self-guidance maneuver to destroy the target through direct kinetic impact. Also, the closer the launch sites of the target missile and of the interceptor are to each other, the greater speed and range the interceptor will need to catch up with the target ICBM.'' Arbatov went on to explain that ''modern solid-fuel ICBMs take three to four minutes to accelerate to 7km/sec, whereas the maximum velocity the current generation of Aegis/Standard-3 or S-400 interceptors can achieve is 3–4km/sec. Their future successors, which are now in development, should be able to reach 5km/sec or more.''[19] This leads to a conclusion that should be obvious even to non-specialists: intercepting the target missiles at the ascent phase of their trajectory is impossible at the current level of missile defense technology, and there is no point deploying the interceptors in close proximity to Iranian territory.

Another thing to consider—and this is no secret to anyone—is that the current generation of missile interceptors destroy the target warhead by smashing into it head-on at the midcourse or terminal phase of the warhead's trajectory. The command component of the EuroABM system therefore has 10 to 15 minutes to detect the launch of the Iranian missiles, calculate their trajectory, launch the interceptor, and so on. Also, because the intercept requires a head-on collision between the kill vehicle and the target as soon as that target has reached the kill range and altitude of the interceptors, the launch sites of the interceptors must be located in or around the area they protect. Simply put, in order to destroy a warhead aimed at Poland or neighboring parts of Central and Eastern Europe, the interceptors must be stationed in Poland itself or nearby. Finally, the current generation of Standard Missile-3, Block I interceptors have a range of about 500km. If they are deployed in Poland, Romania, or the northern seas, the launch sites of Russian strategic missiles, let alone the ''entire European part of Russia,'' will be far out of their range.

In this light Moscow argues that albeit EuroABM's elements of the current vintage cannot threaten Russian strategic forces their future generation based on the SM-3 Block II A/B interceptor missiles will be able to undermine and sap Russia's nuclear deterrent. This is demagoguery. First,

a hypothetical and remote threat is pictured as an actual one. Second, very little is known about possible performance characteristics of the SM-3 Block II interceptor because the system is at the early stages of development and also since its performance objectives specified by the U.S. Department of Defense are classified. The only information believed to be valid is that ''the increase in diameter [of the missile.—**Yu.F.**] to a uniform 21 inches provides more room for rocket fuel, permitting the Block IIA version to have a burnout velocity (a maximum velocity, reached at the time the propulsion stack burns out) that is 45% to 60% greater than that of the Block IA and IB versions.'' [20] This means that the SM-3 Block II burnout velocity will be at the most about 5km/sec, while its effective intercept range will not exceed 1000 kilometers. At least this was the conclusion revealed by the Russian monthly *National Defense* (*Natzionalnaya oborona*) journal, the well-known mouthpiece of the Ministry of Defense.

These technical and geographic considerations make the concerns voiced by Russian officials about the EuroABM program completely groundless. The real reason why Moscow continues to peddle the issue is probably the growing domestic political tensions in the country itself. The sacking of Aleksey Kudrin, the former finance minister, in September 2011 once again demonstrated the growing clout wielded in the Russian bureaucracy by the uniformed agencies and the generals. By stoking up tensions in Russia's relations with the West the generals further strengthen their economic and political influence, steer the political leadership towards introducing a ''mobilization-style'' economy, and continue to block any genuine reforms of the Russian armed forces. The uniformed agencies, and the ex-KGB types hailing from St Petersburg (so called ''St Petersburg chekists''), are making use of international tensions to sideline their competitors and any rationally thinking people who still occupy certain government posts. They are also laying the ground for persecutions against the opposition and trying to win support for the Kremlin's policies among the ''silent majority'' of Russians, which are still laboring under many Soviet-era stereotypes. Meanwhile, the political commentators and propaganda experts who have made their careers exposing the alleged Western plots against Russia are using the situation to accuse their opponents of siding with the ''foreign enemy,'' and to grab all the key positions in the Russian media and academia.

Barring a fairly unlikely change in these trends which currently dominate Russian politics, the latest confrontation with the West has all the chances of degenerating into another Cold War. Its exact course is hard to predict at the moment, but its eventual outcome is certain: Russia will end up the way the former Soviet Union did.

TEMPORA MUTANTUR

World politics is once again going through a period of deep and complex transformations. Some of the latest trends have already become quite clear.

For example, preparations for a military operation against Iran demonstrate that the key Western leaders are rapidly losing faith in the failed policy of appeasing militant third-world despots; they are gradually overcoming the post-Iraq syndrome. Western foreign policy, for all the looseness of the term, is becoming more realistic, and military strength is regaining, step by step, its role in international relations.

The second steady trend that has emerged in world affairs centers on Russia. Russian foreign policy and the way that policy is formulated are both becoming increasingly Soviet, raising the threat of a whole series of crises along the periphery of the Russian borders. Politicians and the public opinion in the West tend to pay little heed to that trend, preoccupied as they are with the financial crisis in Europe, the situation with Iran and in the Middle East as a whole, China's growing might and many other concerns that have topped the Western agenda for many years. This is why an outbreak of confrontation in Eastern Europe may come as a very unexpected and therefore particularly nasty surprise.

NOTES

[1] The times change and we change with the times (lat.).

[2] *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran*, Report by the Director General, IAEA, GOV/2011/65. 8 2011, November, pp. 6–7.

[3] ''Iranian Nuclear Bid Could Provoke Attack: Sarkozy,'' August 31, 2011, <http://www.france24.com/en/20110831-iranian-nuclear-bid-could-provoke-attack-sarkozy>, last accessed February 13, 2012.

[4] Adrian Bloomfield, ''Ehud Barak Refuses to Rule out Military Strike against Iran,'' *Telegraph*, November 6, 2011, <http://www.telegraph.co.uk/news/worldnews/middleeast/israel/8873009/Ehud-Barak-refuses-to-rule-out-military-strike-against-Iran.html>, last accessed February 13, 2012.

[5] Remarks by the President in State of the Union Address, January 24, 2012.

[6] Iran, ''Country analysis brief,'' November, 2011, <http://www.eia.gov/EMEU/cabs/Iran/pdf.pdf>, last accessed February 13, 2012.

[7] Ultima ratio regum (lat.)—the last argument of kings.

[8] Unlike the Sunnis, the Shi'a believe that the next Imam—or Messiah—exists in some hidden form in this day and age. See, for example: Ali Alfoneh, ''Ahmadinejad versus the Clergy,'' *AEI Online*, August 21, 2008, <http://www.aei.org/outlook/foreign-and-defense-policy/regional/middle-east-and-north-africa/ahmadinejad-versus-the-clergy/>, last accessed February 13, 2012.

[9] ''Khamenei promises to excise the 'cancer of Zionist entity','' February 3, 2012, <http://www.jewish.ru/news/world/2012/02/news994304403.php>, last accessed February 13, 2012.

[10] See: Gelman Zakhar, ''The Explosive Mixture of Middle Eastern Confrontation,'' *Nezavisimoye Voennoye Obozreniye*, February 12, 2012, <http://nvo.ng.ru/wars/2012-02-10/1_smes.html?mpril>, last accessed February 13, 2012.

[11] M. Webster Ewell, Jr., Dagobert Brito and John Noer, *An Alternative Pipeline Strategy in the Persian Gulf*, James A. Baker III Institute for Public Policy at Rice University, the Center for International Political Economy, and the Office of the Secretary of Defense, p. 4.

[12] IEA Response System for Oil Supply Emergencies, International Energy Agency, 2011, p. 7.

[13] Statement by the Russian President in connection with the situation concerning the NATO countries missile defense system in Europe, November 23, 2011, <http://www.president.kremlin.ru/news/13637>, last accessed February 13, 2012.

[14] ''MoD says Medvedev Statement on ABM is 'Invitation to Dialogue','' *RIA Novosti*, November 25, 2011, <http://ria.ru/defense_safety/20111125/497609066.html>, last accessed February 13, 2012.

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WINDS OF CHANGE BECOMING A STORM

It may well be that the second half of 2011 will be dubbed by historians as the *Six Months of Change*. The global political landscape and the situation in Russia itself have seen some radical transformations. And even as these tectonic shifts were happening before our very eyes, some continued to believe that *nothing is going to happen right now*. But if not now, when? What exactly is happening right now, and why? By constantly trying to convince ourselves that nothing's going to happen, we in Russia have almost missed the moment when everything began to happen. The moment has been missed not just by political scientists but by the political elite as well. Some circles, such as the Euro-bureaucrats, are event now convinced that nothing's going to happen right now—even though the European economy is already burning, and European politics is about to burst into flames. The global elite, especially the Europeans, seem completely out of touch; witness the latest gathering in Davos, placid and almost dull. I mean, there have been plenty of ideas about what to do tomorrow or the day after—but no one has said a word about how it's all going to end, and what the moral of the story will be. Why, I wonder?

The main thing that has changed over the past four or five months is the operational field of world politics. We are going to have to adjust ourselves to a new reality. Here are some of these transformations, albeit many of them may not seem so certain for now:

- ❑ Europe is no longer a global player.
- ❑ The entire Middle East, rather than parts of it, has become a source of instability.
- ❑ There is new uncertainty in Northeast Asia, which has nothing to do with the death of Kim Jong-il. The situation in Japan is a much greater concern.
- ❑ China's economic growth is slowing, while Beijing is once again toying with ideas of military dominance, as suggested by its naval saber-rattling.
- ❑ There are clear signs of a new wave of instability about to engulf Central Asia, even though military activity in Afghanistan has subsided on both sides.

You have to agree that such sweeping changes do not just seem global. They really are global. The world is becoming a very different place, though what kind of place exactly is for now anyone's guess. Our main task now is to understand the hidden logic of the trends we see and try to figure out where all these trends could eventually lead us to—after all, those who orchestrated the events in recent months are not necessarily in a position to control the consequences of the processes they have unleashed. The winds of change have not yet become a hurricane, so we still have some time to engage in tactical maneuvering, which also has its own peculiar logic. That logic is the subject of this review.

THE NEW AMERICAN MILITARY DOCTRINE: THE ART OF THE POSSIBLE

The discussion of the new American military doctrine unveiled by Barack Obama towards the end of his presidency has been surprisingly calm and muted. Perhaps that is because everyone now has more pressing things to do than parse the document's dense language. That document seems solidly but somewhat hastily written. It has one or two central strategic ideas which have got it broadly right—but riding on top of those big ideas are several smaller ideas plus lots of verbal filler. It seems that the administration felt compelled before the elections to demonstrate to the electorate that it is constantly thinking about boosting America's defense capability.

Leaving the details aside, let us focus on three highlights of the new strategy.

First, Iran has been appointed to the honorary position of America's main enemy, highlighting the split personality of Washington's security policy. Of course, one way or another America needed

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to put a national face to the greatest threats to its security. Continuing the charade with international terrorism would no longer hold water. Terrorism cannot justify the current shape and size of the American armed forces, especially given the ongoing economic crisis. But the choice of Iran as America's main enemy has a clear weakness: politically, economically, and technologically the country is a long way off from posing any real threat to the United States, and that situation is not going to change any time soon. Iran can be a threat to American interests only in a very distant part of the world which is not really an area of vital U.S. interests. The Persian Gulf accounts for only about 25 percent of American oil imports, which is a significant but not dangerous figure. After all, 25 percent is not much more than America imports from the Gulf of Guinea. Nevertheless, instability in these two regions would have immediate and sharply negative consequences for the United States. Of course, America can ramp up its own oil output to limit the damage—but only for a time. Be that as it may, we all realize that America has named Iran only so that it did not have to name China, not just yet anyway. The choices, after all, were very limited.

Second, the U.S. tactics for waging wars are in an obvious crisis. The United States is quite good at remote combat—suffice to look at the results of the American-led air campaigns over the past decade. America's elite special-purpose troops also know their business. But there are clear problems whenever large numbers of ground troops are involved. A change in American military priorities may have come too late, and there may simply not be enough unmanned aerial vehicles to fight all the enemies of the self-proclaimed Empire of Good. That is why the decision to abandon the concept of two more or less simultaneous large regional conflicts, which has been the basis of American military planning over the past two decades or so, seems an entirely logical move, which fits with the ''art of the possible'' formula.

Third, real American military planning these days seems to be based on the notion that there are simply no allies who could make any significant contribution to upholding American national security and protecting American national interests. At the very least, there are no permanent allies who fit that description. In other words, there are a certain number of countries that have been designated as allies. If they can provide some resources that help to resolve American geopolitical problems, great. But if not, America will simply have to do without them. That approach, however, works in reverse, as well; by the same token America's commitments to its allies are also becoming rather hollow. It would be very naive for America to give anyone any serious security guarantees once its forces have been cut down to size in accordance with Obama's plans. The new doctrine has sent a signal about the future significance of formal allied ties with the United States. America is gradually taking a new geopolitical course similar to the one it took in the early 1970s in accordance with the controversial Nixon doctrine—which, on the whole, played a positive role for American foreign policy after Vietnam.

Finally, I believe that Russian military analysts should pay a bit more attention to the new American doctrine. I am not saying they should parse it in an effort to unearth some new dastardly plots. But they should study it in order to see for themselves that something not exactly outstanding but making perfect sense can be written even when time presses, when the political tensions run high, and when the higher political leadership is not very brilliant, especially in terms of its long-term planning.

THE IRANIAN NUCLEAR PROGRAM: A SMOKESCREEN?

Iran remains the epicenter of the most serious crisis in international politics. Tensions are constantly being fuelled by new information being unveiled and new steps being taken by all sides in the conflict. The international community's reaction to some of these events is sometimes rather baffling. For example, news of Iran launching industrial-scale enrichment of uranium caused something close to a fit of hysteria. But was it really so shocking a development? Tehran had repeatedly stated that it regards developing a national uranium enrichment industry as a strategic goal, and that it will not be deterred by any sanctions. Be that as it may, no one has any doubts that the situation in Iran is now at the very epicenter of world politics.

On the other hand, the more tensions are being stoked over Iran, the more one gets the feeling that it is not actually about Iran at all. Of course, Iran has crossed a certain line beyond which the West cannot remain an impassive observer. But these steps by Iran are not, in and of themselves, really significant. What is really significant is the fact that amid the ongoing turmoil in the Middle East, Iran has managed to retain full freedom of maneuver. Under certain conditions (without actually acquiring nuclear weapons, but deliberately maintaining an ominous uncertainty over the

issue) Iran could pull the rug from under the geopolitical combination which the Americans and the Saudis have built at such great cost to themselves. That is the true reason why Iran cannot avoid isolation, and why the situation with Iran cannot but continue to deteriorate.

Who will be the greatest loser in this situation? It is being said that the economic sanctions will hurt Tehran very badly. There is some truth to that—but it is not the whole truth. The sanctions (especially the bans on trade and banking with Iran) will hit hard those very groups in Iranian society that were the most supportive of mending fences with the EU and the United States. In other words, the West is undermining the positions of the groups which could, under certain conditions, become its allies. Conversely, the sanctions will be much less painful for the army, state officials, government employees, farmers, and the poorest city dwellers, i.e. all the groups which form the support base of the Iranian radicals. It is impossible to shut off Iranian oil exports; there will always be some willing buyers, and there are numerous loopholes such as smuggling or disguising Iranian crude as another country's output. So why is the United States (clearly, Europe is merely following the American lead, nothing better can be expected of an entity that is teetering on the brink of an economic catastrophe) acting in apparent defiance of logic and of its own strategy? The reason is that it is not really about Iran. The Americans just want to make sure that Iran cannot scupper their plans for the Middle East region, and that it cannot undermine their efforts to build a system of managed conflict around Europe.

That strategy does not actually require the United States to commit any significant resources, including military resources. Given his current situation, Barack Obama can hardly afford a real war with Iran. I believe that the Iranian leadership understands America's true motives, and acts accordingly, sometimes even playing along with the American president. Tehran is well aware that a Republican president would take far more decisive steps towards a full-blown military solution.

The government in Tehran is not nearly as good at brinkmanship as the one in Pyongyang, and the internal political struggle in Iran is probably a lot more vicious than in North Korea. A lot of people expect Tehran to follow in North Korea's footsteps, but for now the Iranian leaders are behaving quite rationally. The Iranian president is a known firebrand, but he does toe a certain line, and on the whole, he merely reflects the prevailing sentiment among the Iranian public. As for the Iranian leadership's tough but extremely professional actions to suppress any attempts by the pro-Western opposition to dispute the election results, those actions deserve to be a model for textbooks. Those events have clearly demonstrated beyond any doubt that the Iranian regime does have the legitimacy, and a strong one at that. So even though the threat of a colored revolution in Iran does exist, the Iranian leadership can feel a lot more confident in its geopolitical maneuvering than all of America's previous adversaries.

THE ARAB WINTER AND *THE TURKISH SPRING*

It would be very easy at this point to indulge in platitudes about the Arab nations beginning to reap the often disappointing results of their revolutions. Such an approach would be absolutely wrong, especially since the Arabs are not yet feeling any particular disappointment. Of course, they are already sensing that things are not turning out quite as expected—but that feeling pales in comparison with the excitement of the political process (and of settling scores with Gaddafi supporters or rival anti-Gaddafi groups, in Libya's case). The sense of novelty has yet to wear off. The disappointment will come later—unless the Islamists of the fourth wave come up with some new ideological paradigm (i.e. a new enemy to fight). This calls for a discussion of the logic of managed conflict in the Middle East.

It appears that all the dark secrets of the Arab Spring are beginning to come to light. Of course, we are all completely persuaded that the main reason for the turmoil and the revolutions was the popular discontent with the 20-, 30-, or 40-year (mis)rule of the old regimes. It genuinely appears that having read Facebook, people just realized all of a sudden that they were being oppressed, and toppled the regimes with a feeling of deep satisfaction. There is only one question that remains to be answered amid all this halcyon joy: where's the money? What has happened to the tens of billions of dollars in the individual and semi-individual bank accounts of the rulers of the Arab states affected by the turbulence? Impoverished Yemen aside, all the other Arab countries have been cashing in on the oil bonanza—even Tunisia, which is not very oil-rich. These petrodollars are not going back to the Middle East (i.e. to Syria, Algeria, Bahrain, even Qatar, which has essentially become a poster child for Western-style democracy, and nor, perhaps, even to Saudi Arabia). The money will not be released from Western banks, especially American and

British ones. Where has all the money gone? What has it all been invested? What banks, and in what countries, have been saved from bankruptcy thanks to that money? Is there any doubt that at the very least, banks in France in Italy are among those saved?

As usual, there are a lot more questions than answers. But that is not the point. The important thing is that an elegant if bloody geopolitical combination, disguised by all the talk of the looming economic crisis, has produced a vacuum cleaner which will, for the next five or 10 years, suck petrodollars out of the Middle East. In this situation, a war with Iran is completely unnecessary. The only thing that is necessary is to keep pretending that this war is about to begin. That is a task Al-Jazeera and the American media outlets can certainly cope with.

The main problem of the current situation in the Arab world is that most of the players, including the Iranians and possibly excluding the Syrians and Hezbollah, are actually interested in having a conflict in the region at this particular point in time. Most of them believe that such a conflict can be contained in an acceptable format, and that its consequences can be kept under control. Whether they are right is not at all certain. But all the participants in the Big Game seem prepared to take extremely high risks, so the situation is really dangerous.

But the main question is whether and to what extent the United States is interested in lower oil prices. Traditional estimates boil down to the idea that the main recipe for American economic growth is a cheap dollar and cheap oil. But perhaps that was the main recipe for China's growth rather than America's over the past two decades? After all, for the Chinese economy, every five-dollar rise in the price of a barrel slashes two percentage points from annual GDP growth. Maybe that is exactly why the United States seems to be doing everything it can to keep the oil prices high? It is true that by doing so Washington is helping Russian tycoons and the Arab sheikhs to stuff their pockets with petrodollars. But one way or another, many of those Russian and Arab petrodollars are invested back in the American economy. In the case of the Chinese economy, however, the price of entry is one dollar, while the price of exit is two. Everything will therefore depend on whether America is still strong enough to control the situation and prevent it from heading in an undesirable direction.

Irma ***Arguello*** *(****Argentina****), Founder and Chair of the Nonproliferation for Global Security Foundation—by e-mail from Buenos Aires*: With the major political, economic and social crisis developing around the globe, it seems clear that we are likely to face a difficult period of growing uncertainty and fragility. In fact, impacts on global security show signs of a progressive deterioration. Among the many events with a recent impact, some of them are worth mentioning because of their potential threat at both global and regional levels. The Iranian nuclear program, which is still out of control, the implications of *Arabian Awakening* revolutions, and threats of European and U.S. economic crises on international security, have all together generated a new wave of global instability.

Syria and Yemen which are facing social and political discontent, are confronted by the lack of clear political leadership, the lack of democratic culture, and deep ideological, ethnic, and religious divides within the opposition movements. The crisis in relations between allies in the antiterrorist coalition—the United States and Pakistan—could provoke new threats to security. In addition and ironically, wars in Iraq and Afghanistan have weakened international security mainly because of their economic weight. Concerning Iran, it has recently revealed new technological breakthroughs in nuclear fuel enrichment; also, Western organizations have reported some evidence of missile silos in northwest Iran that could endanger neighboring countries within the region (in particular Israel, Turkey, Iraq). Finally, the global nuclear inspection agency revealed recently that Tehran has conducted some trials on highly sophisticated triggering technology. Recent declarations by the state's highest officials could result in a potential decrease in tensions due to the Iran acceptance of a higher level of inspections of its nuclear facilities, but the result is still in question.

It is quite clear what that undesirable direction is: the oil terminals in the Gulf monarchies, the Strait of Oman, and on the Red Sea must be protected at all cost. Following the pullout from Iraq the United States has a bit more military flexibility, but Washington is still a long way off from being fully in control of the military situation in the Middle East, especially since the Americans can no longer rely on their traditional bases in Turkey and Egypt.

It would be a big mistake to imagine that the pro-American part of the Arab world—or rather, the part of it that is now playing along with the Americans—are all Washington's stooges. Far from it. Of course, people like the Emir of Qatar, Hamad bin Khalifa Al Thani, is even less than a stooge, he is more of a puppet whose very survival depends on keeping Washington and Riyadh sweet. But Saudi Arabia's long-term plans are very interesting and almost certainly very different from the ideas of its American friends. I find it hard to believe that the Saudis, who are coming under growing pressure from the Islamist radicals, have no plan for their own survival. Any credible specialist on the Arab Middle East will tell you that after the almost certain fall of the Bashar al-Assad regime and the inevitable coming to power in Jordan of Islamists even more radical than the Muslim Brotherhood, the Arab revolutionaries will turn their sights towards the Persian Gulf countries. Not because there is no democracy in those countries, but because the Gulf states will soon be the last remaining part of the Middle East where there is still something to rob, steal, and divvy up. Even the Americans will not be loath to use the opportunity to hoover up the remaining petrodollars from the Arabian Peninsula. For all its exotic appearances, the Saudi elite can give many other governments a run for their money in terms of rationality, cynicism, and cunning. Surely the Saudis understand what is going on?

Now, there is no way we can avoid the situation in Syria. Of course, Bashar al-Assad is almost certainly going to lose. His personal fate will probably be as tragic as the fate of Syria as a whole. It would not be a stretch to say that the country may disappear from the political map altogether. But one has to give Assad due credit for holding his ground for almost a year now—alone, to all intents and purposes, with very scant resources and minimal support from Russia and Iran, trying to stem the tide of chaos and destruction fuelled by American money, European madness, Saudi instructors, and Pakistani saboteurs.

As for Israel, the country's geopolitical strategy seems rather baffling. Is Tel-Aviv really so keen on becoming completely surrounded by hostile regimes, none of which, including even long-tamed Jordan, can be engaged in any kind of dialogue? But that seems to be exactly the case. After all, only by surrounding itself with regimes compared with which even Hamas seems quite liberal can the Israeli government rally the support of the Israeli public, which is beginning to ask some very unpleasant questions. For example, how has the country, which started off as one big commune built on the idea of social equality, gradually become a classic oligarchy, ruled by half a dozen families—especially given that many members of those families do not even live in Israel any more, and certainly do not keep their money in Israel? How else can the ruling Israeli elite cope with the growing popular discontent, if not by turning the country into a fortress under siege? That is why, contrary to the forecasts of some very respected political analysis, the Israeli elite is not particularly sad to see the demise of some friendly or at least neutral Arab regimes; in fact, Israel may even have had a hand in that demise.

The problem is that the Israeli elite seems to have overestimated the readiness of ordinary Israelis to rally round that elite even when the country is facing a clear external threat. Even more importantly, it has too much faith in Israel's military superiority, on which the country's entire security policy has been based over the past 25 years. Of course, formally that superiority has been retained, but it will not be of much help. The real danger is the prevailing sentiment in the region, and at the moment that sentiment has some big strategic problems in store for Israel. It is one thing to stand against the Arab elites. It is a completely different thing to confront the Arab Street, which is very poorly educated but extremely determined, and which believes Israel to be the source of all its woes. In such a situation Israel's only hope is that America will not let it down. America has a long history of letting all its allies down, but I think it will be different with Israel. It is more likely that Israel's survival will now depend on America's relations with the Wahhabist Saudi Arabia; Tel-Aviv will certainly not enjoy the feeling of being a bargaining chip. But every geopolitical enterprise has a certain dynamics. The current dynamics is such that the strong currents can pull anyone under, especially Israel, which has very limited resources of its own. Israeli society and the Israeli elite are now facing a very tough and uncompromising challenge, and the source of that challenge is certainly not Tehran.

From that point of view one can entirely understand the stance taken by Turkey. The Turkish elite has demonstrated that it senses the winds of change better than most. Turkey has not been given its fair share of the pie. Ankara is therefore making a preemptive first step to protect its interests. The country can no longer hope to sustain its economic growth by means of external financing, i.e. by integrating itself into the European economy, where growth has stalled. Turkey's geopolitical stance suggests that the country is trying to pursue its foreign and economic

policies with little regard for Europe. Look, for example, at the recent scandal with France, which Ankara has deliberately blown out of all proportion, threatening dire consequences for French investors. Turkey has spent a long time knocking on the EU's door. It is not about to abandon that policy altogether. That would not bring any political advantages, and could prove costly economically. But on the other hand, Turkey is obviously trying—politely, for now—to demonstrate to Europe and the United States what will happen (especially to Israel) unless... And by the way, does anyone have any idea what else must happen for Turkey to act on its implicit threats?

THE END OF THE KAZAKH MIRACLE, OR A STRESS TEST FOR KAZAKHSTAN

Perhaps it would be enough just to say that the real source of the ongoing instability in Kazakhstan is the struggle for power between the Kazakh clans. Obviously, that instability is not limited to the small town of Zhanaozen. It began 18 months ago with a series of strange arson attacks in the south of the country, which later gave way to bombs going off, for reasons beyond anyone's understanding, outside government buildings. The root cause of what is going on is the expectation that the unchanging leader of the country since independence, Nursultan Nazarbayev, is about to retire. Some are therefore trying to snatch what they can, while they still can. Another reason for the crisis, which did not start in Zhanaozen and certainly has not ended there, is the way the fruits of the Kazakh economic miracle are being divided. Some Kazakhs have gone all European with their Rolls Royce cars, while others are still heating their tents with dried dung. One could of course ridicule the Kazakh leader, who got himself into a bit of a bind as soon as he hired Tony Blair as an advisor. In any event, it is already clear that the glittering shop window used to advertize Nazarbayev's achievements is not completely smashed yet—but it is in huge disarray. That is the thing with shop windows: they are good at hiding the real state of affairs, but they are a very tempting target for people casting stones.

The problems in Kazakhstan suggest that the only shining beacon of successful modernization in the post-Soviet space may be about to fizzle out. All the other national modernization projects in the former Soviet republics have either failed to begin, or just failed. Even the most notable examples of such programs look rather shabby compared with Kazakhstan's achievements in recent years. Be that as it may, two interesting facts deserve special attention.

First, instability in Kazakhstan broke out at a time when commodity prices, which prop up the republic's economy, remained comfortably high. In other words, instability began before the global economic crisis started to bite, and is largely unrelated to that crisis. It is not that the economic situation has deteriorated; such deterioration is not expected in Kazakhstan before the end of 2012. It has to be said, of course, that the Kazakh elite has been indulging its nest-feathering proclivities to a very unreasonable degree amid the general expectation of Nazarbayev's imminent departure. But the real problem is that pessimistic economic expectations have caused an upsurge in rivalry between the competing ethnic Kazakh clans. That could well lead to a political explosion, even without any involvement of the non-Kazakh population.

Second, both sides of the conflict in Zhanaozen had demonstrated their willingness to use force early on. Hardly anyone seriously believes that the protests broke out spontaneously. Apart from the protesters themselves, armed groups played a very prominent role. Clearly, the events in Zhanaozen were preceded by some careful preparations. Clearly, many participants in the political process in Kazakhstan are willing to accept some bloodshed in order to achieve their goals. Why? Probably because blood tends to wash away any previous commitments. It appears that the Kazakh elite has undertaken so many commitments to so many parties that it would be cheaper and simpler to unleash a bloodbath in the country than to honor all of those commitments.

Any schadenfreude over instability in Kazakhstan would be misplaced. That instability, even if it takes relatively mild forms (although a colored revolution in the country is a clear possibility) would have serious repercussions for Russia and for Russian interests in one of the key parts of the world. The situation may take a sharp turn for the worse at a time when Russia would not be able to ignore those events, even if it really wanted to. But there are grave doubts about the willingness of the Russian leadership to act boldly—let alone preemptively—in that part of the world.

NORTH KOREA IN A NEW FORMAT

I am finding it difficult to understand comments by many political analysts concerning the consequences of Kim Jong-il's ''unexpected death.'' As far as I recall, everyone knew it was coming for the past two years, and everyone was actually quite surprised that Mr Kim had stayed with us for so long. All the serious actors in the region and around the globe were fully prepared for changes in Pyongyang—even though anyone who pretends to understand what is really going on in the world's most secretive country (after the Vatican) is being more than a bit disingenuous, or perhaps ever so slightly delusional. It is especially surprising that profound strategic conclusions are being made based on the words of people who are famed far and wide for their delusions. I find it baffling that the Western media are now referring to Kim Jong-il's eldest son Kim Jong-nam as a reputable source. The man hardly spends any time at all in his home country, and only a few years ago he was branded by those very same media as a degenerate mediocrity. It would have thought it obvious that Kim Jong-nam has no access whatever to any serious information about what is really going on in the North Korean government.

Many Pyongyang watchers have a gaping hole in their logic. They predict that Kim Jong-un will not wield absolute power in North Korea. But they forget that his father, for all the honors given to him, never wielded absolute power either. Even though Kim Jong-il took over from Kim Il-sung at a very mature age, he was no Emperor, like the founder of North Korea was. He seemed more of a president, i.e. someone whose authority is limited not only by the formalities of the situation but also by the balance of power in the ruling elite. It was under Kim Jong-il that the importance of family ties in the North Korean system started to grow. Besides, Kim Jong-il himself did not behave as some kind of deity looking down benevolently on his people; on the contrary, he even seemed to cultivate a down-to-earth image—suffice to recall the way he dressed. Also, ever since the turn of the century political analysts have been speaking about a notable rise in the influence of the army at the expense of the party bureaucrats. It is therefore clear that nothing will change much for North Korea if Kim Jong-un begins not as the President but as the Secretary-General, who has to run his decisions past the Politburo.

Nevertheless, in a changing world North Korea will have to look for a new modus operandi. Its current role of petty villain will remain profitable for a little while yet. But amid the ongoing massive geopolitical shifts in other parts of the world, and in view of the possible slowdown of the Chinese economy, which could send shockwaves right across East Asia, the old model of survival on which North Korea has relied so far may prove unsustainable. That is the true challenge facing the North Korean elite and Kim Jong-un personally. It is far from certain that the regime can meet that challenge as successfully as it has been ensuring its own survival over the past 20 years. But if Kim Jong-un manages to find that new modus operandi, he will certainly surpass his father and approach the almost unattainable heights formerly occupied by his grandfather. Nuclear weapons—or a persuasive imitation of their existence—are a very useful instrument in such a quest. But this instrument requires a lot of skill to use it to best effect.

NUCLEAR NONPROLIFERATION TODAY: A KNOT OF DILEMMAS AND DOUBTS

The problem of nuclear nonproliferation pales into relative insignificance against the backdrop of the tectonic events of the past 12 months. Everyone (well, apart from the people who read this journal or write for it) would have probably forgotten about it by now, were it not for the skilful stoking of tensions over the Iranian nuclear problem by all the parties involved. But this problem is not something the world can afford to forget about.

For all the critical commentaries, the international nuclear nonproliferation regime has been quite effective, given the fairly limited resources invested in its maintenance. It has put an end to the nuclear ambitions of countries that did not have the necessary resources for such ambitions. It has also forced a sober reassessment in those capitals that did not have sufficient political will to develop nuclear weapons. Perhaps most importantly, it has seriously slowed the nuclear weapons programs of the countries that have both the resources and the political will.

Iran is actually a good example of the effectiveness of the nuclear nonproliferation regime. Back in 1995–1996 most political analysts agreed that the country would acquire nuclear weapons within 5–10 years, 12 years at the very most, and that the process would be speeded up by the Bushehr NPP project. Some 15 years on, the Bushehr NPP has been completed, but Iran has yet to acquire the nuclear bomb. Despite its best efforts, Tehran still remains 5–10 years away from acquiring a

military nuclear capability. Credit for this should be given not so much to the United States (which has actually done everything humanely possible to reinforce the Iranian national consensus on the vital need to acquire nuclear weapons) but to the international nuclear nonproliferation regime.

It goes without saying that the international nonproliferation regime is not perfect. It was built in a bi-centric world, and perfected in the conditions of obvious and aggressive monocentricity. It is clearly not fit for real geopolitical polycentricity. But that is the price being paid for the policies of those who advocated an unconditional and indefinite NPT extension so as not to destabilize the entire nonproliferation system. Perhaps it was a mistake, made for the best and most rational reasons. But the international community is not ready for a serious discussion of ways to update a treaty signed more than four decades ago. Perhaps that will change in another decade or so. But right now the countries that are not happy with the NPT have only one alternative: to violate it instead of waiting for it to be revised.

Essentially, there are three main problems with the nonproliferation regime in its current shape.

- ***The regime is too politicized***. The issue of nonproliferation has become part of the geopolitical game. Of course, there has always been some politicization—but it has never been so obvious and so flagrant.

- The second problem, which stems from the first, is that ***the nonproliferation regime is not up to date with the modern economic situation.*** It is not just that the regime was never meant to deal with situations like the Fukushima crisis (although, in retrospect, more attention should have been paid to safety and security of nuclear facilities instead of wasting time and money on researching how many warheads have been stolen from the Soviet arsenals). The nuclear nonproliferation regime in its current form does not contain any instruments for managing the economic aspects of proliferation, even though such economic management was part of the IAEA's remit when the agency was founded. Whether we like it or not, the nuclear nonproliferation system has been almost completely irrelevant in managing the process of the global nuclear energy renaissance, which was cut short by the Fukushima crisis. In fact, that renaissance was cut short so abruptly that many are now wondering whether it was a true renaissance or just another PR stunt.

- The third problem is the regime's ***dependence on national monitoring and data analysis instruments.*** The IAEA has failed to develop its own capability to gather and assess information. In the end, all the information received by the IAEA comes from national sources and is shaped by specific interests of individual countries. Some of those interests may include deliberately misinforming the agency. Maybe the IAEA just should not act as a supra-national body, not for now, at any rate? Maybe it should act as a normal international organization merely providing a platform for its member-states to voice their views instead of trying to play some independent role? In the end, the main consideration that gives pause to would-be proliferators is not the IAEA's wrath but potential political and economic problems with the leading international actors, i.e. the P5 plus another four of five of the world's largest economies.

In the meantime, it is obvious that the international nuclear nonproliferation system—or the proliferation limitation system, if you like—still works, despite all the criticisms leveled at it. Would it not be better, therefore, to just leave it be for a time instead of spouting various ingenious and creative ideas for fixing the regime? If it ain't broke, don't fix it. And don't try to wreck it, either.

AND THE MORAL OF THIS STORY IS?

When was the last time you went into a Russian bookstore? Quite a while ago, was it? That's a shame. A bookstore, or rather the choice of the latest books on the shelves, is a far more accurate reflection of the prevailing public mood than the latest gossip on various social networks. Idle talk on the social networks requires only some time to kill. But to read a book, one has to buy it first (even if it's an ebook), i.e. make a certain effort, and also spend some money. Anyway, along with the usual crime thrillers you will now find a growing genre called alternative history fiction, also described in trendy circles as ''parachute thrillers.'' The genre is based on people from our day and age being parachuted, one way or another, into a distant or not too distant past. There are dozens of these books, hundreds even, with more coming out every week. They are being read,

re-read, and busily debated not just by the regulars of national-patriotic discussion boards on the internet, but also by the stolid and settled mainstream audience.

There is no point discussing the historical accuracy or literary value of these books (which range from utter rubbish to perfectly readable fare). Let is focus instead on the social significance of the phenomenon. The rapid spread and growing popularity of alternative history fiction suggests that large sections of educated and socially active Russian society believe they are living in a ''wrong'' reality, and are ready to think—merely to think, for now—about how that reality can be changed. This social trend, this yearning for a strong and self-respecting country with a decent and rational elite will, sooner or later, spread beyond the confines of bookshelves and internet forums. When that happens, the cartoonish rallies by office rats on Bolotnaya Square [the site of recent opposition protests in Moscow.—**ed.**] will seem an innocent childish game in comparison. This desire for a change of direction is the result of our country wandering without any direction whatsoever in the past five or seven years. Such aimless wandering may be acceptable amid relative stability and apparent prosperity—but it turns into an existential threat if it happens amid crisis after crisis on the global arena. Against that backdrop, even the blunderings of America's new ambassador to Moscow, Michael McFaul, are causing nervousness and concern among all the Russian political actors.

Let us forget about the elections for now. Let us look instead at the ability of the Russian elite to mount an adequate and effective response to the military-political challenges that have emerged over the past three or four months along the Russian borders. I have a strange feeling that nobody really cares about these military-political problems of national security. And whenever certain people bestir themselves to show some minimal interest in these problems, they immediately reveal their professional incompetence and inability to think strategically. Witness, for example, the utter toothless mess of Russia's new national security concept, which I do not even want to waste time discussing.

Meanwhile, the situation with Russia's defense capability is becoming plain embarrassing. The Russian defense industry has spent the past few years squabbling with the MoD, which is increasingly looking elsewhere for weapons. During that same period the Russian defense contractors have failed to produce a single radically new weapons system; the best they have managed to come up with is essentially a mock-up of the fifth (or not-quite-fifth) generation fighter. In the meantime, we are gradually losing the battle for outer space, and the situation with Russian strategic defensive forces is becoming increasingly worrying. In other words, all the steam of the Russian military modernization drive has been wasted on blowing the trumpet. From the military-political point of view Russia now has such gaping vulnerabilities that even our partners, let alone our adversaries, cannot resist the temptation to make use of them. How can they not, for example, use against Russia the situation now emerging in Kazakhstan? How can they not leverage the growing vulnerability of the Russian strategic forces now that the country has essentially lost—albeit temporarily—the naval component of the strategic nuclear forces? How can they not make use of the collapse of the Russian space industry, which will now need someone as efficient and ruthless as Lavrentiy Beriya to restore it to a semblance of its former glory? The degradation of the Russian defense industry gives lots of food for very pessimistic thought. It is not just that the people in charge are wasting time and money, as they always do, on publicity stunts. The situation indicates that the entire system has lost the ability to recognize the key priorities and give them the attention they deserve. And in the meantime the democracy corps is marching ever closer to our borders. It is not just the ability to prioritize that has been lost—the instinct of self-preservation has been lost as well.

Events over the past few months have shown that problems in the area of our country's security and defense capability are systemic, and cannot be put down to flawed execution.

In the 2000s Russian politics boiled down to divvying up budget funds; it was doomed to failure. The real cause of its failure was the fact that the so-called Putin consensus expressed the interests of a constantly shrinking group of the elite, and that it proved unable to evolve; in fact, even the most fervent and unquestioning among the Putin supporters could no longer call it a consensus. The main problem of the current situation is that neither the government nor the opposition is capable of formulating a clear vision for the future that could inspire the majority of Russians. And if there is no vision, all that remains is to imitate furious work and address tactical objectives—which, for the most part, boil down to nest-feathering. Until this glaringly obvious ideological impasse is overcome there is absolutely no point in hoping for any real progress in our country's development.

The hapless rulers of Russia need to draw a certain conclusion from the current situation. The conclusion is fairly banal, but so far they have not thought of it: maybe it is not so bad after all that, in the run-up to another wave of the world economic crisis, Russia's economic role is limited to supplying raw materials to the West. This removes many headaches over the uncertain future of Russia's high-tech and machine-building sectors. That is an excellent thing, given the overall intellectual level of the Russian elite these days. But the problem is that big politics requires a large economy. If the economy is small, stagnant, and based mainly on divvying up budget funds and exporting Russia's remaining natural resources, our politics will also be almost microscopic—about the size of Bolotnaya Square.

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ON BOTH SIDES OF THE IRON CURTAIN

David E. Hoffman, The Dead Hand: The Untold Story of the Cold War Arms Race and Its Dangerous Legacy, Doubleday, 2009, 592 pp.

Review by Vasily Lata

The latest book by David Hoffman is a true documentary thriller focusing on the most difficult period of the twentieth century. The author describes the international situation at that time as teetering on the brink of a nuclear world war. The book offers a comprehensive view of the causes of U.S.–Soviet confrontation and follows its gradual evolution. In the author's own words, he offers a glimpse of the situation on both sides of the Iron Curtain.

THE REFLECTION...

I believe that were it not for the fact that Hoffman has served as the *Washington Post*'s special correspondent and head of the Moscow Bureau, he would not have been able to describe the situation during the Cold War in such great detail. It was a period when both Russia and the United States viewed nuclear missiles as one of the key instruments of nuclear deterrence, and a cornerstone of military security, international stability, and peace. One of the key problems analyzed in the theory of application of nuclear weapons is the state of the command-and-control and missile attack early warning systems. The book dwells on that problem at some length and offers much interesting and new historical information—after all, both the United States and the Soviet Union have always been very secretive about these things, and for entirely understandable reasons. David E. Hoffman details the various risks which emerged as a by-product of various strategic offensive and defensive systems, and which could lead to catastrophic consequences.

Hoffman is a prominent American foreign policy journalist who served as the *Washington Post*'s special correspondent at the White House during the Reagan administration. Based on unique documents from the archives of U.S. government agencies and secret services, as well as accounts of people directly involved in many important events at the time, Hoffman paints a detailed and comprehensive picture of the Cold War and its key turning points in the 1970s and 1980s. There is no doubt whatsoever that the author and his colleagues who provided various information and materials for the book have a profound understanding of U.S. politics at the time.

Nevertheless, based on my own experience in fairly senior positions in the Soviet and then Russian armed forces, I believe that Hoffman's portrayal of the events and processes in the Soviet Union (Russia) during the Cold War is not always impartial and has a distinct emotional tinge. I am not saying that this was the author's deliberate intention. The most likely explanation is that Hoffman's view of many events and processes outside the United States is based on reports and interpretations obtained in private interviews rather than archive documents. The people Hoffman spoke to were not necessarily acting in the interests of the state; some of them may not have been competent specialists. Having left Russia in search of a better life, they sometimes tended to supply to the Western media or secret services their own fantasies in the guise of hard facts. That was a very difficult period for our country, when government officials at every level seemed to

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have forgotten about their oath to their own people and country, and to have lost all sense of responsibility. To be fair, it must be said that they were often encouraged to such behavior by the general situation that emerged in Russia at the time of democratic transformations.

For example, based on information obtained from Vladimir Yarynich, a former colleague of mine who held the rank of Lieutenant Colonel of the Strategic Missile Troops, Hoffman paints the picture of ''the dead hand,'' a completely automated system which relies on a computer to send the command to launch missiles. First of all, let me say that during his interview Yarynich portrayed as a fact a completely inaccurate piece of information based on rumors which he probably heard from untrustworthy sources. Second, Yarynich had nothing to do whatsoever with the so-called automated system; he merely handled the telephone and the radio station, so he was simply in no position to have access to any accurate information. But, as the author himself says, the approach to achieving the objectives was later changed, and a small group of officers who were on duty at the bunker had the last word. Nevertheless, the author describes the system as a Doomsday Machine.

... AND THE REALITY

Did Russia have any other deterrence options, and how could it respond to the plan of nuclear war drawn up in the United States in the 1960s and approved by President Eisenhower, under which America could deliver a nuclear strike using 3,500 warheads? That would have been quite enough to destroy the Soviet Union, China, and their allies. What is more, the plan was not rejected; on the contrary, it was developed and improved under Eisenhower's successors. Reagan believed that his main mission in life was to break apart the Soviet system; during his tenure international relations became extremely tense and the whole world was teetering on the brink. In the third chapter the author says:

> Gates concluded that in retrospect, the CIA had missed an important turning point. ''After going though the experience at the time, then through the post-mortems, and now through the documents, I don't think the Soviets were crying wolf,'' he wrote in his memoirs. He added of the Soviets, ''They may not have believed a NATO attack was imminent in November 1983, but they did seem to believe that the situation was very dangerous. And U.S. intelligence had failed to grasp the true extent of their anxiety.'' Although it remains classified, a review of the CIA's performance on the war scare came to a similar conclusion in the 1990s. The war scare was real.

The above paragraph merely confirms that the Russian leadership was correct in its assessments of all the American plans and actions, which were aimed—just as they are aimed now—at achieving global dominance and supremacy over the Soviet Union.

It needs to be understood, therefore, that at that stage the dead hand Hoffman writes about may have helped to prevent a nuclear war and to contain threats to Soviet national security. It helped to replace the concept of guaranteed destruction with the concept of guaranteed *mutual* destruction. This concept of equal vulnerability and mutual deterrence became a symbol of the Cold War.

Another part of the book based more on fantasy than fact describes the Russian missile attack early warning system and the work of the duty officers at the command station. That group was led by Petrov, who had spent 26 years in the armed forces but, at the ripe old age of 44, still failed to understand the subject he was dealing with. One of the horrors described in the book is the system's false alarms. It is true that there were some false alarms—but only when the system was being tested, not when it was on combat duty. Not a

LEAFING THROUGH THE OLD PAGES

VIKTOR YESIN: The magnitude of the negative effects of the national missile defense system being deployed by the Americans on U.S.-Russian relations will in many ways depend on the capability of that system. If it is limited to protecting the U.S. homeland from a limited nuclear strike (i.e. a few dozen warheads), such a version of the system could be entirely acceptable to Russia. But if the system turns out capable of defending against up to a hundred strategic carriers (i.e. several hundred warheads), that would hardly be acceptable to Russia. In such a case Moscow would have to take countermeasures in order to make sure that its strategic nuclear forces can still provide nuclear deterrence in the new situation.

''Nuclear Deterrence in U.S.-Russian Strategic Dialogue'', *Yaderny Kontrol* (Russian Edition), 2003, No 11, P. 136.

single designer or decision-maker would have taken the responsibility for ordering the system to be put on combat duty without having full confidence in its reliability. Besides, the system was never meant to make automatic decisions about launching any action, i.e. launching a retaliatory nuclear strike. During the Cold War the Soviet leaders realized full well the whole import of such a decision, and made no mistake about the potential consequences of any possible error, especially given the constant acts of provocation by the United States and NATO on the borders of the Soviet Union and the Warsaw Pact.

It is clear that a truly titanic effort went into this book by David Hoffman; it paints a detailed picture of the most difficult period in the relations between the Soviet Union and the broader international relations during the Cold War. The book will be an excellent learning aid for anyone who wants to analyze and learn lessons from the mistakes made at the time, and to prevent a repeat of those mistakes by the current generation of politicians. The risk of such a repeat is still present, despite the significant improvement in international relations. Such conclusions and lessons will be useful for as long as there are weapons of mass destruction on the planet, and for as long as there are leaders who plan to fulfill their ambitious goals with the help of those weapons.

For more information on disarmament, please, visit the section ''Ways towards Nuclear Disarmament'' of the PIR Center website: http://pircenter.org/view/disarmament/eng

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The situation in recent years suggests that the role of nuclear weapons in world politics is not diminishing. One of the reasons for this is that some leaders are paying lip-service to the need for nuclear reductions but in actual fact continue to ramp up the strategic offensive and defensive systems. As a result of this the nuclear nonproliferation regime has failed to become truly compulsory and universal for all countries, especially for some third-world nations. This can undermine the existing system of mutual nuclear deterrence between the world's leading nuclear powers. Nuclear status still holds a lot of attraction, stimulating the so-called threshold states to ramp up their nuclear programs. The military and political leadership of many countries views weapons of mass destruction, ballistic missiles, and cruise missiles as a necessary precondition for retaining their influence in their respective regions and as an instrument for quickly achieving their goals. Sooner or later all of this can lead to the risks and consequences outlined in the book by David Hoffman.

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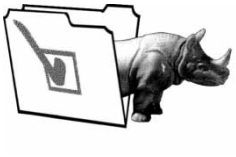

CONGRATULATING NOTE FROM THE RUSSIAN DEFENSE MINISTRY

TO THE EDITOR-IN-CHIEF:

Sir,

Please allow me to congratulate you on the 100th issue of the *Security Index* journal.

Since its inception in 1994, your publication has become one of Russia's most influential in matters of global security and nuclear nonproliferation.

The journal's papers enjoy well-deserved recognition among expert and government circles in Russia and abroad. Russian Defense Ministry staff have always valued the *Security Index* as a source of objective analysis on the topical issues of nonproliferation of weapons of mass destruction and arms control.

I would like to offer my heartfelt congratulations to the *Security Index* team and its readers on this anniversary and to wish the journal's contributors success and further professional achievements.

Yours sincerely,

Anatoly Serdyukov
Minister
Ministry of Defense
The Russian Federation
19 Znamenka str., 119160, Moscow

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100TH ISSUE: A GOOD OPPORTUNITY FOR NEW STARTS

TO THE EDITOR-IN-CHIEF:

Sir,

I would like to extend my sincere congratulations to the editorial team, all staff, and the readers of the *Security Index* journal on its 100th issue.

I am delighted to have been involved in the evolution of this publication from its foundation back in 1994. I study each *Security Index* issue with unfailing interest, avidly consuming its thought-provoking and factually balanced materials.

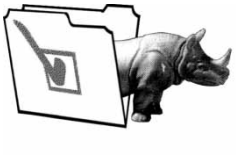
Over the years, *Security Index* has earned a reputation for being a useful source of competent views and serious analysis. Thanks to its highly professional, unbiased, and balanced treatment of information, the journal has established itself as one of the most authoritative and respected Russian publications on international security issues. Its papers on the topical issues of nonproliferation, disarmament, and arms control are a valuable contribution to the expert opinion serving to support the practical implementation of Russia's foreign policy.

The 100th issue is a good opportunity for launching new projects. I am confident that *Security Index* will continue to develop further and delight its readers with top-quality materials.

I would like to wish the *Security Index* team continued rewarding work, further achievements, and success in making their plans come true.

Yours sincerely,

Sergey Prikhodko
Aide to the President
The Presidential Administration
The Russian Federation
23 Ilyinka str., 103132, Moscow



SOLVING THE PROBLEMS THROUGH JOINT EFFORTS

TO THE EDITOR-IN-CHIEF:

Dear *Security Index* team,

Dear contributors,

Please accept my warmest greetings and heartfelt congratulations on the release of the 100th issue of the *Security Index* journal! It is a milestone in the journal's history and a landmark in the history of political research on most topical international issues.

Security Index has long established itself as a publication known for its wide-ranging coverage, unfailing professionalism and depth of analysis of the most complex issues. The journal is duly recognized as one of the most respectable, authoritative, and reputable publications, whose opinion is heeded by decision-makers on matters of international and national security. It is becoming increasingly influential abroad, which serves as a further testament to the quality of your materials.

The issues of security, nonproliferation of weapons of mass destruction, and arms control are now as topical as ever. The need to solve them through joint efforts presents increasingly more challenging tasks to government bodies and independent think-tanks alike.

We in the Foreign Ministry are always most interested in reading your latest materials; we eagerly await each new issue. Your journal is an excellent source of expert opinion. Any paper appearing in *Security Index* always brings one into contact with an interesting, intelligent, and relevant point of view. Let it continue to be the case.

I would like to wish the *Security Index* team and all its contributors continued success. Your work is greatly appreciated by so many. Let no professional achievement be outside your reach!

On behalf of the *Security Index* readers and admirers,

Sergey Ryabkov
Deputy Minister
Ministry of Foreign Affairs
The Russian Federation
32/34 Smolenskaya-Sennaya pl., 119200, Moscow

TO THE EDITOR-IN-CHIEF:

Sir,

Congratulations on the 100th issue of the *Security Index* journal!

There are many different good publications, yet *Security Index* has managed to make its mark and stand out.

Largely through your efforts, it has established itself as a serious and real factor in competent and professional opinion-forming on a wide range of issues in nuclear nonproliferation, nuclear security, nuclear energy, and nuclear arms control. Furthermore, it has earned a solid reputation not only in Russia but also in the former Soviet republics, Europe, and the United States.

I particularly enjoy the journal's style, which is equally welcoming of established distinguished authors and young researchers. I like its elegant feel and modern layout—although this is probably not the main thing. Your main achievement is that you have created a journal which is interesting to read, and not only in one's study but also (as I have had another occasion to confess) on a long flight and with a glass of red.

I am privileged and glad to belong to this big common cause as a member of the *Security Index* Editorial Board.

On behalf of the Rosatom State Corporation and from myself, I congratulate you on the 100th issue. I wish you further success and many future achievements!

Yours,

Nikolay Spassky
Deputy Director General
The State Atomic Energy Corporation Rosatom
24 Bolshaya Ordynka Str., 119017, Moscow

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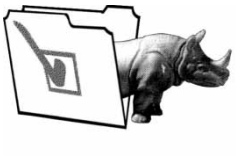

HOW USEFUL ARE SuPR GROUP RECOMMENDATIONS?

TO THE EDITOR-IN-CHIEF:

Sir,

Thank you for the opportunity to study the recommendations developed by the Sustainable Partnership with Russia Group (SuPR) published in *Security Index* journal No. 3, Summer 2011 (pp. 55–58).

There is little doubt that developing nuclear cooperation between Russia and the United States will not only facilitate closer relations between the two but also strengthen global nuclear security. The Russian and American expert communities are playing a notable role in forging a bilateral partnership. SuPR can also contribute to U.S.–Russian dialogue on issues of international stability.

However, the exact status of SuPR is not entirely clear. If it is a bilateral council in which Russia and the United States are equal partners, it can help to reach an expert-level agreement on the most contentious issues facing two countries, and formulate recommendations for the Russian and American political decision-makers. But if, as the SuPR name suggests, it is an American project involving high-level Russian experts, it will, for obvious reasons, tend to favor America's own approaches to disarmament and nonproliferation issues. That can hardly be conducive to the establishment of dialogue between equal partners.

In any event, the recommendations proposed by SuPR touch upon two important issues: placing weapons and disarmament programs under bilateral and multilateral controls, and nuclear cooperation between Russia and the United States in the Middle East.

In our view it is very important to take into account several crucial factors when discussing these two issues.

There is no doubt that the entry into force of the New START treaty is a step in the right direction. It helps to strengthen Russian–U.S. relations in the area of strategic stability and overall nuclear security on a global level. But it is important to realize that although bilateral nuclear disarmament is important in the current situation, it does not determine the overall climate of bilateral relations. These relations have always been quite cyclical, with periods of improvement giving way to rising tensions. The cycles are usually driven by Washington. They depend on American decision-makers' domestic policy goals and on their current understanding of global threats, which may require Moscow's cooperation to counter. That is why the Reset could well fall victim to American internal politics ahead of the elections. In such a situation keeping the nuclear arsenals at the levels agreed by the New START treaty serves more as a stabilizer of Russian–American relations than as an instrument of mutual deterrence.

We believe that at this moment the political and economic situation has not yet become conducive to banning the development of new types of nuclear weapons and reducing the role of nuclear weapons in national strategies.

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However, the issue of banning the placement of nuclear weapons or any other types of weapons in outer space could be resolved in the multilateral framework. Unless that happens the United States could well initiate a new arms race spiral in outer space.

The SuPR recommendation to expedite the nuclear reductions mandated by the New START treaty (to implement the new ceilings by 2014 rather than 2018) would not actually be in Russian national interests. First, there are economic reasons for that, and second, there is the problem of the American national missile defense system and the missile defense system in Europe. We subscribe to the opinion voiced by SuPR members that there is a direct link between strategic offensive and strategic defensive weapons. That clearly means that any further nuclear reductions should be linked to placing restrictions and limitations on the American global and regional missile defense systems, including those in Europe and Asia. Another thing to consider is that the U.S. Senate will probably refuse to ratify any treaty which introduces significant restrictions on the American missile defense system.

SuPR members believe that the dilemma can be resolved though cooperation on missile defense between Russia and NATO, as opposed to direct cooperation between Russia and the United States. However, SuPR members address their proposals only to the U.S. and Russian governments, leaving the other NATO allies outside the negotiating process. Politically the proposed measures (greater transparency of the programs, integration of early warning systems, and integration of the decision-making process regarding the launch of interceptors) may be perfect—but only at the level of allies. The fact is, however, that even in Europe Washington prefers to partner on missile defense deployment only with individual countries in Central and Eastern Europe as opposed to NATO as a whole.

What is more, as Russia and the United States continue to implement the reductions of their nuclear arsenals, there will be an ever greater need to develop principles for multilateral nuclear arms reductions talks involving all the members of the nuclear club. In such circumstances issues of nuclear disarmament and nonproliferation are tightly interwoven and must be considered and discussed as such.

The latest events in North Africa and the Middle East (especially the NATO military operation in Libya, which went far beyond the scope of UN Security Council Resolution 1973) will probably give the political leaders of several countries greater motivation to pursue nuclear and missile programs. That will be an additional complication for the cause of preserving the nonproliferation regime. The unilateral use of force against Libya, the change of political regime in Egypt and several other countries, and the Islamic factor have made the scenario of nuclear deterrence between Israel and Iran far more likely in the medium time frame. That being said, we subscribe to the opinion voiced by SuPR members that a military strike against Iran, under whatever pretext, would be a dangerous and counterproductive step.

In the current circumstances there is a clear need to continue consultations on the Iranian nuclear program in a multilateral format that would engage all the permanent UN Security Council members, including China, and to carry on with the discussions within the IAEA framework. The same applies to non-proliferation problems, peaceful use of nuclear energy, and the establishment of a nuclear-weapon-free zone in the Middle East.

We absolutely recognize the importance of the problems being raised in the SuPR recommendations. We believe, however, that a more in-depth consideration of these problems is called for, taking fully into account the concerns and interests of both the American and the Russian side.

We hope to continue the exchange of opinions on issues of mutual interest.

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Evstafiev, Dmitry, Dr., is the Director of the Department of the Communication Strategy in TNK-BP (Moscow, Russia). Graduated in 1989 from the History Department at Moscow State University's Asia and Africa Institute, served as a junior research associate, and then as a research associate, at the U.S. and Canada Institute of the Russian Academy of Sciences (RAS). In 1995–1998 he worked as a senior research fellow at the Russian Institute of Strategic Research (RISI). Later served as a senior research associate and project director at the PIR Center.

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