KOREAN NUCLEAR CRISIS: PROSPECTS OF DE-ESCALATION

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SUMMARY

This publication is based on the materials of the conference held at IMEMO RAN. It presents an analysis of causes and possible consequences of the crisis around North Korea and its nuclear missile program. The experts agree that the survival of the ruling regime is the most powerful drivers of North Korea’s enhancing its military nuclear capability. The opportunistic foreign and domestic policies, as well as exacerbation of international tensions, are aimed at consolidating the government agencies around the new leader and welding the nation around the ruling elite in an environment of artificially maintained perception of military threat.

On the pages of this Brochure, the experts present detailed political analysis of domestic situation in North Korea, possible trends of its development and specific aspects related to the change of the country’s leadership. The ‘military’ section of the publication addresses the history of the development and the current status of DPRK’s nuclear and missile capabilities. It also provides a forecast of the country’s capability to modernize its nuclear and missile capabilities, as well as the respective timelines.

The specific features related to Pyongyang’s acquiring nuclear weapons, and its getting away with the unjustified withdrawal from the Nuclear Weapons Non-Proliferation Treaty (NPT) in 2003 highlight the gaping loophole in the non-proliferation system. This research presents logical and feasible measures to prevent the recurrence of such negative experience. In addition, it contains a complete framework of practically relevant proposals for scaling down the North Korean crisis, stabilizing the situation in the medium term and strengthening the non-proliferation regime at large.
INTRODUCTION

The North Korean nuclear crisis is indicative of the critical state of the international nuclear weapons non-proliferation system. Various aspects of this issue have been deeply and comprehensively analyzed at the conferences and in the publications under the joint NTI-IMEMO program in 2010-2013.

The leaders of the key countries, the dedicated international organizations dealing with security-related issues (the United Nations, the International Atomic Energy Agency (IAEA), the Collective Security Treaty Organization (CSTO), the P5+1 and the P6+1 negotiation groups, etc.), as well as the international expert community have proved to be unable to come up with universal operational mechanisms to effectively prevent the proliferation of WMD or efficient models for unraveling specific regional crises related to proliferation.

As the result, despite the progress achieved within the recent 20-odd years in the sphere of nuclear disarmament and non-proliferation, international security has been seriously challenged; it has become less predictable, whereas the incentives for nuclear weapons proliferation are still in place and in some aspects they have even increased. What is more, the new trend has settled in the international field: the leadership of a country seeking the possession of nuclear weapons usually pursues adventurist and provocative policy and does it with a large measure of immunity - at least for its security.

Still, even given the overall negative context, the North Korean case may be viewed as abnormal. For decades, DPRK’s leadership has intermittently increased the country’s military nuclear and missile potential while throwing the Far East into the turmoil of dangerous military crises by its actions and rhetoric and keeping the neighboring states, as well as the entire international community, on tenterhooks. Being unable to improve the economic situation as the basis of the existing totalitarian regime, the country’s leadership tries to stabilize its power structure by destabilizing the military and political situation in the region and beyond.
Another evidence of the singularity of the North Korean case is that so far the DPRK has been the only state to denounce the Nuclear Weapons Non-Proliferation Treaty (NPT) of 1968 and withdraw from it to overtly develop and test nuclear weapons. Consequently, North Korea has created a most dangerous precedent of using the advantages of international cooperation to develop peaceful nuclear power encouraged by the NPT only to withdraw from the Treaty and use the available resources to develop nuclear weapons, which is prohibited by Non-Proliferation Treaty. Thus, the raison d’être of the NPT is reversed: instead of preventing the emergence of new nuclear-weapons states, the Treaty in a sense might look as a tool of promoting it. This example of cynical and unpunished foul play may seem attractive to other countries such as, for instance, Iran or other states that may potentially follow in the DPRK’s footsteps. Such conduct once again challenges the international community and global security. It calls for additional norms and measures to be developed to prevent the recurrence of such events.

This research is based on the materials of the conference held at IMEMO RAN on 28 March 2013 under the joint project with the Nuclear Threat Initiative (NTI). It offers several assumptions as regards the development of North Korea’s nuclear missile program and formulates proposals for resolving or at least stabilizing the situation in the region and preventing the recurrence of the said events in the future.
1. NORTH KOREA: DOMESTIC AND FOREIGN POLICY ISSUES

Vasily V. Mikheev

Understanding the relation between North Korea’s domestic and foreign policy requires an insight into the survival interests of the regime. The totalitarian leadership regards market reform and transparency as a direct threat to its power. The outside world is perceived as hostile. The arch-enemies are the US, South Korea and Japan. China is a ‘forced’ partner (since Beijing has in fact been the only source of economic assistance to North Korea). Meanwhile, from North Korea’s perspective, China may betray Pyongyang and, if there is a war on the Korean Peninsula, will withhold military assistance.

North Korea has built its relations with the outside world on the basis of military blackmail (obtaining assistance in return for promises to put the brakes on its military program) and playing on the differences between the world’s major actors, viewing Russia and the European Union, along with the ASEAN, as the ‘poles of balance’.

Since Kim Jong-il’s death late in 2011, his son Kim Jong-un’s rise to power in 2012 and the nuclear tests of 2013, the political situation inside and around has changed.

The purpose of this research is two-fold: to assess the implications of the third nuclear test and to analyze the prospects — to be more exact, the prospects for the collapse — of the North Korean regime.

Nuclear North Korea: the turning point. The latest, third in succession within the recent 7 years, nuclear test in North Korea is yet another gross violation of the nuclear weapons non-proliferation regime and the relevant UN resolutions. The response of the UNSC which condemned Pyongyang’s activities was the right and predictable.

Meanwhile, the current situation is an exception. Generally speaking, the world is getting over the fact that the DPRK has a nuclear program, that it has carried out unsuccessful tests and increased tensions in Northeast Asia every once in a while, as well as to the idea that North Korea will never achieve actual progress in the development of modern
nuclear weapons due to technological backwardness aggravated by the country’s isolation from the world.

However, it looks like North Korea’s nuclear history has reached a turning point. Despite the fact that the prospect of North Korea developing a modern nuclear arsenal is too distant to discuss, the latest nuclear test has made it clear that the country’s weapon developers have made significant progress. Pyongyang’s possession of working nuclear force has become a credible threat. When this occurs, the international community may have even less leverage over Pyongyang.

A conspicuous indication of the gravity of the situation is the increased, as compared to the previous tests, severity of international response, in particular the reaction of China. The official Beijing expressed “dissatisfaction” (rather than “regret”, “concern”, etc.), which translates from the Chinese as “this may be the last straw”. Further, this is the first time China’s experts on North Korea have started to insist that Beijing should from now on be tough, even if it causes deterioration in the country’s relations with the DPRK. Besides China is strengthening its border zone with DPRK with additional contingents of armed forces and border guards.

If the intensity of the reaction of Beijing’s new leadership to the situation is preserved, we may expect more decisive — as opposed to the previous years — approaches to DPRK to be reflected in China’s new foreign policy doctrine to be developed by Fall 2014.

**Why would North Korea want it?** Firstly, North Korea’s new leader Kim Jong-un has indicated that he has no intention to change the country’s economic development strategy and that he will further pursue the old policy of nuclear blackmail in a hope to obtain economic aid from the United States and South Korea in return for promises to curtail the country’s nuclear program that the country has regularly made only to withdraw from them under the all-time pretext of coping with “the US threat”. In Pyongyang’s opinion, the more advanced the nuclear program is, the more Washington and Seoul will have to pay.

In 1998-2007, that was exactly how the old leaders in Seoul addressed the issue: they provided assistance without expecting reciprocation from Pyongyang, basing on the assumption that one has to pay for security. The US administrations before President Obama took a similar approach.

The rise to power of Barack Obama in the US and Lee Myung-bak in South Korea put an end to this spiral of events where Pyongyang
exacerbated the situation, obtained financial assistance in return for promises to scale down the development of nuclear weapons and missiles, then spent the money and backtracked increasing tensions all over again.

Early in 2013 new teams won office in the US and South Korea, though each of them was headed by the same political force: Barack Obama succeeded himself, and South Korea’s newly-elected President Park Geun-hye was a party mate of the former president.

Firstly, Pyongyang’s most recent nuclear and missile tests are an attempt to send a message to the new Washington and Seoul governments: this time you will still have to pay, because we are making progress in our nuclear missile program.

Secondly, it is the rebound effect of the said actions in terms of domestic policy that is important for the DPRK’s leadership. The politicians and analysts from many economically advantaged countries have often wondered why Pyongyang would not pursue market reform and eventually turn into a rapidly developing economy, like, for example, China.

The answer lies in the logic of the existence of North Korea’s regime. Indeed, neither Kim Il-sung nor Kim Jong-Il would agree to market reform at the turn of 1990s regarding it as a sure threat of losing power, either rapidly, as was the case with the Soviet Union, or gradually, under the Chinese scenario (in particular, China’s principle of leadership rotation is totally unacceptable for North Korea’s Kim clan).

However, following the interruption of the assistance from the Soviet Union and the reduction of such from China in early 1990s, the North Korean Stalin-style command and distribution system has started to quickly fall apart. The government could not ensure the population’s food security. The factories were out of operation, power and water supply was deficient. The situation has aggravated over the two recent decades. Today, as much as 30% of the population is on the brink of starvation: South Korean media have reported cases of cannibalism that are becoming more frequent – these have been recently recognized even by North Korean officials. This situation spawns theft, clandestine manufacture, black market and corruption that indirectly help to maintain the regime while deepening its deterioration - in an environment where market legislation and mechanisms are absent.

At the same time, around 10% of the population lives a relatively good life. These people do have cellphones and computers (even though
these have no international roaming or connection to foreign media), they own cars and can spend their money at commercial restaurants and retail stores that bring to mind the Soviet-era Beriozkas [Beriozka was a twin chain of state-run retail stores in the USSR that sold goods for the certificates of hard currency. Beriozkas sold goods that were generally unavailable in regular shops be used inside the country – interpreter. See http://en.wikipedia.org/wiki/Beriozka]. Similar stores were established after the WWII to retrieve the money that the Soviet army officers had received as veterans. Such commodities are often erroneously associated with private sector, although they are in fact provided by state-controlled enterprises, since private enterprise in North Korea is prohibited by law. The said social elite has access either to foreign currency supplied as part of foreign assistance and cooperation, or to the centrally distributed resources that partially leak to the black market through corruption schemes. The personal interests of this stratum lie in preserving their privileges and convincing the rest of the population that the dire situation is due to the external threat from the United States. Rapid and blatant social stratification is a new factor of Pyongyang’s foreign policy of fomenting tensions.

Another aspect of the North Korean domestic policy is that the nuclear test, as well as the ballistic missile launch in December 2012, was meant to boost Kim Jong-un’s credentials. His rise to power was prepared neither in terms of organization, nor in terms of publicity. Indeed, so far no official announcement has been made as to the new leader’s year of birth with the ideological arrangements still underway to align the new legend of the son with the existing revolutionary legends of his grandfather and father.

After the failed try at a ballistic missile launch in April 2012, negative sentiments that Kim Jong-un is an incompetent leader began to spread in the North Korean society, repressed and controlled as it is by the regime. The declared missile and nuclear progress is supposed to change this perception and highlight the enhanced credentials of Kim Jong-un.

Why is Pyongyang not afraid? North Korea has no doubt that there will be no end to the antagonism and increasing rivalry between Russia, the United States and China. It is assumed that this offers opportunities for maneuver and makes it possible to play on the differences between the three states while being sure that the latter will
not consider a serious joint effort against North Korea (e.g. a military action).

Neither is Pyongyang intimidated by a prospect of economic sanctions. To begin with, North Korea’s external relations have been significantly limited anyway, so no new sanctions are likely to make any difference. Secondly, there is no private industry in North Korea, and no middle class whose interests may be truly affected by sanctions (as was the case with Iran) motivating them to bring proper pressure on the authorities. Besides, no mechanisms to exert such pressure are available. Thirdly, the authorities are simply unconcerned with the plight and the interests of the majority of the people.

Finally, the main reason is that the scope of sanctions available to the international community cannot profoundly affect the position of North Korea’s elite. Despite its “dissatisfaction”, China will not go the length of a complete freezing of economic relations with the DPRK over fears that it may result in a total social collapse in North Korea and cause a huge number of famished refugees to invade North-East China undermining its stability. The European countries with their liberal traditions will not be able to totally block the activities of North Korean banks servicing “the Party’s gold and cash flows”.

Japan has already imposed trade sanctions on the DPRK and minimized the trade flow. However, Pyongyang’s main concern is not so much the trade, as the role of pro-North Korean organization Chongryon acting as its financial window to the world. The Japanese government cannot impose sanctions on this entity, unless it makes relevant changes in the legislation, which would require much time and effort.

**What can be done?** By all appearances, North Korea has reached the turning point. Indeed, the current situation challenges the world’s major responsible nuclear powers (Russia, the United States and China) that have common interests with respect to North Korea – preventing Pyongyang from acquiring workable nuclear missile capability of any significance. Such concurrence of interests makes it possible to raise a question of finally making a breakthrough in the development of the trilateral political and military cooperation between the three great powers.

In this context, the author of this chapter believes that the US concept of a pinpoint preemptive conventional strike on North Korea’s nuclear facilities at least deserves further discussion. This may also come to the knowledge of the North Korean leadership.
However, this is not enough. The only way to definitively resolve the North Korean nuclear issue is to ensure a gradual transition of DPRK’s regime towards market economy and greater transparency. However, the regime itself will never agree to it. This issue requires a strategy of broadly engaging North Korea in social and economic contacts with the outside world aimed at transforming the mindset of those DPRK citizens who are capable of changing, if only because of personal interest in hard currency and material comforts.

The experience of the US and other Western countries in their policy of openness and broader contacts with the former USSR in the 1980s may serve as a model. This policy, although quite unintentionally, objectively resulted in the collapse of the Soviet regime whose survival was intrinsically depended on its total closedness and antagonism towards the outside world.

However, this will require coordinated effort of the interested countries. And while the nuclear powers play the leading role in matters related to deterrence by force, the policy of ‘total engagement’ calls for the cooperation of all the members of the six-party talks on North Korea.

The mechanism of the six-party talks is a platform (currently not in use) that was created with this aim in view. The talks will hardly be soon resumed with North Korean participation. Today, Pyongyang stakes on bilateral ties with the US and South Korea. However, the six-party format includes the so-called Working Group 5 that addresses issues related to security in Northeast Asia and is the only working group that may function even without DPRK’s participation. This working group is chaired by Russia.

Today we are nearing the turning point when the regular and substantive activities of the working group are becoming vitally important as an additional incentive for engaging North Korea in a multilateral dialogue. Sooner rather than later North Korea will come to realize that it would better not shun the important issues or regional cooperation for such cooperation may further develop even without the DPRK’s participation.

The possibility of collapse of the North Korean regime. The North Korean political system continues to come loose. In July 2012 this fact manifested itself in the significant changes within the country’s political elite. The once-mightiest Ri Yong-ho (who used to be second only to Kim Jong-il himself in terms of power) was relieved of all his duties to be replaced by Hyon Yong-chol, apparently a representative of
the other rival faction (Jang Sung-taek-Kim Kyong-hui). Kim Jong-un was promoted to the rank of marshal. The dismissal of Ri was marked by armed confrontation and shooting unheard of since late 1950.

The events of July 2012 leave room for several conclusions. Firstly, the antagonism between “the military”, i.e. those who are supported by the State Defense Committee-related structures and led by Ri Yong-ho, and “the party-members” supported by the party institutions (with speaker of North Korean parliament Kim Yong-nam acting as their representative) intensified in the wake of Kim Jong-il’s health issues in 2008. Ri Yong-ho was dismissed by the decision of the Plenum of the Politburo of the Central Committee of the WPK, the Workers’ Party of Korea (following the old Soviet tradition), in contrast to the procedure used in the times of Kim Jong-il when officials were dismissed by the decision of the leader or the State Defense Committee. The organization reinforced its positions in the country, whereas the once obscure Central Military Commission (CMC) of the WPK gained control over the armed forces.

Secondly, the imbalance of DPRK’s political system has increased. Kim Jong-un was not at the Plenum, which means that he had delegated the Ri Yong-ho issue to the close confidants –Kim Kyong-hui and Jang Sung-taek. The Plenum was held on Sunday, when Kim Jong-un may have been on holiday. The information on the Plenum’s decisions was published immediately to prevent Ri Yong-ho from a counter-move (complaining to Kim Jong-un or addressing the loyal troops).

Unlike his father, Kim Jong-un does not control the everyday party life. Instead, he prefers to keep out of the infighting. In recompense for his support of the action against Ri Yong-ho, Kim Jong-un was promoted to the rank of marshal which has little practical importance since Kim Jong-un already occupies all the highest positions, including that of the Supreme Commander.

Thirdly, the situation in North Korea resembles in part those in the former Soviet Union at the time of major changes. In June 1953, three months after Stalin’s death (March 1953), Soviet secret police chief Lavrentiy Beriya – the country’s second most powerful person – was removed from all of his posts and arrested (to face his death by firing squad).

Political rebalancing inside the country may accelerate the conflicting transformation processes in North Korea. However, it would be premature to talk about the positive democratic and market-oriented
reform. North Korea’s leadership and political elite are interested in maintaining the status quo, lest they lose their exclusive social status.

Fourthly, it appears important in this context that the changes in the higher echelons of power in DPRK were matched with the intensified pressure on Pyongyang by Beijing. Following the failed attempt at a ballistic missile launch, Beijing initiated political and psychological pressure on the North Korean leadership through all formal and informal channels, demanding that the latter put a lid on nuclear missile games and embark on the road to positive market-oriented reform and greater transparency. In early July 2012, a week before the Plenum of the WPK Central Committee, Beijing for the first time released the information on the amount of the assistance it had provided to North Korea since the start of reform in China, presenting a shocking figure of $120 billion.

Whether this figure corresponds to reality or not, the main point is, the unspoken hint of the Chinese leadership behind this disclosure was that the assistance would be discontinued unless Pyongyang initiated positive reform. At the same time, it was explained to Pyongyang that if it gave up on nuclear blackmail, the assistance would be increased, including the development of North Korea’s infrastructure, the employment of 120,000 North Korean workers in Northern China, increased supplies of energy resources, etc.

After North Korea’s third nuclear test Beijing took a more hardline approach to Pyongyang increasing its control efforts on the China-North Korea border, curtailing food supplies while China’s new leadership ratcheted up its anti-North Korea rhetoric.

Negative changes in the economy (accumulation of shadow capital and corruption) and politics (gradually increasing imbalance of the regime as a result of internal struggle for power while the current leader is weak) are today’s major trends in the progress of the North Korean regime.

The chances are maximum that this trend will prevail in the short to medium term.

There is virtually no prospect of positive changes. The authorities per se are not interested in driving the reform. There is no grassroots opposition movement, and even if there are anti-government rallies, the prospective opposition has no leaders, no slogans, and no ideas to offer.

The likelihood of positive changes in the economy depends on involving North Korea in commercial, financial and cultural ties with
foreign countries that see market economy principles as the backbone of their growth.

To influence North Korea’s society at large (not only its ruling elite) from abroad appears to be the only option in terms of increasing the likelihood of positive changes in the country.

The Chinese experience of positive economic transformation suggests that the growth of market economy and legal capital sooner or later brings up the issue of political reform. To preserve the political stability and therefore their own position as a ruling group, the authorities have to resolve to positive political transformation towards democracy.

Thus, in the recent history there have been two scenarios of the communist regime change:

Through a political collapse – in case positive economic transformation is choked off;

Through political changes – providing there is positive economic transformation.

As regards North Korea, if there is no positive economic transformation, the collapse of the regime appears to be virtually the only outcome.

The answer to the question of when exactly this happens depends on when the antagonism between the rival clans intensifies, which may trigger the crash.

Another result of the collapse of the political system is that the higher echelon may totally lose reins of the state. North Korea will thus turn into a criminalized area. Consequently, the country may break down into two parts – the central part and the North-East with weak highway and rail communication between them.

Under this scenario, the issue of international control over North Korea will be brought to a head. It is not improbable that peacekeeping forces under the UN mandate will be deployed, which may include using Chinese contingent. To ensure the security of nuclear weapons and fissile materials and their subsequent elimination to prevent their falling into the hands of terrorists or other irresponsible regimes will be of primary importance. Preparing such operational procedures, even if it will be done on a highly confidential basis, shall be at this point one of the key subjects of the consultations between the three great nuclear powers.
2. NORTH KOREA’S NUCLEAR PROGRAM. STATUS AND PROSPECTS

Vladimir E. Novikov

Publicly available official sources cannot provide sufficient information on Pyongyang’s nuclear policy at large, to say nothing of the various technical aspects of its nuclear program. Therefore, this analysis is a more or less accurate expert assessment of North Korea’s nuclear capabilities.

Nuclear program: the beginning. Extensively assisted by the USSR and China, DPRK started to pursue its nuclear program in the latter half of the 1950s. As early as in the following decade the country already had several research and development centers conducting R&D on nuclear energy.

With the assistance of the Soviet Union and China, North Korea managed to rapidly build nuclear infrastructure facilities and train nuclear specialists. However, it should be mentioned that the scientific and technological cooperation between Moscow and Pyongyang did not include any transfer of technologies directly related to nuclear weapons. North Korean specialists participated in the peaceful nuclear research of the Soviet Union.

In particular, around 250 specialists participated in various projects at the Joint Institute of Nuclear Research in the city of Dubna alone; 80% of these specialists were involved in experiments. Notably, their Russian counterparts had no doubts about their high quality at the time¹. Still, due to a “gray zone” between “peaceful” and “military atom” most probably even back then North Korea’s leadership may have directed the country’s scientists and engineers to gain practical experience in peaceful as well as military research and development.

A significant part of Korean specialists were also trained in Japan, the Federal Republic of Germany, the German Democratic Republic and China. All this provided North Korea with qualified scientific personnel

and rendered its nuclear facilities more or less self-sufficient, which subsequently enabled the country to claim the status of a nuclear power.

Presently most of the world experts have no doubt that North Korea has thus far practically mastered the technology related to all stages of nuclear fuel cycle, so one can only argue about how advanced is the technology of developing a nuclear warhead.

**Nuclear capability and production capacities.** The DPRK’s recoverable natural uranium deposits are estimated at 15,000 tons, an amount sufficient both for the development of nuclear energy industry and a military nuclear arsenal. The uranium mines are located in Pakchon and Pyongsan. The uranium is used to obtain uranium concentrate (U3O8), uranium dioxide (UO2), which is then converted into uranium tetra- and hexafluoride - the feedstock for enrichment.

It should be noted that North Korea’s experts have long mastered the technology of building graphite-uranium reactors, the first of which – the Yongbyon 5 MW(e) reactor – became operational in 1986. The Yongbyon reactor is able to produce around 6 kg of plutonium per year. There were plans to build two more power reactors of the same type in Yongbyon (50 MW(e)) and in Taechon (200 MW(e)). However, the construction of the former was halted more than two decades ago, and the construction of the latter never actually started.

In terms of analyzing the military aspect of North Korea’s nuclear program, the Yongbyon nuclear facility is of the primary interest. Its 5 MW uranium-graphite reactor was the sole source of plutonium for the first two nuclear explosive devices used in the tests of 2006 and 2009. In addition, Yongbyon complex houses the Radiochemical Laboratory employing the so-called PUREX process to separate plutonium-239 – that was used in the nuclear explosive devices – from spent nuclear fuel (a similar process for plutonium separation has been employed in the United States). According to the members of the unofficial delegation who visited Yongbyon in January 2004, “the facility appeared in good repair”, which suggests that it was operational, providing for rapid

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reprocessing of a significant amount of spent nuclear fuel (double loading of the Yongbyon reactor)\(^4\).

Up to the middle of the previous decade there were doubts as to whether North Korea could produce weapons-grade plutonium in metallic form. However, the ‘sample’ – plutonium in metallic form – shown to former director of the Los Alamos National Laboratory Dr. Siegfried S. Hecker (January 2004) and the tests of 2006 and 2009 proved that the DPRK indeed can manufacture plutonium component of a nuclear weapon.

Another source for plutonium production may become the experimental light-water reactor with the thermal power of 100 MW that is currently under construction in Yongbyon.\(^5\) Though the said reactor is below the uranium-graphite reactors in terms of weapon-grade performance, it may produce significant quantities of plutonium-239, when operated accordingly. However it is technically more difficult to use spent nuclear fuel from this type of reactor to produce weapons-grade plutonium. Up to the present moment, the United States has been the only nation to have produced and tested a nuclear weapon on the basis of reactor-grade plutonium in the mid-1960s. It should be noted, though, that the US used the spent fuel from the reactor designed in the UK (Magnox-type) that is easier to use for the production of weapons-grade plutonium due to its isotopic composition. Yet, it should not be ruled out that the light-water power reactor will indeed be used for plutonium-production.

Major disagreement exists over the estimated amount of North Korea’s weapons-grade plutonium-239, as there is little reliable information on the operation of the Yongbyon reactor during the periods when the IAEA safeguards did not apply. Another uncertainty is due to the necessity not only to extract plutonium from the fuel rods, but also to convert it into metallic form.

This brings up a question as to the nature of North Korea’s third test of 12 February 2013. Some experts suggested that this time Pyongyang may have tested a nuclear weapon on the basis of weapons-grade uranium instead of plutonium.

The prospects for the nuclear program. Nonetheless there are reasons for doubt that the third test of 2012 employed a uranium-based nuclear explosive device. Indeed, if weapons-grade uranium were to be used, the risk of failure would have been unacceptable in the current political environment for North Korea’s new leader. The fact that the test was successful with the explosive yield estimated at 6-7 kiloton equivalent⁶ (while Russia’s Defense Ministry believed that the yield was even higher) may support an assumption that plutonium-based device was used. It is evident that the yield of North Korea’s tested charges has progressively increased since 2003.

Pyongyang has declared its determination to go on with the testing of nuclear weapons to improve the weight and size characteristics to enable their adaptability to the reentry vehicles of the available ballistic missiles. From this perspective, plutonium warheads appear to be preferable if made sufficiently reliable.

However, it is unclear where the country obtained weapons-grade plutonium for such warheads. As mentioned above, the DPRK’s stocks of produced plutonium are rather limited, and the only plutonium-production reactor in Yongbyon has been out of operation. The reactor was shut down in 2007, its cooling tower demolished in 2008. So far, there has been no evidence of a new cooling tower being erected at the same site.

Besides, the reactor was built over a quarter of a century ago; it is morally and physically obsolete, and there have been official statements that it was being prepared for dismantlement. Thus, there are grave concerns as to whether the nuclear safety of the reactor can be ensured if it is again put into operation.

It appears that the Yongbyon uranium-enrichment plant may be the only source of weapons-grade nuclear material for the future nuclear arsenal declared by North Korea. The history of the Youngbyon uranium-enrichment plant is quite exemplary. Since late 1990s the experts – primarily in the US – have stated that DPRK was developing uranium enrichment technology. It was extensively reported that North Korea was exploring different options, including laser enrichment. However, early in the previous decade it was revealed that a network led by Abdul Qadeer Khan (“father” of Pakistan’s nuclear bomb) was involved in

illegal transfer of sensitive technology, materials, components and even working models of centrifuges. It was reported that Pyongyang had obtained about “two dozens” of centrifuges.\(^7\)

It immediately brought up the question of whether the DPRK was capable of replicating/modifying the centrifuges it had obtained to start their local production in significant quantities. During the second half of the previous decade most of the experts had doubts as to whether Pyongyang was capable of launching mass production of centrifuges. However, as it had happened before, North Korea sprang an unpleasant surprise.

In November 2010, when an unofficial US delegation paid a visit to Yongbyon, Dr. Siegfried S. Hecker was shown a plant in Yongbyon that housed (according to Dr. Hecker’s estimates) a total of 2,000 centrifuges, most likely of P-2\(^8\) type. The centrifuges were in 6 cascades and were probably designed to produce nuclear fuel enriched to 3.5% for the experimental 5-30 MW(e) light-water reactor that, according to Pyongyang, was under construction in Yongbyon.

As estimated by the experts, the capacity of the uranium enrichment plant shown to the US delegation fully corresponded to that of the reactor under construction. However, this plant can also produce up to 40 kg of uranium enriched to 90%, if the country decides to do so.\(^9\)

The US delegation was unhappily surprised at the size and the technological level of the installed equipment. Hence the question as to the source from which North Korea may have obtained the very specialty materials and pieces of equipment required to build such a plant. In particular, Dr. Hecker’s guess was that the rotors of the centrifuges were made of special martensitic steel, the production of which is quite a challenge, and that the pipes were made of high-strength aluminum alloys. It stands to mention that shortly after the visit, mass media were referring to North Korean officials as saying that 150 tons of high-strength pipes had been imported from Russia and used under DPRK’s uranium enrichment program in 2002-2003.\(^10\)

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\(^9\) Ibid. P.8.

Even if this information is true, it is still unclear where North Korea could have obtained precision equipment to control the rotational speed of the centrifuges, the special lubricants, the high-speed bearings and a number of other components.

So far, no information has been available as to whether uranium enrichment has been conducted at the plant. However, it appears that the plant can start producing enriched uranium, in particular for military purposes.

Assuming that the existing uranium enrichment industry is a means of obtaining weapons-grade uranium for the DPRK’s nuclear arsenal, the concerns that there may be yet another uranium enrichment facility in North Korea appear quite reasonable. At any rate, before building a production plant, Pyongyang must have at least carried out a pilot project. However, no information of such a project has been available. Given North Korea’s experience in secret underground facilities, it can be assumed that a second uranium enrichment plant either already exists or is currently under construction.

Another fact that counts in favour of this assumption is that North Korea’s leadership has openly declared its intention to create a nuclear deterrent, which would be impossible without a sufficient amount of weapons-grade nuclear material. Last spring’s official amendments to North Korean constitution defining the DPRK as a nuclear-weapon state with all the ensuing consequences should also be taken into account.

An intriguing issue is North Korea’s nuclear testing program. It is known that the US needed 3 to 7 tests to include a specific nuclear warhead in its inventory. If uranium warheads will be the backbone of DPRK’s future nuclear arsenal, Pyongyang will need a series of nuclear tests. Therefore, one can assume that there will be further tests, if the international community fails to find a diplomatic solution to the issue of North Korea’s nuclear program and reducing tensions on the Korean Peninsula and in the entire region.
3. THE PROSPECTS FOR THE DEVELOPMENT OF DPRK’S NUCLEAR MISSILE CAPABILITY

Viktor I. Esin

The Korean Central News Agency (KCNA) reported that the 12 February 2013 nuclear test\(^\text{11}\) was successful, making a special note of the fact that “a miniaturized and lighter nuclear device” was used\(^\text{12}\). This news confirms a suspicions that North Korea has been making an effort at reducing the weight and size of its nuclear devices to obtain a compact warhead that may be mounted on the reentry vehicle of a ballistic missile.

Most probably the latest nuclear test (according to Russia’s Ministry of Defense, the estimated yield was 10 to 20 kilotons)\(^\text{13}\), has brought North Korea much closer to the development of such a warhead and thus to the status of a nation possessing nuclear-capable ballistic missiles force.

It is also noteworthy that in April 2012 the DPRK amended its constitution to establish its status as a nuclear power which Pyongyang views as the main national security guarantee\(^\text{14}\).

It appears that these two acts by North Korea’s new leader Kim Jong-un have buried the feeble hopes of the international community for reaching an agreement on dismantling DPRK’s nuclear weapons program. Resuming the six-party talks on the denuclearization of the Korean peninsula that were suspended in April 2009 has become quite dubious\(^\text{15}\). New realities call for new approach to the issue.

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\(^{12}\) North Korea Achieves Tremendous Effect (KNDR Dobilas Potryasayushchego Effekta), article by Strokan Sergei and Chernyshov Alexei, the Kommersant, 13 February 2013.\[13\]

\(^{13}\) ITAR-TASS, 20 February 2013.

\(^{14}\) PIR-PRESS, 15 February 2013.

\(^{15}\) The six-party talks opened in August 2003. They were initiated by China and held in Beijing. The United States, Russia, Japan and the Republic of Korea participated in the talks, alongside with China and the DPRK // SIPRI Yearbook 2011.
It has become obvious that under the current political regime the DPRK is highly unlikely to forego nuclear weapons. Thus, the analysis of the prospects for the development of North Korea’s nuclear-missile capability should be based on this assumption.

**North Korea’s nuclear capability.** The DPRK started to implement its nuclear program in the middle of the twentieth century, extensively assisted by the Soviet Union. China also contributed to the development of North Korea's nuclear program, primarily through the training of nuclear scientists and engineers.

By 1966, a nuclear center was established in Yongbyon (alternatively, Nyongbyon, 86 km north of Pyongyang) where a Soviet-made IRT-2000 research light-water reactor started up, alongside with a radiochemical laboratory, a betatron and a cobalt gamma installation, also supplied by the Soviet Union – thus creating a full-scale nuclear research and testing base.

Encouraged by the results of subsequent nuclear research by North Korean experts, the country’s leadership made a political decision to proceed with the development of nuclear weapons. Russia’s Foreign Intelligence Service believes that this decision dates back to the turn of the 1970s. However, due a variety of difficulties, primarily related to economic as well as technological issues, it was only in early 1980s that Pyongyang managed to practically proceed with this plan and after that North Korea’s nuclear program gathered momentum. Notably, the focus was on building fuel cycle facilities for the gas-graphite reactors operating on natural uranium and designed to effectively produce weapons-grade plutonium.

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16 The USSR and the DPRK signed an agreement on the cooperation in the training of nuclear specialists in 1956, and in 1959 the two countries signed an agreement on the peaceful use of nuclear energy (Russian text available at [http://www.iss-atom.ru/articl iss/nuc_pr_kndr_12.pdf](http://www.iss-atom.ru/articl iss/nuc_pr_kndr_12.pdf); last visited 2 March 2013).

17 In addition to various radiochemical research involving fissile materials, the laboratory can be used for the reprocessing of irradiated nuclear fuel from the reactors to extract weapons-grade plutonium // Yudin Yuri, Technical Aspects of the North Korean Nuclear Program (Tehnicheskie aspekty severokoreiskoy yadernoi programmy). Yaderny Kontrol, No. 1 (79), Vol. 12, Spring 2006. M.: PIR Center. P. 131.

18 Open report by the Russian Foreign Intelligence Service (SVR) for 1993, “New Challenges after the ‘Cold War’: the Proliferation of Weapons of Mass Destruction (Russian text available at [http://www.svr.gov.ru/material/2-1.html](http://www.svr.gov.ru/material/2-1.html)).

19 North Korea’s uranium deposits are estimated at 15,000 to 20,000 tons. There are several uranium ore mines and two uranium enrichment factories with a total annual
The prospects for the development of DPRK’s nuclear missile capability

Having developed a plutonium fuel cycle, the DPRK started to carry out its secret nuclear weapons program in violation of its commitments under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), to which it acceded on 12 December 1985.

The program based on the production of weapons-grade plutonium was suspended in late 1994, when the DPRK and the United States signed the so-called Agreed Framework\textsuperscript{20}. However, in mid-2002 the Agreed Framework was stuck due to reasons attributable to the United States\textsuperscript{21} tough political posture, which prodded Pyongyang into a demarche: on 12 December 2002 the Korean Central News Agency announced that the DPRK was to resume its nuclear program. On 10 January 2003 the country officially announced its withdrawal from the NPT and the termination of cooperation with the IAEA\textsuperscript{22}. A month later the 5 MW gas-graphite reactor of the Yongbyon Nuclear Research Centre was restarted, along with other industrial facilities of this Centre\textsuperscript{23}. The US and its partners (the Republic of Korea, Japan and the European Union) responded by cutting off the economic assistance to DPRK and halting the construction of a light-water nuclear power plant in Sinpo\textsuperscript{24}. The Agreed Framework of 1994 was dead.

production capacity of around 150 tons of uranium concentrate (Russian text available at [http://www.pircenter.org/media/content/files/9/13508298760.pdf](http://www.pircenter.org/media/content/files/9/13508298760.pdf); last visited March 2 2013).

\textsuperscript{20} The Agreed Framework was signed in Geneva on 21 October 1994. Under the Agreement, in return for DPRK renouncing its plutonium-based nuclear weapons program, economic assistance was to be provided to North Korea and a nuclear power plant was to be built in the vicinity of the seaport town of Sinpo, including two 1,000 MWe light-water reactors // Nuclear Non-Proliferation: Brief Encyclopedia… P. 57.

\textsuperscript{21} The Republican Administration led by George W. Bush that came to power in the US in 2001 took a more hardline approach to the DPRK where emphasis was placed on threatening North Korea with preventive sanctions and the termination of the Agreed Framework // Nuclear Non-Proliferation: Brief Encyclopedia… P. 58.


\textsuperscript{24} To coordinate the effort on the construction of a nuclear power plant in Sinpo, the United States, in association with the republic of Korea and Japan founded the Korean Peninsula Energy Development Organization (KEDO) to be later joined by the European Union. The construction of the nuclear power plant began in 1997 and was running behind the schedule. By the time the construction was suspended, only 34% of
However North Korea’s newly launched nuclear program was suspended in February 2007. In the course of the six-party talks that were resumed following North Korea’s first nuclear test of 9 October 2006, an agreement was reached on a phased action plan for DPRK to disable its plutonium-based nuclear weapons program in return for energy and economic assistance (annual assistance in the amount equivalent to the price of 1 million tons of fuel oil). In June 2007 the key industrial facilities of the Yongbyon Nuclear Centre were put out of operation. The removal of equipment continued until late 2008, when it was suspended by North Korea due to renewed controversy with other parties of the multilateral talks over the verification of DPRK’s denuclearization.

In April 2009 Pyongyang announced that the DPRK would never again take part in the six party talks and would not be bound by any agreement reached earlier. Following this announcement, there was a burst of activity at the Yongbyon Nuclear Centre aimed at restoring the industrial installation for the radiochemical reprocessing of spent nuclear fuel (SNF). North Korea’s second nuclear test was conducted on 25 May 2009.

In response to this nuclear test, resolution 1718 was adopted by the United Nations Security Council imposing economic sanctions on the DPRK and limiting its access to certain types of conventional weapons and dual-use material. The UNSC subsequently adopted several other resolutions on sanctions against the DPRK to impede the development of North Korea’s nuclear and missile programs.

The agreed Action Plan contained eleven steps to ensure that the industrial installations of the Yongbyon Nuclear Centre are irreversibly disabled, including the dismantlement of the equipment, partial destruction of the 5MW gas-graphite reactor, the nuclear fuel production plant and the radiochemical production facility for the extraction of plutonium from spent nuclear fuel.

By that time eight of the eleven measures outlined by the Action Plan were implemented, including the destruction of the cooling tower of the 5 MW gas-graphite reactor.

When the installation resumed its operations, 8,000 irradiated fuel rods that had been stored in the heat-sink of the Yongbyon nuclear facility since their removal from the shut-down 5MW gas-graphite reactor in 2008 were reprocessed.
The prospects for the development of DPRK's nuclear missile capability

At the end of 2010 it was reported that the DPRK was making efforts to diversify its nuclear program and was mastering the technology of centrifuge uranium enrichment.\(^{30}\)

The various attempts to revive the six-party talks in 2011-2012 were unsuccessful. As already noted above, DPRK’s third nuclear test was carried out in February 2013, and on 11 March 2013 North Korea’s military leadership took the unprecedented step of declaring the cease-fire that ended the Korean war of 1950-1953 null and void\(^{31}\).

The above actions make it certain that the DPRK will further enhance its nuclear capability.

According to trustworthy publicly available estimates\(^{32}\), if the entire amount of plutonium was recovered from all spent nuclear fuel from the 5 MW gas-graphite reactor and the IRT-2000 research reactor, the DPRK would have up to 60 kg of weapons-grade plutonium in the metallic form. Adjusted for 30 kg of weapons-grade plutonium that could have been used for the three nuclear tests\(^{33}\) the DPRK may currently have 6-7 plutonium-based implosion type nuclear warheads of simplified construction in the form of fission bombs (that can be delivered by the Chinese-made Hong-5 (H-5) light bombers\(^{34}\)). No reliable information is

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\(^{30}\) In November 2010 at the Yongbyon nuclear facility Pyongyang demonstrated its advances in the development of a light-water fuel cycle to a delegation of US scientists: a 25-30MW(e) reactor at the initial stage of construction and an installation for the isotopic enrichment of uranium comprising around 2,000 gas centrifuges in six cascades (http://www.iss-atom.ru/articl_iss/nuc_pr_kndr_12.pdf; last visited 2 March 2013).

\(^{31}\) Strokan Sergei. The Koreas Don their Uniforms (Korei Demonstriruyut Voennuyu Formu). The Kommersant, 12 March 2013.

\(^{32}\) http://www.iss-atom.ru/articl_iss/nuc_pr_kndr_12.pdf;
http://www.armscontrol.org/act/NKPlutonium.asp;
http://www.nti.org/e_research/profiles/NK/Nuclear (последнее посещение – 2 марта 2013 г.).

\(^{33}\) The declaration on its nuclear weapons program presented by North Korea to the participating states of the six-party talks in June 2008 said that 2.075 kg of weapons-grade plutonium had been used to make an experimental nuclear explosive detonated in October 2006 (http://www.nti.org/d-newswire/issues/2008_10_24.html; last visited 2 March 2013). According to the estimates by the Russian Institute for Strategic Studies, up to 4 kg of weapons-grade plutonium may have been used to make each of the nuclear explosives detonated in May 2009 and February 2013 (http://www.iss-atom.ru/articl_iss/nuc_pr_kndr_12.pdf; last visited 2 March 2013).

\(^{34}\) This bomber is a copy of the Soviet-made Il-28 tactical bomber that was certified as capable of carrying an atomic bomb of up to 3,000 kg in the internal bombbay.
available on whether the DPRK has nuclear reentry vehicles for ballistic missiles.

As to the outlook for North Korea’s nuclear capability, it will depend on the capacities of the country’s nuclear infrastructure. DPRK’s facilities for plutonium production and separation currently have limited operation capability following the dismantling activities of 2007-2008\(^{35}\), while the output of the uranium enrichment facilities is far below the mark\(^{36}\).

It may be expected that in the medium term (within 3-5 years) the construction of the 25-30 MW light-water reactor will be completed at the Yongbyon nuclear facility, and further construction of the 50 MW gas-graphite reactor will be resumed. Once the two reactors become operational, the production of plutonium may dramatically increase. In addition, the capabilities for the gas-centrifugal uranium enrichment are likely to be further enhanced. The announcement made by the KCNA in May 2010 that North Korea’s scientists had carried out a nuclear fusion test\(^ {37}\) should not be ignored, either. It appears that nuclear fusion research may have been pursued with a view to developing pulsed neutron generators for nuclear weapons to achieve their smaller size and weight. Therefore, it will not be long before North Korea proceeds with the development of nuclear warheads for ballistic missiles.

**DPRK’s missile capabilities.** The DPRK was the first nation in Eastern Asia to have attempted mastering missile-related technology. In the 1960s North Korea purchased Luna and Luna-M solid propellant short-range unguided missiles from the USSR (their Western designations are FROG-5 and FROG-7, respectively)\(^{38}\). In 1980 DPRK obtained three tactical liquid-propellant 8K14 missile systems (Scud-B,
The prospects for the development of DPRK’s nuclear missile capability

its North Korean designation is Hwasong-5)\(^{39}\) from Egypt. Shortly thereafter, this missile was reverse engineered and indigenous production was set up. With the assistance of Chinese specialists, an improved version of Scud-C (its North Korean name is Hwasong-6)\(^{40}\) was developed in the DPRK late in the 1980s.

In 1988, the DPRK started to develop indigenous ballistic missiles. The program was aimed at developing the Nodong-1 single-stage liquid-propellant intermediate-range ballistic missile (IRBM) fitted with a separable warhead. The program was implemented with the assistance of Iran and Libya: in addition to providing financial support, the two countries purchased the required materials and mechanical articles from the Western countries through intermediaries. The Nodong-1\(^{41}\) IRBM entered service late in the 1990s.

In 2007-2008, the DPRK made operational the KN-02 road-mobile missile launch system with short-range missiles, a North Korean version of the Tochka, a Soviet-made single-stage solid propellant missile\(^{42}\).

Today, all missiles in the inventory of North Korea’s missile units are fitted with either of the two types of conventional warheads: high-explosive or cluster munitions. The Nodong-1 IRBM may potentially carry a nuclear warhead.

At a rough estimate, as of late 2012, the ground force of the KPA\(^{43}\) had three separate Nodong-1 IRBM battalions (9 launchers), one separate short-range Scud-type missile regiment (28 launchers), three separate battalions with the KN-02 missile system (12 launchers) and six separate Luna-M short-range missile battalions (21 launchers)\(^{44}\) – 70 launchers altogether.

\(^{39}\) This missile is mounted on a mobile launcher and has a launch weight of 6.4 tons. It is fitted with 1,000 kg warheads and has a range of up to 300 kilometers // Ibid.
\(^{40}\) This missile has an extended range of 300 to 550 kilometers owing to elongated fuel tanks and lower weight of the warhead (700 kg compared to the usual 1,000 kg) // Ibid.
\(^{41}\) This missile is mounted on a mobile launcher and has a launch weight of 16 tons. The missile is fitted with a 1,000 kg separable warhead and has a range of up to 1,000 kilometers. With the weight of the warhead is decreased to 700 kg, the range may amount to up to 1,300 kilometers // Ibid.
\(^{42}\) The Tochka missile was transferred to the DPRK by Syria allegedly in the mid-1990s (http://www.pircenter.org.media; last visited March 2, 2013).
\(^{43}\) KPA – the Korean People’s Army.
\(^{44}\) http://www.rand.org/content/dam/rand/pubs/technical_reports/012/RAND_TR1268.pdf.
Two new types of single-stage missiles on mobile launchers were unveiled during the military parade in Pyongyang on 10 October 2010. One of the missiles was identical to the Iranian Shahab-3M IRBM (alternatively, Ghadr-1)\(^45\), and the other was similar in appearance to the Soviet-made R-27 submarine-launched ballistic missile (SLBM). The US dubbed the two missiles Nodong-2010 and Musudan, respectively.

It is hardly surprising that the DPRK has acquired Nodong-2010, since North Korean specialists were directly involved in the development of Iran’s Shahab-3M\(^46\). As to the missile designated as Musudan, the United States has since 2002 reported that the DPRK possesses such a missile, although it was not considered operational as there was no indication that the system has been launch tested. According to the Russian experts’ estimates, at the parade on 10 October 2010 a mock-up of a missile similar to the R-27 SLBM was displayed\(^47\).

The prospects for the development of DPRK’s missile capabilities are linked to the development of Taepodong type two-stage liquid-fueled long-range ballistic missiles. The respective program was launched early in the 1990s.

The development of Taepodong-1 IRBM was reported in 1994. The missile used the propulsion stage of Nodong-1 as a first stage and the propulsion stage of Scud-C as a second stage. It was estimated that the launch weight of Taepodong-1 IRBM was 22 tons, that the missile had a length of 25 meters, maximum diameter of 1.3 meters, and that it had a range of 2,300 kilometers when fitted with a 1,000 kg warhead, or 3,000 kilometers when fitted with a 500 kg warhead\(^48\).

The first and only flight test of the Taepodong-1 IRBM was carried out on 31 August 1998 under cover of launching into space the Kwangmyŏngsŏng-1 communications satellite. For this purpose the

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\(^{45}\) The Shahab-3M IRBM has a launch weight of around 17 tons. It is fitted with a separable high-explosive or cluster warhead with a weight of up to 500 kg and has a range of up to 1,500-1,600 kilometers. With the weight of the warhead increased to 1,000 kg, the missile’s range does not exceed 1,100 kilometers // Iran’s Nuclear and Missile Potential (A Joint Threat Assessment by U.S. and Russian Technical Experts). East-West Institute, May 2009. P.7.

\(^{46}\) The Shahab-3M IRBM was developed in a similar way to the Scud-C short-range missile – by elongating the fuel tanks of its predecessor, Shahab-3, which is an exact replica of North Korea’s Nodong-1 // Iran’s Nuclear and Missile Potential… P. 7.


Taepodong-1 IRBM was converted into a space launch vehicle with an added third stage (the propulsion stage of the Tochka missile was used). In the course of the launch, the first and the second stages operated normally, while the third stage separated only to plunge into the Pacific Ocean along with the satellite (1,600 kilometers off the launch site). Following this, the Taepodong-1 program was closed. It appears that it was no more than a demonstration.

Simultaneously with the development of the Taepodong-1 IRBM, the Taepodong-2 program was underway. There is very little information on the specifications of the Taepodong-2 missile. Allegedly, the launch weight of the missile is 60 to 85 tons (65 tons, according to Russian experts’ estimates), it has a length of 32 meters with maximum diameter of 2.2 meters. Its range is estimated at 3,500-6,000 kilometers depending on the weight of the warhead (3,500 to 5,000 kilometers when fitted with warheads of 1,500 and 500 kg, respectively). The first flight test of the Taepodong-2 missile was carried out on 5 July 2006 and was a failure. Still, the efforts under the Taepodong-2 program were continued, despite the fact that the long-range missile test was universally condemned by the international community.

On 5 April 2009 the DPRK launched Unha-2, an indigenous three-stage space launch vehicle carrying the Kwangmyŏngsŏng-2 communications satellite. Among other things, the technologies of the Taepodong-2 missile were tested in the course of the launch, in particular, its most critical element – the liquid propellant rocket engine of the first propulsion stage with a thrust of over 100 tons (a cluster of four Nodong-1 rocket engines). The Korean Central News Agency

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49 The positive feature of this launch was that missile staging was successfully tested.
51 The international community interpreted the DPRK’s missile test of 5 July 2006 as the country’s withdrawal from the unilateral moratorium on the flight tests of long-range missiles that North Korea declared in 1999. On 15 July 2006 the UN Security Council unilaterally adopted resolution 1695 demanding that North Korea immediately cease its activities related to the development of long range ballistic missiles and return to maintaining the moratorium on flight tests // SIPRI Yearbook 2007: Armaments, Disarmament and International Security (translated from English) / Institute of World Economy and International Relations of the Russian Academy of Sciences. – Moscow: IMEMO RAN, 2008. P. 513.
reported that the satellite was placed into orbit; however this statement was never confirmed by external sources\textsuperscript{52}.

On 13 April 2012 the DPRK launched Unha-3, a three-stage space launch vehicle carrying Kwangmyŏngsŏng-3, the first modification of a space vehicle for remote Earth sensing. The intended purpose, just like in the case of the previous launch, was to test the technologies of the Taepodong-2 missile. However, the launch was not successful, either\textsuperscript{53}.

Another launch of the Unha-3 space launch vehicle carrying a second modification of the Kwangmyŏngsŏng-3 was carried out on 12 December 2012. The launch was successful, though not in full: although the space vehicle was placed in sun-synchronous orbit, it could not stabilize its Earth orientation which prevented it from taking the photographs\textsuperscript{54}. In addition, the space vehicle failed to transmit signals to the receiving stations in North Korea.

No doubt, the success of 12 December 2012 marked the headway of the Taepodong-2 program. One should expect that the flight tests of the missile will soon be resumed. It is not unlikely that in the medium term the DPRK may come up with a ballistic missile with a range of up to 5,000-5,500 kilometers (with a 500-600 kg warhead).

As to the prospect of the DPRK developing a workable intercontinental ballistic missile (ICBM), this is hardly feasible during the current decade. This is not only due to a weakness of North Korea’s economy affected by the sanctions imposed on the DPRK in line with the resolutions of the United Nations Security Council\textsuperscript{55}, but also because of the objective engineering, design and technological problems of such a system.

A reconstruction of the characteristics of the Unha-3 space launch vehicle made by Michael Elleman (Senior Fellow at the Bahrain-based

\textsuperscript{52} As it emerged afterwards, the first two stages of the space launch vehicle operated normally, but the satellite was not placed in orbit due to an emergency situation during third stage separation or its subsequent operation. Fragments of the third stage of the space launch vehicle and the satellite plunged into the Pacific Ocean more than 3,200 kilometers off the launch site // Vladimir Evseev. Op. cit.

\textsuperscript{53} After the launch, the missile fell apart several minutes into the flight. The fragments fell into the Yellow Sea. // Strokan Sergei, Chernenko Elena. DPRK tries the temper of its neighbours and the US (KNDR Ispytyvaet sosedei i SShA). The Kommersant, 6 February 2013.

\textsuperscript{54} Interfax, 14 December 2012.

\textsuperscript{55} The most recent of such resolutions – Resolution 2094 – was adopted by the UNSC on 7 March 2013.
The prospects for the development of DPRK's nuclear missile capability

International Institute for Strategic Studies-Middle East) showed that the thrust-to-weight ratio of the vehicle’s second and third stages\(^{56}\) is insufficient to enable it to carry a 1,000 kg warhead to an intercontinental range. Even if the weight of the warhead is reduced to 500 kg, the range of the missile would not exceed 5,500 kilometers. According to Elleman, the Unha-3 launch vehicle with its current design is unviable as an ICBM\(^{57}\).

However, this does not mean that the DPRK is theoretically incapable of developing an ICBM. It should not be overlooked that the DPRK has worked closely with Iran on rocket and missile engineering. If the two countries unite their efforts, they would accelerate their respective missile programs and might proceed to the development of an ICBM at the turn of 2020.

At the same time, the ICBMs that were engineered according to the design used for the Unha-3 space launch vehicles would inevitably have a serious drawback in terms of operability. Indeed, they would be oversized and it would only be possible to launch them from unprotected surface launch pads. Besides, it would take days to prepare them for launch, and the propellant loading would take hours. All this would make the missiles highly vulnerable. Therefore, creating an effective ICBM requires a new design.

A mock-up of a mobile long-range missile was presented at a military parade in Pyongyang in April 2012\(^{58}\). The status of the development of this missile is unclear. It is not improbable that the DPRK pulled a similar stunt as in the case with the missile referred to as the Musudan. At the same time, this demonstration bespeaks the fact that North Korea’s missile developers seek to keep up with the modern trends in rocket and missile engineering that are demonstrated by Russia and China as regards their mobile ICBMs.

North Korea is in isolation, uncertain as to its security and ability to preserve the current political regime. DPRK’s military and political leadership will spare no effort to enhance nuclear-missile potential, which they perceive as an ultimate guarantee of their survival. To that

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\(^{56}\) According to Elleman Michael, Unha-3 used the propulsion stage of the Scud-C short-range missile as the second stage and the second stage of Safir, an Iranian space launch vehicle, as the third stage (http://www.iiss.org/middle-east/; last visited 16 March 2013).

\(^{57}\) Ibid.

\(^{58}\) Ibid.
end, the relevant scientific and production facilities have been created, as well as the infrastructure. True, the DPRK’s economy is in a deadlock. But, over the decades of its existence, the state has acquired huge experience of survival in a harsh environment.

In view of the abovementioned considerations, the international community should accept that the DPRK, just as India, Pakistan and Israel, will never give up its nuclear-missile potential of its own free will. It appears that at this stage, the emphasis should be placed on slowing down and limiting DPRK’s nuclear and missile development programs and stabilizing political situation on the Korean Peninsula in order to prevent a new war that would most likely result in the use of nuclear weapons and other types of WMD.
4. THE RIGHT TO WITHDRAW FROM THE TREATY. THE PRECEDENT OF DPRK

Alexey G. Arbatov

The experience of DPRK’s nuclear program has most vividly revealed the weakest link of the Treaty on the Non-Proliferation of Nuclear Weapons and the whole non-proliferation regime resting on it. The Achilles’ heel is its Article X paragraph 1, which reads “Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests”59.

After the Treaty came into effect in 1970, the main task of strengthening the non-proliferation regime became to do everything possible to expand the list of Treaty member states and improve the effectiveness of IAEA safeguards and of the system of export controls over nuclear materials and technologies. The 1990s saw a massive accession of new countries to the NPT (42 states), following which the Treaty became almost universal. Currently, only four countries remain outside the Treaty (Israel, India, Pakistan and North Korea), and all of them are already nuclear states.

Therefore, there is a risk of further nuclear weapons proliferation as a result of one of the following scenarios: a state may secretly develop nuclear weapons in violation of the Treaty and/or one of the current non-nuclear states may choose to withdraw from the Treaty and openly turn to the acquisition of nuclear weapons60. For this particular reason the

60 Such a threat could also arise should future new nations decide to pursue nuclear weapons. However, the review of this category would fall beyond the scope of the present study.
issue of withdrawal from the NPT has come to the fore. North Korean lessons should be thoroughly analyzed and taken into account in order to strengthen the nuclear non-proliferation regime as a whole.

All the above concerns states as non-proliferation actors. Yet this also relates, although indirectly, extremist non-state entities, i.e. the threat of nuclear terrorism. Countering this particular threat requires new task-specific methods and means. However, in this case the status of the non-proliferation regime among the states will also be vital. Indeed, the possibility of terrorists getting access to nuclear explosive devices or nuclear materials will increase exponentially as the list of countries possessing nuclear weapons extends, especially when it comes to countries governed by authoritarian regimes and/or states with extremist ideology.

In this respect, the precedent set by DPRK is quite indicative and dangerous. It is this particular precedent that explains such an acute concern over Iran’s nuclear program and, in the longer term, over programs of a number of other non-nuclear-weapon states parties to the NPT.

It is most likely, that North Korea had been carrying out secret activities in violation of the NPT even before it openly withdrew from the Treaty, just like Iran that has also been suspected of past violations of the IAEA safeguards. But even with no violations of the Treaty at all, other states still theoretically have the right to openly and legally withdraw from the Treaty after giving the three-month notice stipulated in Article X.1, having acquired the nuclear material, technology, and expertise over time under and through it.

As the example of DPRK of the early 1990s and 2000s has demonstrated, such step would not entail the imposition of serious sanctions or other coercive measures on the country. What is more, it may be used to blackmail the international community and serve as a bargaining chip to win economic and political concessions from other states.

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From this perspective, the components of nuclear fuel cycle, primarily technologies and facilities for the enrichment of natural uranium (especially in case of countries possessing deposits of it), and spent nuclear fuel (SNF) reprocessing for plutonium extraction pose the most serious threat. The Treaty does not prohibit the development of such capabilities, if they are established and operate under the IAEA safeguards. If anything, one can rather say that the NPT encourages international supplies of such technologies in accordance with Article IV providing for cooperation in peaceful uses of nuclear energy, as there is a number of states (Iran, Japan, South Korea, Netherlands, Germany, Brazil, Argentina) that obtained the technologies in question from abroad or have been developing them domestically in compliance with the NPT.

**DPRK, IAEA and the NPT.** As mentioned above (see Chapter 3), North Korea has developed its nuclear infrastructure relying on the support of the Soviet Union and later China. In 1965 the USSR supplied North Korea with a small 2MWt IRT-2000 uranium reactor. After it started operating in 1966, the USSR insisted that it be placed under the safeguards of the International Atomic Energy Agency (IAEA).

The CIA obtained the first proofs of Pyongyang’s nuclear ambitions in 1982. It was then that the US challenged the USSR to elaborate joint approaches to DPRK’s nuclear plans. However, the Soviet leadership did not share the US concerns and stepped up its joint efforts with DPRK in the field of peaceful nuclear energy.

In April 1985 yielding to USSR’s pressure and seeking the benefit of international cooperation and Moscow’s assistance in the development of its nuclear programme, Pyongyang acceded to the NPT. It did not take long to see the results: DPRK acquired Magnox reactor technology through IAEA and used it to build a 5MWt research reactor in Yongbyon (which was assembled and put in operation in 1986 after its placement

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under IAEA safeguards). In 1991 DPRK and Soviet Union signed a contract on the supply of fuel assemblies.

In 1989 the US voiced suspicions that DPRK refueled the nuclear reactor operating in Yongbyon, reprocessed irradiated (spent) nuclear fuel and then, in all probability, obtained up to 12 kg of weapon-grade plutonium, which was enough to produce two nuclear explosive devices.

In January 1992 yielding to external pressure Pyongyang signed an agreement on safeguards with IAEA that entered into force on 10 May 1992. The first inspections commenced in May 1992, after the US announced the withdrawal of its tactical nuclear weapons from South Korea 64.

Between 1992 and 1993 six inspections were conducted, which resulted in some doubts and further questions by the Agency, in particular related to undeclared reprocessing facilities. To take care of these questions on 11 February 1993, for the first time in IAEA history, its Director General Hans Blix called for a special inspection.

Ten days later DPRK refused to authorize such an inspection, and soon announced its decision to withdraw from the Treaty. Only following a round of negotiations with the US in June 1993 the DPRK suspended the process of withdrawal (a day before the expiration of the three-month period), announcing that it did not consider itself a full member of IAEA and therefore did not recognize the right of the Agency to conduct any, including ordinary, inspections. As a result, in December 1993 Hans Blix had to state that the Agency could no longer be certain that the nuclear materials in possession of North Korea were not used to develop nuclear weapons 65.

Since 1993, in accordance with the Presidential Decree, Russia has ceased all nuclear cooperation with DPRK, including cooperation in nuclear research 66.

In parallel to that, the US stepped up its preparations to a military operation against North Korea. American ex-President Jimmy Carter visited Pyongyang and met Kim Il Sung in June 1994, which ended the escalation of the crisis. This was a turning point after which negotiation led towards diplomatic settlement. In October 1994 the parties signed an Agreed Framework under which DPRK’s plutonium program was stopped and its reactors and plutonium separation facilities were placed under IAEA safeguards. The Agency was allowed to install video cameras and seal the equipment.

The second nuclear crisis ensued in October 2002. During his visit to North Korea the US Assistant Secretary of State James A. Kelly accused Pyongyang of pursuing a parallel secret program of uranium enrichment. On 14 November 2002 the US cut off oil supplies to DPRK provided for by the Agreed Framework. In December North Korean Foreign Ministry announced that the country was immediately relaunching its nuclear facilities and starting to build new ones. The DPRK removed seals and dismantled video cameras used by IAEA to verify the “freezing” of the nuclear facilities, and expelled the Agency’s inspectors.

In January 2003 DPRK withdrew from the NPT giving only a one-day notion and arguing that this took into account its first withdrawal notion of 1993 which was revoked one day before the expiration of three-month period designated in the NPT Article X.1.

The ensuing rounds of the six-party talks on the denuclearization of the Korean Peninsula (involving the US, Russia, China, Japan, DPRK and South Korea) held in Beijing were fruitless. On 9 October 2006 DPRK conducted its first nuclear test. On 14 October the UN Security Council responded to it with Resolution 1718 that condemned the nuclear test and imposed sanctions against DPRK.

The history of DPRK’s nuclear program leads one to the following conclusions as to the right to withdraw from the Non-Proliferation Treaty.

The right to withdraw. The right to withdraw from the NPT, as is true for any other disarmament treaty, is an indispensable element of national sovereignty of all the Treaty member-states. Any attempt to manipulate with this right are legally absurd and politically unacceptable.

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(such as in the mid-1980s, when the Soviet Union proposed concluding an agreement with the United States on setting a timeframe during which both parties would not exercise their right to withdraw from the ABM Treaty). Indeed, the agreements of this sort refer to “threats to the state’s supreme interests,” as a legitimate cause for withdrawal. Thus, to demand that a state waive its right to withdraw even if facing a threat of this magnitude would be preposterous.

Moreover, the attempts to block the right to withdraw from the Treaty would possibly cause quite the opposite effect: its disintegration. All 188 countries joined the NPT accepting its provisions in their entirety, including Article X.1 on the right to withdraw. Thus any attempt to revise a single provision retroactively would “dump” the whole intertwined package of articles.

Nevertheless, withdrawal from the NPT must not be viewed as a routine, formal, or fully arbitrary action. As explained in Article X.1, withdrawal is to be preconditioned upon serious circumstances and entails a set of procedures. Most importantly, legal logic of the Treaty itself leads to a number of assumptions.\(^68\)

First, no state should be allowed to use the Treaty in order to gain the benefits of international cooperation in the “peaceful atom” and then withdraw from the NPT to use these benefits for military purposes. Otherwise the Treaty would be totally counterproductive to its purpose.

Second, no state must be allowed to withdraw from the Treaty in order to conceal previous NPT violations it may have committed while a member of the NPT. Otherwise the Treaty and its verification system would be senseless.

Third, the motivation for the withdrawal may on no account be regarded as a mere formality; it should fully comply with the letter of the NPT and serve as a criterion against which actual reasons of a state’s withdrawal from the NPT may be evaluated, as well as the adequate response to be taken by the international community.

Fourth, the motivation for the withdrawal should be reviewed for compliance with the provisions of Article X paragraph 1 by all the remaining NPT states and the United Nations Security Council, rather

\(^{68}\) Some of these principles were examined in an article by two of the world’s most respected experts in this field, Bunn George and Timerbaev Roland. See: Bunn G. and Timerbaev R. The Right to Withdraw from the NPT: Opinions of Two NPT Negotiators // Yaderny Kontrol (Nuclear Control). PIR Center. No 3, 2005.
than stated by a single nation that has decided to withdraw, or a group of other nations acting on their own. Otherwise, a provision of Article X would be meaningless when stating: “It [a state party to the Treaty — auth.] shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests”\(^\text{69}\).

Fifth, rendering of judgments on Treaty violations must remain the exclusive prerogative of the IAEA, and not any individual state. The same applies to additional investigation of possible past violations by a state that has announced an intention to withdraw from the Treaty.

Sixth, it is the United Nations Security Council that should have the exclusive power to recognize the validity of a state’s reasons for the withdrawal from the NPT, to decide on imposing sanctions (if the withdrawal is ill-founded or if the IAEA reveals previous secret violations of the Treaty).

Indeed, it was no coincidence that in 1992, while the first North Korean crisis was happening, the UNSC member states recognized that the spread of weapons of mass destruction constituted a “threat to international peace and security, within the meaning of Chapter VII of the UN Charter”\(^\text{70}\). This implies that the UNSC may respond to those in accordance with Articles 41 and 42 of the Charter (on sanctions, blockade and the use of armed force).

The history of North Korea’s nuclear program demonstrates violations of nearly every one of the fundamental considerations described above. This is unquestionably the main reason for the very prolonged and still deadlocked international security crisis surrounding the Korean problem.

**Grounds for withdrawal and notification period.** It is known that the DPRK acceded to the NPT in 1985 at the prompting by the USSR with a view to open the way for cooperation between the two countries in the peaceful use of nuclear energy in accordance with Article IV of the NPT. Pyongyang, however, did not sign the IAEA safeguards agreement (which in line with the NPT Article III.4 was supposed to be signed within 18 months after joining the Treaty) until five years later, in 1992.


The first IAEA inspections revealed serious discrepancies between the information submitted by Pyongyang and the facts that the Agency actually found on site. The IAEA inspectors were authorized to conduct a special inspection above and beyond the list of the North Korea had declared (at the storage facilities for the radioactive waste from the Yongbyong reactor) to resolve the discrepancies, but Pyongyang refused to allow this.

Subsequently, in 1993, North Korea announced its decision to withdraw from the Treaty, referring to two reasons to justify its decision: the Team Spirit military training exercises that the United States had conducted with South Korea, and a “lack of impartiality” among the Agency inspectors requesting special inspection rights71.

Such grounds for withdrawal did not meet the requirements of Article X.1 paragraph 1 in any way: neither the military exercises (which had already been conducted regularly in the past), nor the alleged prejudice of the IAEA inspectors rose to the level of “extraordinary events” that “jeopardized the supreme interests” of the country, which were the only acceptable grounds for withdrawal from the Treaty. Hence, both arguments were completely false.

Evidently, the DPRK decided to renounce the Treaty to conceal the previous violations committed while the country had already been party to the NPT, which was unacceptable and should have drawn an appropriate response from the UN Security Council. However, the supreme international institution failed to act. China prepared to veto the US-sponsored sanctions resolution. This was why the Security Council merely adopted an appeal to the DPRK calling on it to allow the IAEA to carry out the special inspection, which Pyongyang refused.

Instead of discussing the possible sanctions, including military measures, within the UNSC, the issue was considered by the government in Washington. However, the proposed tough measures were never adopted, inasmuch as during a visit to the DPRK Jimmy Carter convinced the North Korean leader Kim Il Sung to agree to cancel the withdrawal from the NPT. Pyongyang cancelled its decision to withdraw from the NPT one day before the expiration of the three-months’ notice period stipulated by Article X paragraph 1. The North Korean nuclear

facilities were placed under IAEA safeguards and their activities were frozen.

In the euphoria resulting from the agreement, no investigation was undertaken into the alleged NPT violations between 1985 and 1992. The false justification for the 1993 North Korean intended withdrawal from the Treaty was left without any legal or political consequences. The UN Security Council failed to use its authority and made neither proper conclusions, nor drew any lessons from the crisis. Hence it was doomed to happen again.

Everything was given up for political pragmatism and opportunistic considerations, including the deprivation of Russia of the role in nuclear cooperation and the political influence on DPRK that the Soviet Union had traditionally had. The West had regarded this as an important gain. All these failures had subsequently most negative effect on the developments around North Korean nuclear program.

The next time DPRK withdrew from the NPT during the Republican administration of George W. Bush, who took a rigid stance against North Korea, calling the DPRK part of the “axis of evil” and condemning the preceding administration’s policy of flirting with the ‘rogue states’. In the aftermath of the catastrophic terrorist attacks of 11 September 2001 this rigidity escalated to an unprecedented level. Pyongyang made its decision to withdraw from the treaty against a backdrop of the then successful use of force against Taliban and Al-Qaeda in Afghanistan, the preparations to military invasion of Iraq and seemingly credible threats of the use of such force against DPRK and Iran.

As mentioned, the occasion for the withdrawal presented itself in October 2002, when the US accused North Korea of carrying out a clandestine uranium enrichment program that had not been placed under the IAEA safeguards. According to the US, the existence of such a program was acknowledged (though according to Pyongyang it was not) by North Korean authorities. Following this statement, the US stopped its oil supplies to the North Korean power plants that were stipulated by the package of agreements of 1994. When the talks in January 2003 ended in a deadlock, Pyongyang sent a notice to the UNSC announcing its withdrawal from the NPT “under the grave situation where our state’s supreme interests are most seriously threatened”72. As mentioned above,

referring to its withdrawal notice of 1993 that was revoked one day before the expiration of the three-months’ notice period provided for in Article X paragraph 1 of the NPT, the DPRK declared that its current withdrawal was to be effective in one day, i.e. immediately\textsuperscript{73}.

This was a flagrant violation of the NPT, since DPRK’s grounds for withdrawal in 1993 were unconvincing even then, and therefore could neither be regarded as relevant ten years later. Both the grounds for the withdrawal and the notice period contradicted the letter of the NPT, which could potentially be a reason for the UNSC to decide on imposing sanctions on the DPRK. However, neither Russia nor China supported sanctions, insisting on further negotiations. Indeed, the negotiations were soon opened in a six-party format, but only to end in a deadlock. On 9 October 2006 the DPRK carried out a nuclear test and became the world’s ninth nuclear-weapon state.

Apparently, the US power politics and its violation of the 1994 agreement strengthened Pyongyang’s incentive to develop nuclear weapons and provided a pretext for withdrawing from the NPT. Moreover, the fact that the US itself withdrew from the ABM Treaty in 2002 and refused to ratify the CTBT provided in fact a political indulgence for North Korea’s withdrawal from the NPT and the subsequent nuclear test\textsuperscript{74}. Both the lack of unanimity within the Security Council and the disregard by the NPT member-states and UNSC nations of a blatant violation by North Korea of the provisions on withdrawal contained in Article X paragraph 1 had a particularly negative effect.

In fact, rather than restricting national nuclear policies, the NPT and its mechanisms were turned into a channel for reverse pressure by states violating it against IAEA and the UN Security Council through the threats of expelling Agency inspectors and withdrawing from the Treaty.

The issue of grounds for withdrawal from the NPT was discussed at the NPT Review Conference in 2005. Many participants in the Review Conference, including Russia and some Western states called for a more

\textsuperscript{73} Ibid.

\textsuperscript{74} It should be noted that in legal terms, the US decision to withdraw from the ABM Treaty cannot be compared to the North Korean decision to withdraw from the NPT, since the United States had never been accused of past violations of the ABM Treaty, had observed the six-month notification period, and had provided a legitimate (if strategically questionable) motive. In addition, Article XV.2 of the ABM Treaty requires no notification of the UN Security Council and stipulates no review by the latter.
rigorous approach to the assessment of compliance of the declared grounds for withdrawal with the letter and spirit of Article X paragraph 1 of the Treaty. Notably, the US, by contrast, vigorously defended the ‘sovereign right’ to withdraw for any reason. It seems that in doing so the United States was trying to avoid criticism for its own denunciation of the ABM Treaty in 2002.

This is yet another example of how the NPT was undermined due to the great powers’ failure to comply with their non-proliferation obligations under its Article VI. More broadly, the attempts to break this link had a destructive effect that manifested itself in a complete fiasco of the 2005 NPT Review Conference. The latter resulted from the US refusal to discuss nuclear disarmament in the spirit of decisions adopted at the 1995 and 2000 NPT Review Conferences. Due to this the parties could not agree on a number of crucial decisions proposed during the conference, including a decision on the issue of withdrawal from the Treaty, which is to be discussed below.

Withdrawal from the NPT to Conceal Violations. There is every likelihood that Pyongyang’s step towards withdrawing from the Treaty in 1993 was directly linked to an attempt to conceal its violations of the IAEA safeguards (the existence of undeclared plutonium separation and storage facilities). However, when DPRK suspended its withdrawal a day before the expiration of the three-month’s notification period, neither the states parties, nor the UNSC managed to properly gauge this situation. All were so excited about the fact that North Korea had changed its mind on withdrawing from the NPT that the delicate issue of concealed past violations of the Treaty and the lack of proper grounds for the first attempt to withdraw was carefully avoided.

Pyongyang (as well as Tehran) was quick to learn the lesson of impunity and see the opportunities offered by diplomatic game of alternating harder and milder stances in their negotiations with the great powers. Such lack of principles and an excess of pragmatism could not but have painful repercussions. Indeed, they came ten years later.

The second and final withdrawal of North Korea from the NPT in 2003, as it turned out later, was also connected with concealing violations of the Treaty, namely a clandestine uranium enrichment program. The IAEA and the UNSC once again failed to properly respond to Pyongyang’s second attempt to withdraw from the NPT for no valid

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reason, bearing in mind the precedent of 1993. However, this time DPRK had a suitable pretext – the power politics of the George W. Bush Administration and its failure to comply with the 1994 Agreed Framework. Therefore, lessons should be drawn from the second case as to the great power’s policy with regard to the “threshold states”, as well as regarding their nuclear disarmament obligations that George W. Bush administration declared of no consequence.

In 2004 in the report by the High-level Panel on Threats, Challenges and Change, appointed by the UN Secretary General and comprising 12 reputable former state officials from across the world, it was proposed that the UNSC make the states withdrawing from the NPT liable for violations committed while a party to the NPT. The panel concluded that once a state announced an intention to withdraw from the NPT, it was to immediately be checked for past compliance with the Treaty, with the sanction of the UNSC, if necessary.

One year later, at the NPT Review Conference in 2005, virtually the same proposals were put forward by the United States, the EU, Japan, Australia and New Zealand\textsuperscript{76}. Russia’s stance was vaguer: in favor of holding states more accountable if they decided to withdraw under Article X and coordinating a number of political procedures and measures, but against “reconsidering the provisions of the Treaty\textsuperscript{77}”.

**Using the “peaceful atom” for military purposes.** A variety of measures have been proposed to prevent military use of the fruits of peaceful cooperation under the NPT. For example, at the NPT Review Conference in 2005 the European Union and a number of other states proposed that a rule be adopted according to which a state, that has withdrawn from the NPT, would be obliged to continue using exclusively for peaceful purposes all materials and technology, developed for peaceful purposes while being a state-member of NPT, and to maintain IAEA safeguards over them. Still harsher approach was suggested: a State withdrawing from the Treaty should, under threat of the UNSC sanctions, freeze such materials and technology with a view to dismantling them and returning to the supplier state, under IAEA safeguards\textsuperscript{78}.

\textsuperscript{76} Ibid. P. 44, footnote 44.
\textsuperscript{77} Ibid. P. 44, footnote 45.
\textsuperscript{78} Ibid. P. 44, footnote 40.
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These proposals and others were not implemented due to the failure of the 2005 NPT Review Conference. Neither are they known to have been discussed in a more or less substantial manner during the conference of 2010, where every effort was put into ensuring a formal success and adopting at least a general final document.

Yet even if such measures had been taken long before, they would have had a dubious effect on the DPRK. After the withdrawal from the Treaty in 2003, North Korea’s nuclear program was mostly based on material, technologies and expertise that were either indigenous or obtained from the USSR and China before the NPT was signed (and before China acceded to it), or form Pakistan that stays outside the Treaty. Therefore, from the legal perspective, it would be difficult to argue that the said material and technologies were the fruits of cooperation under the NPT and thus should stay under the IAEA safeguards (or that they must be dismantled and returned to suppliers after the DPRK’s withdrawal from the Treaty).

Besides legal logic, the practical ability to implement such measures is fraught with still greater difficulty even regarding preservation of the materials and technologies under the IAEA safeguards. As shown by the example of North Korea, states that have no fear of sanctions (even in the form of military force) may expel the IAEA inspectors together with their equipment at any time, especially if the state is actually able to produce a nuclear explosive device, or at least to give a convincing impression that it possesses it.

From this perspective, it would be more effective to at least first dismantle and return the material and technologies, and particularly dual-use technologies (uranium enrichment and plutonium separation), and such measures should be implemented immediately following a state’s withdrawal from the NPT without waiting for it to create a nuclear weapon (it took North Korea three years to proceed from step one to step two).

Expansion of IAEA safeguards in non-nuclear NPT member states would be one way to ensure the greatest possible amount of time between a hypothetical withdrawal from the Treaty and the creation of a nuclear weapon and to reliably exclude secret development of nuclear weapons prior to withdrawal from the NPT.

However, the requirement for elimination and returning of technologies and materials would create the big legal, financial, and technical problems: giving compensation for the materials and
technology acquired and paid for under contract, providing funding and technology for the removal of fuel and dismantling of the reactors and other facilities. The elimination of materials and technology that were either developed indigenously or obtained outside the NPT framework would be more controversial issue both legally and politically.

Still more important is the fact that the only recourse, if a state refuses to agree with such measures, would be to enforce them through military strike and subsequent occupation of the country. Military occupation, however, would probably lead to a change of the political regime. That would make it easier to ensure the return of the country to the NPT and the elimination of its military nuclear program, which in and of itself would remove the necessity of dismantling the installations and evacuating nuclear materials and technology.

One way or the other, taking a military action and implementing an occupation of a country to impose the above conditions in case of its withdrawal from the NPT would demand a lot of will, unity, impartiality and readiness for sacrifice of the great powers in order to fortify the nonproliferation regime in the world.

A Potential Solution to the Problem of Withdrawal From the NPT. It would appear that finding a solution to this issue, as well as reinforcing the nonproliferation regime within the framework of international law and common sense, will require a comprehensive approach and coordinated political action among the great powers, all of the NPT adherents, the UN Security Council, the IAEA, and other institutions and organizations. Based on an analysis of the history of the Iranian and North Korean cases, the following main proposals can be formulated.

Improvement of the IAEA safeguards and universalization of the 1997 Additional Protocol should reliably prevent concealed violations of the NPT and thus remove any motive of withdrawing from the Treaty to conceal past violations.

A declaration of a state on its future withdrawal from the NPT should be followed by (1) intensive checks by the IAEA to reveal possible violations of the Treaty or the Safeguards Agreement; (2)

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convening a special conference of states parties to the NPT to examine the grounds for the withdrawal; (3) if the ground is found inconsistent with Article X.1 the issue is to be immediately referred to the UNSC for consideration under Chapter VI Article 41 of the UN Charter; the same is to be done in case the ground for withdrawal is deemed sufficient (i.e. if there are “extraordinary events” that “jeopardize the supreme interests of its country”) – with the view to lifting the threat by diplomatic means without withdrawal of the country in question from the Treaty.

Any resistance to IAEA inspections or failure to meet legal notification period should immediately be considered a cause for a UN Security Council decision to impose sanctions.

All materials and technology that the country possessed at the moment of its withdrawal from the Treaty, independently of their origin, must be used exclusively for peaceful purposes and remain under IAEA safeguards.

All dual-use materials and technology (uranium enrichment, plutonium separation) received from abroad or developed independently while the state was a Treaty member should be immediately mothballed, then dismantled and returned to suppliers under IAEA control. This should also apply to materials and technology obtained from abroad outside the terms of the Treaty (e.g. from a state that is not a party to the NPT).

Refusal to comply with the latter two conditions should result in a UN Security Council decision to impose sanctions under Chapter VII, Articles 41 and 42 of the United Nations Charter, including the possible use of military force.

Clearly, even such radical measures as these would not be able to fully guarantee that no state would ever withdraw from the Treaty. However, they could provide quite a strong deterrent to such a step and reduce the amount of damage caused to international security. It is also obvious that all requirements of this type would have to be legalized by decisions of the NPT member states and international legal acts through the United Nation.

For example, the Nuclear Suppliers Group (NSG) should demand that any future contracts on delivery of the dual-purpose technology and material under Article IV of the NPT be conditional upon a mandatory provision that such material and technology be dismantled and returned in case of withdrawal from the NPT. Since a law may not have retroactive force, this would not concern the non-nuclear weapons states
that already have a nuclear fuel cycle, although it would be desirable if they adopted a politically binding declaration on the subject.

Finally, it stands to reason that such measures will only be feasible if there is unanimity among the great powers and UNSC members, and this can only be achieved if they really make nuclear non-proliferation the top priority of their international security strategy. Further, ensuring a stronger moral and political stance of the great powers and their enhanced cooperation with the majority of the non-nuclear weapons states parties to the NPT will require consistent progress towards the fulfillment by the nuclear powers of their commitments on nuclear disarmament under Article VI of the Non-Proliferation Treaty.
CONCLUSIONS

1. The relation between North Korea’s domestic and foreign policy is confined to the interests of survival of the country’s regime. Furthermore, the totalitarian regime regards market reform and openness as a direct threat to its power. The irony of it is that the main threat for the ruling establishment is the ineffectiveness and obsolescence of North Korean economic and political system, aggravated by the fact that South Korea is just across the demilitarized zone demonstrating freedom and prosperity of the same nation under different economic and political system. There is nothing that the outside world can do to lessen this threat, try as it would, to maintain stability on the peninsula. The ideology of the “external threat” and the “benefits” offered by socialism in an environment of isolation from the outside world serves as a dual pillar of North Korean regime.

Nuclear weapons have been virtually the only instrument for Pyongyang to constantly fray the nerves of the humanity with a view to whip up the “external threat” myth, as well as to win yet another economic handout from other states in order to prolong the existence of its regime while the vitally important reform is not in view. The experience of the two recent decades has shown that diplomacy has only limited and tactical capacity in alleviating this tension.

2. North Korea’s new leader Kim Jong-un has so far shown his reluctance to change the strategy of maintaining the regime. He demonstrated an intention to go on with the old policy of nuclear blackmail to consolidate the regime and to obtain economic assistance and security guarantees from the United States and South Korea. However, no assistance or guarantees can help resolve the major issue – ensure the survival of the North Korean regime in the longer term. Meanwhile, intensive foreign investment – that requires positive reform – as well as deep peace process on the Korean Peninsula are very likely to cause the erosion of the existing regime and its eventual collapse. No release from this endless circle is in view at this point. The current state of affairs has every once in a while caused a burst of North Korea’s
nuclear missile activity which invariably resulted in exacerbated tensions in the region.

North Korea’s third nuclear test in February 2013, a ballistic missile launch in 2012, as well as its direct military threats to the outside world were primarily aimed at burnishing the credentials of Kim Jong-un. However, such moves are rather dangerous: the reaction steps of other countries may cause the situation to escalate to a point of where it actually spins out of control.

3. Pyongyang has no doubt that there will be no end to the antagonism and rivalry between Russia, the United States and China. It is assumed that this offers opportunities for ongoing maneuver and makes it possible to play on the differences between the three great powers. In addition, North Korea’s leadership has hardly any fear of new sanctions that the international community may impose.

4. The recent events when DPRK’s leadership artificially triggered a crisis only to come forward with the initiative to resume the dialogue with the United States and South Korea is yet another example of the trend in Pyongyang’s domestic and foreign policy outlined above. The world community should cherish no illusions as to the prospects of resuming a dialogue with Pyongyang. Neither should it pursue a policy of “appeasing” North Korea and make unreasonable concessions in an attempt to talk down the flannelling leaders in Pyongyang. At the same time, the world community should not off-handedly reject all proposals on the resumption of negotiations. The resumption of negotiations should serve as a channel for partial concessions from other five parties in return for North Korea’s steps at limiting its nuclear and missile program and reducing the threat of an armed conflict in the region.

5. The problem of North Korean regime and its nuclear issue may be finally resolved only through gradual transformation of the DPRK system towards market reform and greater openness. Given that the regime itself dreads taking this path, the strategy of North Korea’s “total engagement” in commercial, infrastructure and humanitarian cooperation projects of the neighboring countries aimed at changing the mindset of the part of DPRK’s population that is susceptible to change may produce the required stimulating effect.

However, this will require coordinated effort of the interested countries. While nuclear powers come to the fore in matters related to coercion, the issues related to the policy of Pyongyang’s “total
engagement” require the cooperation of all the states participating in the six-party talks on North Korea.

6. If there are no significant changes in the economy, the likelihood of the regime’s collapse will increase. The breakdown of the political system may also come as the result of the progressive loss of control by the country’s leadership which will lead to the country’s disintegration.

In the light of such a threat, the neighboring countries, in particular China, should well in advance develop relevant measures to prevent a loss of control over DPRK’s nuclear weapons or their falling into the hands of terrorists or other irresponsible countries.

7. North Korea’s most recent nuclear test has made it clear that the country’s weapon development is making a significant progress. The threat of Pyongyang having an employable though limited nuclear missile capability is becoming quite tangible. When this occurs, the international community will have considerably less leverage on Pyongyang. Another indication of the gravity of the situation is the increased, as compared to the previous tests, severity of international response, in particular the reaction of China.

8. Little official information is available on Pyongyang’s nuclear policy at large, to say nothing of the various technical aspects of its nuclear program. For example, if the uranium enrichment industry is viewed as the source of producing weapons-grade uranium for the country’s nuclear arsenal, it is probable that the DPRK has yet another uranium-enrichment facility. To master the technology related to uranium-based warheads, Pyongyang will have to go on with nuclear testing.

It may well be expected that in the medium term (within 3-5 years) the construction of the 25-30 MW light-water reactor will be completed at the Yongbyon nuclear facility, and further construction of the 50 MW gas-graphite reactor will be resumed. Once the two reactors become operational, the production of plutonium may dramatically increase. In addition, the capabilities for the gas-centrifugal uranium enrichment are likely to be further enhanced.

As to the prospect of the DPRK developing an intercontinental ballistic missile (ICBM), this is hardly a question of the current decade. However, the long-term cooperation with Iran in missile engineering offers additional opportunities for Pyongyang in this field after 2020.
The survival of the regime is the major goal that motivates DPRK leadership into further development of the country’s nuclear missile capabilities. The international community will apparently have to abandon hope of reaching an agreement with North Korea on the dismantlement of its nuclear weapons program, or shelf the issue until there is some positive transformation underway or until the regime finally collapses.

9. Still, in the foreseeable future, a number of very important though more limited goals may be achieved in exchange for the partial lifting of the sanctions and provision of economic assistance, provided that the remaining five parties work in close coordination to align their positions. The first goal (in ascending order of importance and complexity) may be the placement of the nuclear reactors, and, subsequently, of certain nuclear fuel cycle enterprises and stockpiles of fissile materials back under the IAEA safeguards. The second goal may be to put an end to the testing of missiles with increasingly longer ranges. The third goal - to reach a moratorium on nuclear testing. In this context, it would be of vital importance to ensure the ratification of the CTBT by the United States that President Obama has promised, with its subsequent ratification by China, India, Pakistan and other countries whose accession to the Treaty is required for its entry into force. The fourth goal may be to normalize the situation on the Korean Peninsula. The fifth - to develop confidence-building measures, as well as agreements to limit military activity in order to reduce the threat of an armed conflict.

It is clear that such agreements will run counter to Pyongyang’s interests in keeping military tensions alive to consolidate the regime’s domestic situation. However, the regime’s demand for economic assistance and international legitimization (also for the sake of its survival) may outweigh the incentives for maintaining the high level of confrontation in the region. Such progress actually happened in the second half of the 1990s and in 2007-2008. Despite the fact that the progress eventually was reversed, the agreements were useful in terms of slowing down North Korea’s nuclear program. Therefore, this experience should be repeated in the future, where applicable.

10. Alongside with negotiating, the United States, South Korea and Japan should maintain an adequate joint military potential in the region, including missile defense systems to deter Pyongyang’s adventurist pretensions and highlight the irrelevance of its recurring campaigns of nuclear and missile blackmail.
In this context, of singular importance would be the agreements between the United States, its allies with China and Russia on confidence-building measures as well as on the predictability and limitation of military activities in West Pacific to ensure that these steps against North Korea do not result in mutual mistrust and increased military rivalry with China and Russia. This applies to an even greater degree to the development of missile defense systems by the United States and its allies in the Asia-Pacific region – it should not be perceived by China and Russia as a policy aimed at undermining their nuclear deterrence capability. Such agreements may be easier to reach given the recent hardening of China’s attitude to Pyongyang’s acts of provocation.

11. Further, the basic sanctions regime should be maintained, and the legal status of a nuclear power should be further denied to North Korea, given the flagrant violations of the letter and the spirit of the NPT by Pyongyang prior to and in the course of its withdrawal from the Treaty. Otherwise, the North Korean proliferation paradigm, i.e. circumventing IAEA safeguards and subsequent withdrawing from the Treaty in order to develop nuclear weapons on the basis of ‘peaceful’ nuclear technology and materials - may seem quite tempting for Iran and other threshold states.

Complete rebuilding of the relations with the DPRK and the restoration of its rights as a responsible member of the international community would be possible only after the country has eliminated its nuclear weapons, discontinued the related military programs, returned to the NPT and ensured full control of IAEA under the Additional Protocol of 1997 - as the Republic of South Africa did after 1992. The feasibility of such scenario will depend on the processes within the country and on the Korean Peninsula at large.

12. The experience of North Korea’s nuclear program is of utmost importance in terms of nuclear non-proliferation in general. The North Korean case has highlighted one of the weakest link of the NPT and the entire non-proliferation regime resting on it. This major loophole is related to the right of withdrawal, provided for by Treaty’s Article X.1. The way North Korea exercised this right defies the entire non-proliferation regime and the aspirations of the international community to preserve and strengthen the regime. The North Korean precedent calls for significant measures to strengthen the NPT and prevent Iran and other potential violators of the non-proliferation regime from following the DPRK’s example.
13. The legal logic of the subject-matter of the Treaty itself leads to a number of important assumptions. No state should be allowed to use the Treaty in order to gain the benefits of international cooperation on the “peaceful atom” and then withdraw from the NPT to use these benefits for military purposes. Further, no state must be allowed to withdraw from the Treaty in order to conceal previous NPT violations it may have committed while a member of the NPT. The DPRK defied both of the said assumptions.

Moreover, the officially presented grounds for the withdrawal should not be a mere formality. Indeed, they should fully conform to the letter of the Treaty and be a criterion for the assessment of actual reasons of the state’s withdrawal from the NPT, which would determine the choice of adequate response measures by the international community. The compliance of the grounds for withdrawal to provisions of Article X.1 should be assessed not by the state that has declared its intention to withdraw, but by the rest of the states parties to the NPT and the United Nations Security Council.

Establishing a violation of the Treaty should be the exclusive prerogative of the IAEA. This also applies to additional checks for past violations of the NPT when a state declares its withdrawal from the Treaty. As to the decision on sanctions or on the use of force, this should be the exclusive competence of the UNSC.

14. Looking forward, the perfection of IAEA safeguards and the universalization of the Additional Protocol of 1997 must securely prevent secret violations, removing the issue of withdrawing from the NPT to conceal past violations from the agenda. Nonetheless, a declaration by the state of its withdrawal from the NPT should be followed by intensive checks by the IAEA to reveal possible violations of the Treaty and by the convening an extraordinary conference of the states parties to the NPT to examine the grounds for the withdrawal.

If the ground is found inconsistent with Article X.1, the issue is to be immediately referred to the UNSC for consideration under Chapter VI Article 41 of the UN Charter. Meanwhile, any resistance to IAEA inspections or failure to meet notification periods should immediately be considered a cause for a UN Security Council decision to impose sanctions.

15. All materials and technology that the country possessed at the moment of its withdrawal from the Treaty, independently of their origin, must be used exclusively for peaceful purposes and remain under IAEA
safeguards. All dual-use materials and technology (uranium enrichment, plutonium separation) received from abroad or developed independently while the state was a Treaty member should be immediately mothballed, then dismantled and returned to suppliers under IAEA control.

The refusal of a state to comply with the latter two conditions should result in a UN Security Council decision to impose sanctions under Chapter VII, Articles 41 and 42 of the United Nations Charter, including the possible use of military force.
## ANNEX 1

### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ASEAN</td>
<td>Association of South East Asian Nations</td>
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<tr>
<td>CSTO</td>
<td>Collective Security Treaty Organization</td>
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<tr>
<td>CTBT</td>
<td>Comprehensive Nuclear Test-Ban Treaty</td>
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<tr>
<td>IAEA</td>
<td>International Atomic Energy Agency</td>
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<tr>
<td>ICBM</td>
<td>intercontinental ballistic missile</td>
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<tr>
<td>IMEMO RAN</td>
<td>Institute of World Economy and International Relations of the Russian Academy of Sciences</td>
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<tr>
<td>IRBM</td>
<td>intermediate-range ballistic missile</td>
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<tr>
<td>KCNA</td>
<td>Korean Central News Agency</td>
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<td>KPA</td>
<td>Korean People’s Army</td>
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<td>NATO</td>
<td>North Atlantic Treaty Organization</td>
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<td>NPT</td>
<td>Nuclear Weapons Non-Proliferation Treaty</td>
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<td>NSG</td>
<td>Nuclear Suppliers Group</td>
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<tr>
<td>NTI</td>
<td>Nuclear Threat Initiative</td>
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<tr>
<td>R&amp;D</td>
<td>research and development</td>
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<tr>
<td>SLBM</td>
<td>submarine launched ballistic missile</td>
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<td>SNF</td>
<td>spent nuclear fuel</td>
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<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNSC</td>
<td>United Nations Security Council</td>
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<tr>
<td>WMD</td>
<td>weapons of mass destruction</td>
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<tr>
<td>WPK</td>
<td>Workers’ Party of Korea</td>
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</tbody>
</table>
ANNEX 2

List of Participants in the Conference
Held in IMEMO RAN on March 28, 2013

2. Nadezhda K. Arbatova, Head of the Department of European Political Studies of the IMEMO RAN.
3. Vladimír G. Baranovskiy, Deputy Director of the IMEMO RAN, Academician of the Russian Academy of Sciences.
4. Dmitry A. Chizhov, Researcher, Center for International Security, IMEMO RAN.
5. Yan Chzhen, Political observer of the Guang Ming Daily.
6. Dmitry A. Danilov, Head of Section of European Security, Institute of European Studies, Russian Academy of Sciences.
7. Maria Diaks, Officer of the Political Section of the Embassy of Germany in Russia.
8. Thomas Duris, Officer of the Political Section of the Embassy of Germany in Russia.
10. Yan Feng, First Secretary of the Peoples Republic of China (PRC) in Russia.
11. Pyotr V. Goncharov, Political Commentator, Golos Rossii radio station, Colonel (rtd).
12. Valery Ignatyev, Leading Advisor to the Defense Committee, State Duma, Captain I rank (rtd.).
13. Ivana Ilić, Intern of the Political-External Section in the U.S. Embassy in Russia.
14. Mu Jihui, First Secretary of the PRC Embassy in Russia.
17. Sergey Kazennov, Leading Researcher, Center for International Security, IMEMO RAN.
18. Anton V. Khlopkov, Director of the Center for Energy Security Studies.
19. Alexander A. Khramchikhin, Deputy Director, Institute for Political and Military Analysis.
20. Irina Y. Kobrinskaya, Leading Researcher of the IMEMO RAN.
21. Igor V. Kondratskiy, former Counselor of the Russian Embassy in France.
22. Roman Kowalczuk, Councillor, Embassy of Poland.
23. Raphael de Lagarde, Second Counselor of the Embassy of France in Russia.
24. Mikhail A. Lebedev, Secretary of the Russian Pugwash Committee under the Presidium of the Russian Academy of Sciences.
25. Dmitri S. Lyalin, Third Secretary of the Department of Security and Disarmament of the Ministry of Foreign Affairs of the Russian Federation.
26. Vasily V. Mikheev, Corresponding member of the Russian Academy of Sciences, Deputy Director of the IMEMO RAN.
27. Kuwako Mizuyo, First Secretary, Political Section, Embassy of Japan.
28. Vladimir E. Novikov, Deputy Head of Department, Russian Institute of Strategic Studies.
29. Evgeniy V. Orlov, Assistant Secretary of the Defense Attache of the Embassy of Ukraine in Russia.
30. Sergey K. Oznobishchev, Head of Sector, Center for International Security, IMEMO RAN.
31. Alexander N. Perendzhiev, Associate Professor, Department of Political and Social Science, Russian Plekhanov Economic University.
33. Natalia P. Romashkina, Senior Researcher, Center for International Security, IMEMO RAN.
34. John J. Rutherford, Vice Consul, U.S. Consulate General, Yekaterinburg.
35. Leonid F. Ryabikhin, Deputy Chair, Committee of Scientists for Global Security.
36. Vladimir I. Rybachenkov, Principal Research Associate, Center for Arms Control,
38. Tatyana A. Shakleina, Head of Applied Analysis of International Problems, Moscow State Institute of International Relations (University) of the Ministry of Foreign Affairs of Russia.
39. Eduard G. Solovyev, Head of the Theory of Politics Section of the IMEMO RAN.
40. Vladimir I. Sotnikov, Senior Researcher, Center for International Security, IMEMO RAN.
41. Yury V. Tavrovsky, Chief Editor of the Diplomat Journal.
42. Georgy D. Toloraya, Regional Director for Asia and Africa, Head of Regional Projects Directorate, the Russky Mir Foundation.
43. Pyotr V. Topychkanov, Senior Researcher, Center for International Security, IMEMO RAN.
44. Sergey V. Tselitsky, Researcher, Strategic Studies Section, Center for International Security, IMEMO RAN.
45. Maria A. Usacheva, Projects Coordinator of the NATO Information Office in Russia.
46. Vadim I. Vladimirov, Senior Researcher, Center for International Security, IMEMO RAN.
47. Eduard A. Vorobyov, Adviser to the Director, Egor T. Gaidar Institute of Economic Policy, Colonel-General (rtd.).
49. Han Sun Woo, First Secretary of the Republic of Korea in Russia.
50. Marianna G. Yevtodyeova, Senior Researcher, Center for International Security, IMEMO RAN.
51. Andrey V. Zagorskiy, Head of the Department of Disarmament and Conflict Settlement, IMEMO RAN.