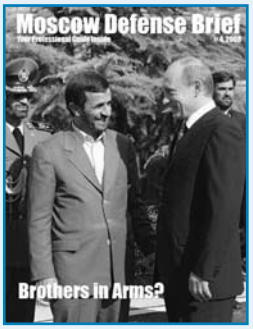

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Iskander the Great

Mikhail Barabanov

The Iskander short-range mobile theater ballistic missile system is the latest armament to burst onto the political arena, serving as a persuasive argument for politico-military discussions taking place in Russia, Europe, and the Middle East. The reason why the Iskander (Western designation SS-26 Stone) has attracted so much attention is that it is quite possibly the most effective and deadly nonstrategic ballistic missile in existence.

From the Oka to the Iskander

In 1980, the Soviet Union adopted the 9K714 Oka (SS-23 Spyder) short-range theater mobile ballistic missile into service, having a range of up to 450 km and a high precision, single-stage solid propellant missile with a nuclear or conventional warhead. This system was developed by the Kolomna Machine Building Design Bureau (KBM). The accuracy of the Oka missile (Circular Error Probable – CEP) is 30 m. Oka missiles were meant to replace the notorious old 9K72 Elbrus (SS-3B Scud) short-range theater ballistic missile with a range of up to 300 km, used by the Soviet Army and forces of the Warsaw Pact. The USA was worried from the start by the outstanding accuracy of the Oka missile. In 1987, exploiting Mikhail Gorbachev's inclination to compromise, the United States was able to have the Oka (as OTR-23) included in the list of systems to be eliminated under the U.S.-Soviet Intermediate-Range Nuclear Forces (INF) Treaty, even though the Treaty applied only to missiles with a range over 500 km. The Soviet Union was required to destroy every one of its 106 transporter erector launcher (TEL) vehicles and 339 Oka missiles by 1991. Later, the United States insisted that former Soviet allies destroy the Oka missile systems they received in the mid-1980s on a unilateral basis: Bulgaria (eight TEL vehicles and 25 Oka missiles), Czech Republic (two TEL vehicles and 12 Oka missiles) and Slovakia (two TEL vehicles and 24 Oka missiles).

The destruction of the Oka missiles in accordance with the INF Treaty was hotly debated among Soviet politico-military circles and was seen by society as a glaring example of Gorbachev's "betrayal." Thus, the Soviet Union and Russia were deprived of their most effective short-range theater ballistic missile. Moreover, the R-17 Elbrus (SS-3B Scud) short-range ballistic missiles ("operational-tactical" ones in Russian terminology), based on the design of the German V-2 liquid propellant ballistic missile, were withdrawn from operational use due to their low accuracy and outdated technology. Accordingly, the Kolomna Machine Building Design Bureau began to develop a new and more modern, highly accurate single-stage solid propellant short-range theater mobile ballistic missile with a range of up to 500 km to satisfy the requirements of the INF Treaty. The new system was named Iskander, after the Persian name for Alexander the Great, and intended to fill the armaments gap left by the elimination of the Oka and Elbrus ballistic missiles. Later, it was decided to use the Iskander to replace the Tochka and Tochka-U (SS-21 Scarab) short-range ballistic missile mobile systems with ranges of up to 70 and 120 km respectively, as their service life was to expire after 2000.

The Iskander ballistic missile is 7.3 m long, has a body diameter of 0.92 m and a launch weight of between 3,800 and 4,020 kg, depending on the payload. A Soyuz NPO single-stage solid-propellant engine provides propulsion. The high velocity of the missile allows it to penetrate antimissile defenses. Iskander missiles can fly a depressed trajectory below 50 km and can make evasive maneuvers up to 30 g during the terminal phase, to prevent interception by surface-to-air missiles. The Iskander has several conventional warhead options weighing between 480 and 700 kg, depending on type. These are believed to include cluster warheads with antipersonnel/antimaterial blast/fragmentation submunitions, area denial submunitions, high explosive unitary, fuel-air explosive, high explosive earth penetrator for bunker busting, and an antiradar blast/fragmentation warhead. A nuclear warhead can be affixed to the Iskander, though this capability is not advertised officially. The payload can also include tactical decoys.

The guidance system, designed by the Central Scientific Research Institute for Automation and Hydraulics (TsNIIAG), features an inertial unit with terminal guidance electro-optical correlation seeker with digital target area data. The missile has been reported to have an accuracy of 10 to 30 meters CEP, or even better. Some versions have guidance systems capable of GPS/GLONASS satellite navigation system updates during mid-course and with missile datalink for in-flight re-targeting. Other types of terminal guidance system are possible, using active radar or imaging infrared sensor seekers.

The Iskander ballistic missile system was created in two basic versions. The 9K723 Iskander missile system (sometimes called the Iskander-M or Tender) was made for the use of the Russian Army, using the 9M723 ballistic missile with a maximum range of up to 450 or even 500 km. The 9K720 Iskander-E export version uses 9M720-E

ballistic missiles with a reduced payload of up to 480 kg and a reduced maximum range of up to 280 km, to respect the limits imposed by the international Missile Technology Control Regime (MTCR).

The Iskander 9P78 TEL vehicle carries two missiles. The 9P78 four-axle TEL vehicle was developed by the Titan Central Design Bureau in Volgograd and based on a Minsk MZKT-7930 chassis. It has a length of 13.1 m, a width of 2.6 m and a height of 3.55 m, with the two missiles in the stowed traveling position. The fully loaded weight is 42,850 kg. This TEL has a 650 HP diesel engine, with a maximum road speed of 70 km/h, and an un-refueled range of 1,100 km. The vehicle has a launch crew of three, has full nuclear, biological, and chemical protection and amphibious capabilities. The TEL contains a command post with an automated fire-control system, so that each TEL can operate independently if necessary. The command post has target data and designation, navigation, and weather control positions, as well as built-in system-test equipment. The TEL can be positioned on sloping ground, and leveled with four hydraulic jack supports within 30 to 80 seconds. The missiles are raised to an angle of 85°, which takes around 20 seconds. The reaction time can vary between 5 and 16 minutes, and two missiles can be fired in salvo with 60 seconds between launches. The Iskander missile system also includes a 9T250 transporter-loader vehicle based on a MZKT-7930 chassis, which carries two reload missiles and a crane. This has a crew of two, with a fully loaded weight of 40,000 kg. There are four other vehicles based on the six-axle KamAZ-43101 truck chassis. These are a 9S552 command and control post with four operator stations and a communications suite, a 9S920 mission planning vehicle with two operator stations, a maintenance vehicle, and a crew accommodation vehicle.

A typical Iskander operational battery is expected to consist of two TELs with two reload vehicles, two command and control vehicles, two mission planning vehicles, a maintenance vehicle, and a crew accommodation vehicle. An Iskander battalion is composed of two operational batteries. A Missile Brigade equipped with Iskander missile systems, is composed of three missile battalions, with 12 TELs and 12 transporter-loader vehicles, and a total of 48 ballistic missiles.

Testing of the Iskander ballistic missile system has been ongoing at the Kapustin Yar Test Range in Astrakhan Oblast since 1995. The state tests were complete in August of 2004, and in 2007 the Iskander was formally passed into service by the MOD. Limited serial production of the system began in 2005. Iskander ballistic missiles are manufactured at the Votkinsk Machine Building Plant in Udmurtia and the solid propellant motors are built by the Soyuz NPO (now part of the Tactical Missiles Corporation) at Dzerzhisky. The TEL and transporter-loader vehicles are built at the Barrikady Plant in Volgograd.

Further development of the warfighting capabilities of the Iskander missile system should include the integration of the high-precision R-500 (3M14) subsonic cruise missile, developed by the Novator Design Bureau in Yekaterinburg. The R-500 missile is actually a conventional version of the Soviet 3M10 (RK-55) long-range cruise missile, which was the analogue of the U.S. Tomahawk cruise missile. The 3M10, is installed as the Granat (SS-N-21) system with a range of up to 2,600 km on the Russian Navy's nuclear-powered attack submarines and was previously deployed as the Relief (SSC-4) ground-based long-range mobile cruise missile system, eliminated by the 1987 INF Treaty.

The R-500 is equipped with a conventional warhead and has an official range of up to 500 km to honor the limits of the INF Treaty. However, several observers have suggested that the R-500 could easily be modified to attain ranges of up to 1,000 km or even more (up to 2,500 km, depending on the size of the warhead).

In November of 2007, the Commander of the Missile Troops and Artillery of the Russian Ground Forces, Colonel General Vladimir Zaritsky said that "at present the Iskander-M missile system fully complies with the conditions of the INF Treaty, but if a political decision were made to withdraw from the Treaty, we would increase the fighting capabilities of the system, including its range." The R-500 cruise missile guidance system has an inertial unit, a GPS/GLONASS satellite navigation system, and a terminal guidance electro-optical correlation seeker with digital target area data or active radar seeker. Testing of the R-500 cruise missile was completed at Kapustin Yar in 2007, and it was announced that the missile would be passed into service as part of the Iskander system in 2009. The Iskander missile system with the R-500 cruise missile is designated Iskander-K. Six R-500 cruise missiles with vertical launch canisters can be installed in place of the two ballistic missiles on a standard 9P78 TEL vehicle.

Iskander in Service

On January 1, 2007, the 630th Training Missile Battalion with four Iskander TEL vehicles, the first one of the kind, was formed at the 60th Combat Training Center of the Army Missile Troops at the Kapustin Yar Test Range, based in the North Caucasus Military District. According to the National Armaments Programs for 2007-2015, 60 serially-produced Iskander ballistic missile systems (that is, 60 TEL vehicles) will be procured to equip five of Russia's ten Missile Brigades. The newly equipped brigades will be distributed right across Russia: the 26th (Luga, near St. Petersburg in the Leningrad Military District), the 92nd (in Kamenka, near Penza in the Volga-Urals Military District), the 103rd (in Ulan-Ude, Siberia Military District), the 107th (Semistochny, near Birobidzhan in the Far East Military District), and the 114th (in Znamensk,

near Astrakhan, in the North Caucasus Military District). Each of those missile brigades is currently equipped with Tochka and Tochka-U short-range ballistic missile mobile systems. The 92nd and 107th Missile Brigades are to be the first to be reequipped, by 2011, with the first deliveries to begin in 2008. It should be noted that the list of five brigades designated to receive the Iskander does not include the 152nd Missile Brigade in Kaliningrad, the two missile brigades of the Moscow Military District (the 50th in Shuya and the 448th in Kursk), and yet another missile brigade in the North Caucasus Military District (the 1st in Krasnodar).

On May 9, 2008, four TEL vehicles loaded with Iskander missiles of the 630th Training Missile Battalion of the 60th Combat Training Centre of the Army Missile Troops took part in the Military Parade on the Red Square in Moscow. On August 630th Training Missile Battalion took part in Five-Day War with Georgia over South Ossetia. Several 9M723 missiles were reportedly fired from Russia against military targets in Georgia with cluster and high-explosive unitary warheads. According to unconfirmed reports, it was an Iskander missile that inflicted the infamous, high-precision strike on the Georgian Separate Tank Battalion base in Gori. Moreover, the Iskander missile made a direct hit on the arms depot, causing it to explode and inflicting extensive damage on the tank battalion. Russian officials have not admitted to using the Iskander missile against Georgia. However, unofficial reports testify to the high effectiveness of the Iskander missiles, as one of the most devastating and accurate weapons in the Russian arsenal.

The fate of the Iskander missile took a new turn on November 5, 2008, when President Dmitry Medvedev announced in his address to the Federal Assembly that Russia would deploy Iskander missiles in Kaliningrad Oblast as a response to the planned deployment of parts of the American missile-defense system on Polish and Czech territory. In principle, Medvedev's announcement should not have been a surprise to anyone following Russian military developments. First Deputy Prime Minister Sergey Ivanov had said as much in July of 2007, and similar announcements have been made several times in Russian military circles in 2008. There was even a story about the plans in a September issue of Krasnaya Zvezda, the MOD's newspaper. In fact, the issue concerns nothing more than the replacement of the Tochka-U missiles of the 152nd Guards Missile Brigade, located at Chernyakhovsk in Kaliningrad Oblast, part of the Kaliningrad Special Military Region, which is under Naval Command.

The rearming of the 152nd Guards Missile Brigade with Iskanders would allow 9M723 missiles with a range of 500 km to reach all of Poland, the eastern parts of Germany and northern Czech territories. It could target all elements of the American Ballistic Missile Defense system planned for deployment in this area, including the radar station in the Czech Republic. The accuracy of the 9M723 missile is sufficient to defeat even heavily fortified targets, including the American GBI silo-based missile interceptors, with conventional warheads. The R-500 cruise missile would allow for an even more effective destruction of targets in Europe from Kaliningrad, and probably at a greater range as well. Moreover, Russia has not excluded the possibility of equipping the Iskander with a nuclear warhead.

However, the decision to rearm the 152nd Guards Missile Brigade with Iskander missiles is only part of a full-scale review of the original plans for their deployment. Two days after Medvedev's speech, a high official of the Russian MOD told the RIA Novosti news agency that the new plan would have all five brigades armed with Iskanders by 2015 "facing the West." This would imply that instead of equipping the 92nd, 103rd and 107th missile brigades with Iskanders, the new weapons would be deployed to the 50th and 448th missile brigades of the Moscow Military District, the 152nd in Kaliningrad, and the 26th in the Leningrad Military District, and the 114th in the North Caucasus. On the basis of several subsequent official statements, it seems that the 152nd Guards Missile Brigade in Kaliningrad will be equipped with Iskanders no sooner than 2011, and would be timed to coincide with the deployment of American GBI missile interceptors in Poland.

Clearly, the decision to change the plan for the deployment of Iskander missiles to concentrate on reequipping the European parts of Russia first, reflects the significant deterioration of relations between Russia and the West over the past few years, especially in the wake of the Five-Day War with Georgia. In military terms, the deployment of the Iskander system in Kaliningrad and other European parts of Russia represents a radical increase in the capacity of Russian formations to inflict high-precision strikes against any target in Eastern, Central, and Northern Europe. It is extremely difficult for even the most modern and prospective air defense systems possessed by Western countries to intercept the Iskander ballistic missile. The TEL vehicles themselves proved to be difficult to detect and relatively invulnerable to American forces in 1991 and 2003 during the two wars with Iraq.

The sharp reaction of West European states to the announced deployment of the Iskander system in Kaliningrad comes as no surprise, as it represents a quantum leap for Russian military capabilities in the enclave. However, the Europeans should not forget that it is the American plan to deploy its Ballistic Missile Defense system along the Russian border that has led Moscow to making this decision. The Kremlin has clearly reasoned that the Iskander should be a weighty argument for European discussions on whether they are prepared to sacrifice their own immediate security interests for the sake of America's politico-military ambitions. After all, the Iskander missiles in Kaliningrad are a lot closer and much more real than any hypothetical Iranian missiles.

Export Opportunities

The Iskander-E short-range theater ballistic missile mobile system was publicly offered for export in 1999, though the sale of such a sensitive article was bound to meet with many political obstacles. Syria and Iran were the first to express an interest in 2000, though Russia apparently refused delivery for fear of spoiling its relations with the United States and Israel. By late 2004, Russia had practically concluded a contract for the sale of 18 systems to Syria, but President Putin canceled the deal at the last minute. Nevertheless, future sales cannot be excluded, and Russia is clearly exploiting the prospect of deliveries to Iran as a playing chip with the United States and Iran. The Iskander-E has become a powerful card in Russia's hand in the complex game over the Middle East.

Negotiations with the United Arab Emirates have taken place, and Rosoborneksport has also named Algeria, Kuwait, Yemen, Vietnam, Singapore, and South Korea as potential customers. In 2006, KBM representatives announced that a contract for the delivery of the Iskander-E was concluded, but did not name the purchaser. This information has not been forthcoming to date. The Novator Design Bureau has also offered the Club-M missile system with 3M14E cruise missiles and 3M54E/E1 (SS-N-27) antiship missiles for export. The Club-M is actually the export version of the Iskander-K missile system. The UAE has expressed an interest in this system.

However, Belarus is likely to make the first purchase of the Iskander-E. In November 2007, General Mikhail Puzikov announced a government decision to acquire an Iskander-E missile system brigade to rearm the 465th Belarusian Missile Brigade by 2015-2020. Puzikov said that funds had already been allocated and the missile systems would be acquired at domestic Russian prices, in accordance with the terms of the Tashkent Agreement of the Collective Security Treaty Organization. The first deliveries of the Iskander-E should begin in 2010.

The Iskander-E and Club-M are unique wares on the global arms market in terms of their technical specifications and warfighting capabilities. The acquisition by any country of the Iskander-E, the Russian arms industry's most advanced export, is sure to influence the balance of forces in any corner of the world.

Iran's Foreign Policy in Central Asia

LaTUK Consulting

Central Asia figures prominently in the speeches of Iranian leaders and foreign policy papers as providing critical support to the transformation of Iran into a regional power in the Near and Middle East.

After the collapse of the Soviet Union in 1991, Iran tried to take its place in the politics and economy of the Central Asian states. These efforts were particularly intense in Tajikistan, as a Persian-speaking nation, Uzbekistan, as the most influential state at that time, and in Turkmenistan, which shares a common border with Iran.

In terms of tactics, the Iranians understood that they would not be able to propagate their influence through Shiite religious rhetoric, as the vast majority of the Muslims in the region are Sunni, even in Tajikistan. They chose instead to build close relations with the Central Asian leaders on the basis of mutual economic interests. As a result, Iran managed to penetrate local markets for goods and services, and in this they did not encounter serious opposition from either Turkey or China.

Over time, as the political and economic situation in these countries developed, Iran began to lose its enthusiasm for the region. That was due to several reasons. First, the states of Central Asia profess Sunni Islam, and the ambitions of the Shiite Iranian leadership provoked a negative reaction, including on the part of the secular leadership.

Second, in economic terms, Iran is not powerful enough to satisfy the investment and technological needs of the region. Third, Iran's penetration of the region was resisted by the United States, the EU, Russia, and China, which took means to neutralize Iranian influence.

Tajikistan

Tajikistan is something of an exception. The closeness of culture and language allowed Tehran to strengthen its position on the Tajik market. Moreover, Iran participated actively in the resolution of the inter-Tajik conflict and in ending the civil war.

During this time, the notion of a "Greater Iran" was reanimated as the concept of a "Union of Persian-speaking nations" including Iran, Tajikistan, and Afghanistan. The first steps toward the implementation of this concept can be seen today. Tehran takes every opportunity to urge Tajikistan (and Afghanistan) to take concrete steps toward the realization of this concept, which relies not only on cultural, humanistic, and historical dimensions, but also on the closest possible economic integration of the three countries. In early 2008, Tajikistan and Iran established a joint commission on trade and economic, technical, and cultural cooperation to come up with a program on economic cooperation for 2009-2015.

The plan will include the construction of a tunnel linking Dushanbe with the southeastern part of Tajikistan, worth $60 million. Tehran would also like to participate in the construction of the Sangtuda hydro station, worth over $200 million, and confirmed its readiness to discuss the construction of the Shuro hydro station on the Vakhsh river. The idea is that Tajikistan would be able to export electricity after the construction of a few large hydro stations, including to Afghanistan, Iran, and Pakistan. Iran built the tunnel on the Dushanbe-Khodzhent highway with its own funds. Iran and Tajikistan agreed on a design for a high-voltage line along the following route: Iranian border - Herat -Mazar-i-Sharif - Kunduz - border of Tajikistan.

Aluminum production companies of both countries are increasing contacts. Iran proposes to construct a cement plant in the Shartuz region of Khatlonskaya Oblast. Dushanbe boasts a joint Iranian-Tajik radio station. However, in spite of these developments, it would be premature to speak of any serious Iranian economic influence in Tajikistan. Russia, Turkey, and China play a much more important role.

Afghanistan

The Iranian leadership has always seen Afghanistan as falling within its sphere of influence, and not only because of their ethnic proximity to a significant part of the population (Tajiks and Khazarians) that live in the western and northwestern parts of the country. The perpetual instability of Afghanistan and its long shared border with Iran pose a constant headache for the Iranian leadership.

In the 1980s, Iran accepted and provided assistance to almost 1 million refugees from Afghanistan. A support camp was established in Iran, and Iranian instructors from the Army of the Iranian Revolutionary Guard Corps train fighters from among the Tajik and Shiite Khazarian population. Iran provided strong support for the establishment and organization of the small army led by field commander and later Defense Minister Ahmad Shah Massoud. This points to a strong interest of the Iranian leadership in extending its influence into neighboring

Afghanistan. That said, they are aware that their influence extends only to those territories that have historically been settled by Tajik and Khazarian tribes. The bulk of Afghanistan remains as before under the control of the Sunni Pashtuns.

The presence of coalition forces in Afghanistan is of concern to the Iranian leadership, though they would not welcome the return of the Taliban either. Thus, their preference is for the continuation of a relatively low-intensity conflict, i. e. neither peace nor a great war. Moreover, several Afghan politicians have made anti-Iranian statements, alleging Iranian supplies of weapons to the Taliban and the training on Iranian territory of opposition fighters. They have also drawn attention to attempts to influence the ethnic makeup of the border cities and the provinces of Herat, Farakh and Helmand, establishing strong Shiite reservations composed of Iranian Shiite Khazarians. Such activities correspond to Iran's desire to dominate the region.

In spite of the recent political chill between Iran and Afghanistan, economic relations between the two countries are developing quickly. Several large projects are going forward, such as the $60 million, a 122 km long highway between Dogarun (Iran) to Herat, or the establishment and equipping of 25 police stations along the Afghan-Iranian border for $1.9 million. An agreement has also been reached to build a railroad from Khaf in Iran to Heart. In total, Iranian investment in Afghanistan surpassed $500 million by January 2007.

Turkmenistan

Turkmenistan is another priority for Iran's foreign policy in Central Asia. With a long common border, Iran quickly stepped up cooperation with Turkmenistan after the collapse of the Soviet Union on energy and counternarcotics issues. The fact that many Turkmen tribes live on both sides of the border facilitated this cooperation.

Notable joint projects include the construction of the Serakhs-Tejen railway, and the $500 million that Iran invested in a gas pipeline from Korpeje to Khoi, where a liquefied gas terminal is used to supply gas to Iran's northern provinces. In total, Iran has invested over $2 billion into the Turkmen economy.

Turkmenistan's political neutrality and Niyazov's cool relations with the United States suited Tehran quite well. With the arrival of Berdymukhamedov and the renewal of Turkmenistan's relations with the United States and NATO, the situation has changed. Moreover, Turkmenistan is asking a higher price for its supplies of gas to Iran. Berdymukhamedov's decision to allow the U.S. Air Force and coalition forces to use Turkmen airports, including the old Soviet base at Mary, has had a negative effect on relations with Iran. Nonetheless, the two countries still have much more that unites them, such as the joint exploitation of hydrocarbons in the Caspian Sea, oil and gas pipelines, including the Transcaspian pipeline system, the construction of new pipelines through Iran to the Persian Gulf, joint participation in the North-South Project, and other regional transport initiatives.

Iran and Turkmenistan cooperate closely in the fight against the production and transit of narcotics. They are both important transit states for Afghan opiates on their way to Europe and North America. The Iranian counternarcotics chief has admitted that Iran has become a transshipment base for the "Northern Route." Both states impose the death penalty for some trafficking offenses (21 people were executed in Iran in 2007 on this charge), which testifies to the magnitude of the problem, which is aggravated by poverty, corruption, and localism.

Uzbekistan

Iran places a great importance on building up relations with Uzbekistan, a task made quite difficult given the close ties, especially on military issues, that Tashkent maintained with Washington until 2005. After the events in Andizhan in 2005, Tehran made the most of the opening by making several offers to develop transport links and trade. Tashkent has long blocked a project to build a railroad linking the entire region, so Iran promised to ensure the delivery of Uzbek projects to the Persian Gulf ports and to facilitate Uzbek trucking through Afghanistan to Iranian ports on the Indian Ocean. To date, however, Uzbekistan has refused to discuss this project in detail, and Tashkent has once again begun to seek to rebuild its relations with the United States.

Kyrgyzstan

The presence of the U.S. military base at Manas has all but condemned Kyrgyzstan in the eyes of the Iranian leadership as an unstable and unreliable partner. For this reason, Iran practically has no relations with Kyrgyzstan. At times, the Iranians claimed that the United States was preparing air strikes against Iran from its base in Kyrgyzstan and warned that they would make strikes in response against Kyrgyzstan. The Kyrgyz leadership refuted the charge and affirmed its neutrality in March of 2006.

Kazakhstan

Iran's relations with Kazakhstan are being built in a different context. While Iran does criticize Kazakhstan for its cooperation

with the United States on both military and energy issues, the two countries have found common cause in the energy trade. Every year, Kazakhstan delivers 1 million tons of oil to Iran's ports on the Caspian Sea, which then goes to local refineries. In exchange, Kazakhstan receives a quantity of Iranian oil at Persian Gulf terminals, which it sells for export. Another joint project would transport Kazakh oil through Turkmenistan to Iran for onward delivery to Southeast Asia and India. They also have plans to jointly develop transportation and pipeline systems, as well as coastal trade on the Caspian, though disputes over the status of the Caspian Sea among littoral states complicate matters. Iran also sides with Kazakhstan on other issues, such as the trade in wheat in the region, and so it is likely that Iran and Kazakhstan will continue to build positive relations with one another.

Conclusions

Iran's foreign policy can be characterized as restrained, pragmatic, cautious, and sustained. Unlike the United States, the EU or Russia, Iran is not trying to impose its policy on Central Asia. It has no global projects in the region and does not plan to invest huge resources in new oil and gas transportation projects to compete with those already under way.

But even if Iran's activities in the region are not so dramatic, the emphasis on steady and sustainable economic development promises to bear fruit over the long term, and Tehran is bound to grow in political influence as its commercial reach continues to expand. Given the interest of all Central Asian states in pursuing a "multivector" foreign policy, the existence of a strong Iranian option will always be welcome.

Moscow – Tehran – Washington

Fyodor Lukyanov, Editor-in-Chief of Russia in Global Affairs

A new situation has emerged in the fall of 2008. The deterioration of relations between Russia and the United States over the crisis in the Caucasus, the global financial meltdown and the coming to power of a next-generation politician in the United States -- these have all affected the balance of forces and priorities. Changes are sure to come, but there is no doubt that the question of Iran will remain one of the central issues of international affairs as a whole and Russian-American relations in particular.

What is the general disposition of the Moscow-Tehran-Washington triangle?

First, the deterioration of Russia's relations with leading Western countries naturally drives Russia to renew its contacts with states that position themselves as opponents of the United States. Having found itself in something of a vacuum after the events in the Caucasus, Russia is trying to fill the void with a new system of relations. The return of the idea of a "gas OPEC," once advanced by the spiritual leader of Iran, testifies to this process, even if this particular initiative is considered by few to be practical.

Moreover, following the war unleashed by the Georgian regime in South Ossetia, Moscow has not concealed its sharply negative, almost hostile, attitude toward the U.S. Administration. Because of the very close ties between Tbilisi and Washington, Russia sees America as responsible for the death of its servicemen in South Ossetia. This perception, along with America's decisive support for Georgia, is lowering Russia's readiness to find common ground with the United States on international issues, including the settlement of the Iranian issue.

Second, the departure of George Bush and arrival of Barak Obama creates an opening for dialogue between Washington and Tehran. Obama has repeatedly stated that he would negotiate with the Iranian leadership without preconditions. For the president of Iran, the new American president is an approachable figure, unlike his predecessor. It is not a coincidence that Mahmoud Ahmadinejad was among the first to congratulate Obama on his election.

Washington has an interest in normalizing relations with Tehran, for several reasons:

- Stabilization of Iraq and the gradual drawback of American troops is impossible without Iran's assistance;
- Europe could diversify its energy sources and reduce its dependence on Russia, as often demanded by America, if cooperation with Iran were unblocked. The Nabucco project, for example, is viable only with Iranian gas;
- Iran has the potential to become an influential regional power, which could maintain the balance of forces and interests in this explosive region.

Of course, it would be naïve to expect quick results from a new dialogue. Even if it were to begin, it would become clear after a half hour that there is very little to discuss. Iran is not prepared to discuss its right to nuclear development, while the United States will not accept it. Moreover, Israel and the pro-Israeli lobby in America is skeptical of Obama, so any talks with the Iranian president will begin with demands that he support the security of the Jewish state. It would be senseless to discuss this question with Ahmadinejad. It is true that Iran will hold a presidential election next year. The economic situation in the country is not very good, so a changing of the guard is possible, and anybody other than Ahmadinejad would improve the environment for discussions.

It is too early to tell whether the new U.S. Administration is capable of a truly new approach to Tehran. However, it is clear that Obama has a much greater chance at success than anybody else, given the hope and trust that Americans and people the world over have in him.

Third, Iran is caught in the web, at least formally, spun by the placement of the U.S. missile defense system in Central and Eastern Europe, which has provoked such a sharp response from Russia.

American officials never tire of asserting that the radar in the Czech Republic and the interceptor missiles in Poland are meant to protect Europe from ballistic missiles from Iran. Moscow does not believe this, and Vladimir Putin in 2007 proposed the joint use of Russian infrastructure to counter the threat. It is true that the proposal was not followed up, and the Strategic Framework agreed in Sochi by the U.S. and Russian presidents in April of 2008 has not been developed any further.

Moscow's deep irritation with this situation was expressed in the announcement by President Dmitry Medvedev that Russia would take measures to counter the missile defense system, made on the day of Obama's electoral victory.

Theoretically, a comprehensive approach to the problem of Iran's nuclear and missile programs and the U.S. missile defense system could be reached. It would take a great deal of work on the part of Russia, the United States and Europe, and presumes that U.S. missile defense is truly deployed against Iran and has no other targets. This latter point is far from obvious, and such a comprehensive approach to the

two related issues seems unlikely in today's international political climate.

It is more likely that Tehran will continue to serve as a bone of contention between Moscow and Washington. The United States insists on its own view of Iran as a destabilizing force in the region and the world. The Iranian regime must therefore be overthrown or isolated through sanctions, either collective or unilateral. Russia has consistently called for engagement with Tehran and rejects any attempts to constrain Iran any more than permitted by international law.

Moscow and Washington disagree over their assessment of the essence of the Iranian regime.

The United States is inclined to regard Iran as unpredictable and extremist; accordingly, Tehran's acquisition of nuclear weapons is a threat to all. Ahmadinejad's warlike declarations and calls to destroy Israel are taken more than just a rhetorical raising of the stakes, but as a serious declaration of intentions.

Russia is far from enthusiastic about the prospect of a nuclear Iran, but does not view this eventuality as the end of the world. As several Russian experts suggest, Tehran needs nuclear status to confirm its status as a regional power, and will prove no less responsible a custodian of such power than, say, Pakistan. As for the anti-Israeli invective, Moscow is less worried, seeing in this a need for self-affirmation rather than a plan of action.

If the United States does in fact change its approach to the Iran question, the crucial moment will come only during the second stage, after the pompous launch of a dialogue and the inevitable disappointment. Since Obama is suspected by many of lacking decisiveness, the White House could easily lose its patience and adopt an even more uncompromising stand. With the Europeans innately inclined to align themselves with Bush's successor, Russia could find itself isolated among the "quintet" involved with the Iran file.

On the whole, the Iran nuclear issue will become an indicator for the status of the international system, insofar as it lies at the crossroads of so many key issues.

First, it is a test of the capacity of global players to undertake multilateral action, as called upon by the new U.S. Administration.

Second, it is a test of the ability of international law and institutions to resolve the most important conflicts.

The course of the Iranian nuclear program will also decide the fate of the Treaty on the Nonproliferation of Nuclear Weapons, i. e. whether it will cease to function as one of the pillars of the world order.

Finally, the Iran question will serve as a test of the endurance of Russia-U.S. relations, serving as the grounds for a very serious dispute or serving as a model for how to reach mutual understanding.

Commercial Applications for Iran's Uranium Enrichment Program?

Andrey Frolov

The interest of the international community in Iran's nuclear program has been limited almost exclusively to its potential for military uses. Of course, one cannot exclude the possibility of Iran's nuclear fuel cycle being used to produce nuclear weapons, but civilian applications of Iranian nuclear capabilities to satisfy domestic demand for nuclear energy and potential export contracts for high-technology nuclear products bear a separate examination. From this point of view, recent Iraninan actions and statements are far from reprehensible, and point rather to the incremental attainment of a high level of autonomy in the civilian nuclear power sector.

This hypothesis is confirmed by statements made by the Iranian leadership. In late 2006, President Mahmoud Ahmadinejad said that in five years (that is by 2012) Iran would begin to produce nuclear fuel and sell it to Western countries at a 50-percent discount. The offer was made conditional on the West ceasing its programs to reprocess spent nuclear fuel. The Iranian President probably had in mind the U.S. Global Nuclear Energy Partnership (GNEP), which proposes to return spent nuclear fuel to the United States for reprocessing on the basis of new technologies that are more economical and theoretically more proliferation-resistant than those currently in use. In view of the active marketing efforts that the United States has made to attract new participants to the program – except for Iran – Ahmadinejad's announcement could be viewed as a sort of "carrot" offered to those states that refuse to participate in the GNEP.

The Iranian initiative was reinforced by the first test run of the second centrifuge cascade (164 P-1 centrifuges) at the Natanz isotope separation facility. Adding this to the existing cascades, Iran thus had a total of 320 operating centrifuge units by the end of 2006. According to Western estimates, the productivity of one Iranian centrifuge is about three separative work units (SWU), meaning that by October of 2006, Iran could produce about 1,000 SWU of uranium hexaflouride for the production of civilian nuclear fuel. By way of comparison, the initial load of a 1,000 MW reactor (like the one being built at Bushehr), is about 350,000-450,000 SWU, with subsequent annual loads amounting to about 120,000-150,000 SWU.

By November of 2007, the Iranian leadership announced the achievement of their initial target: the installation of 3,000 centrifuges in 18 cascades.

A half year later, in April of 2008, the Iranian President announced the attainment of another stage in the creation of an independent enrichment industrial base, namely, the beginning of work on the installation of 6,000 centrifuges.

By Western estimates, the buildings at the Natanz factory can hold up to 54,000 centrifuges of Iranian production, with a total capacity of about 150,000–160,000 SWU. This probably represents the "carrot" for the Europeans. The creation of such a facility would signify Iran's entry into the privileged club of nations possessing enrichment technology; moreover, Iran was able to proceed directly to centrifuge enrichment, skipping the more energy intensive technological step of enrichment by gas diffusion, the technology on which all nuclear weapons programs linked to enrichment in the United States, the Soviet Union, the UK, France and China were based.

Iran's drive to attain its own enrichment capacity began during the Shah's regime, when an ambitious nuclear energy program was launched. To secure access to enrichment capacity, the government of Iran signed an agreement with France on uranium enrichment. The agreement led to the creation of the Sofidif company, owned 40 percent by Organization for Atomic Energy of Iran and 60 percent by the French Areva NC holding, which in turn owned 25 percent of Eurodif (one of the largest enrichment services companies in the world with 20-25 percent of the global market). In spite of the regime change, Iran remains a shareholder of Sofidif to this day, but its share in the ownership does not provide it with access to the technologies or products of the company, or even any dividends.

Industrial-scale centrifuge production gives Iran a technological and economical edge with respect to the enrichment of uranium, since industrial-scale centrifuge enrichment is currently performed only by Russia, China (using Russian centrifuges), the Urenco consortium (UK, Netherlands, Germany), and Japan. Similar technologies are used at an experimental level in Pakistan, India, and Brazil.

The possession of working centrifuges gives Iran an opportunity to apply its nuclear program to commercial ends, as significant national capacity would not only meet domestic needs but also provide for possible export deliveries.

The example of Brazil shows that this is not a fanciful idea. Brazil is developing its own centrifuge model and plans to construct full-scale production facilities, with virtually no international condemnation, in spite of the fact that the Brazilian program grew out of a national program to create a nuclear-powered submarine. Industrias Nucleares do Brasil

currently plans to develop the capacity to enrich enough uranium to supply all of the reactors on its territory. This amounts to about 300,000 SWU for three reactors by 2014, and 1 million SWU for 11 reactors by 2030. Should the reactor construction program encounter delays, the possibility that Brazil would seek to export its excess production of enriched uranium cannot be discounted.

Similarly, authorities in India announced in October of 2008 that they have concluded the development of 4th-generation centrifuges that are 10 times more effective than 3rd-generation centrifuges. India does not currently operate light-water reactors, so the development of enrichment capacity is clearly meant to meet the potential demand for enriched uranium resulting from a future large-scale deployment of light-water reactors. India would probably also be prepared to export enriched uranium and to use it in its program to create and operate a nuclear-powered submarine fleet.

Thus, the Iranian uranium enrichment program is by no means unique and could very well serve a civilian nuclear power program exclusively. Moreover, the program did not have a clear military prehistory.

Should Iran achieve its stated goals, it could become a sort of "Middle Eastern Japan," that is, a state without nuclear weapons but possessing virtually all stages of the nuclear fuel cycle. Moreover, it should be noted that Japan, in spite of its incomparable scientific and technological capabilities, was never able to develop and manufacture a reliable centrifuge, with the result that of its installed capacity of 1 million SWU, it actually achieves only about 300,000 SWU of real production. Starting from 2010, Japan plans to reequip its enrichment facilities with a new type of centrifuge.

Thus, should its program succeed, Iran could demonstrate the advantages of its model of technological development under conditions of international isolation, and the correctness of its choice of a centrifuge model capable of being mass-produced in Iran.

Finally, the Iranian initiative to sell fuel can be used as a means of exercising indirect control over the Iranian nuclear program as a whole. Should a political decision to purchase Iranian fuel be made, for example, by European companies, the Iranian nuclear program could move from the political to the commercial level.

A contract with a Western energy company would inevitably include Iranian obligations to have IAEA control over the capacities of its factory. Moreover, representatives of the purchaser would conduct inspections for the purpose of certifying the product, quality control, and other issues. Finally, a contract could be made to purchase a significant quantity of enriched hexaflouride produced at the factory, which would reduce the quantity of material available for the creation of a nuclear bomb. These measures, of course, would make Iran's operation of the isotope-isolation factory more transparent. Finally, the contract would be profitable for the Western energy company itself.

At current prices of about $160 per SWU, the sale of all of the fuel produced at the Natanz factory (given a capacity of 150,000 SWU), and a discount of 50 percent, the total earnings would be $12 million per year. This is an insignificant sum for oil-exporting Iran, but a successful contract would allow Iran to take the first step toward establishing itself as a provider of nuclear fuel cycle services on the world market. The very conclusion of a commercial contract would already signify the West's recognition of the maturity of the Iranian nuclear program and would thus be symbolically significant, especially in light of the interest of the West in establishing constructive relations with Iran.

This scenario is still very far in the future, as Iran in the best of cases would be able to offer 150,000 SWU by 2011 to a market that is currently supplied with about 46 million SWU. In other words, the price of increasing the transparency of Iran's nuclear program and engaging Iran in commercial relations is just 0.32 percent of today's enrichment market. This relatively insignificant sum would clearly not pose a commercial threat to any of the main nuclear suppliers that are simultaneously engaged in the "Iran nuclear file."

An informal initiative announced in 2006 provides another signal that the engagement of Iran in the world enrichment servicing market is not without hope. At that time, Tehran was offered the opportunity to host a Urenco enrichment facility on its territory that would produce materials for an international fuel bank controlled by the IAEA. The authors of this plan (a former British diplomat and a professor at the MIT) proposed that the facility would be controlled by the IAEA and the investor (the European Troika and Urenco). Moreover, they did not exclude the option of using the Iranian P-1 centrifuge and replacing it in the future with new Urenco models (TC-12 or even the TC-21).

According to the authors of this proposal, the factory could house 3,000 TC-12 centrifuges, which would correspond to the production volume of 120,000 SWU, worth $56–$84 million. At the same time, the production of 5 million SWU per year would require the installation of 125,000 centrifuges, while the expenses on the construction of the enterprise would reach $2.3–$2.4 billion. The installation of 50,000 TC-21 centrifuges would allow the production of about 840 tons of enriched uranium per year (at 4-percent enrichment) which would be enough to load 40 standard 1,000 MW reactors, fully covering Iran's potential needs for enriched uranium and still allowing for exports. However, this initiative was not embraced by Urenco and was not pursued any further.

Thus, the Iranian program to attain independent access to enrichment technologies is not a unique phenomenon and could serve the needs of a civilian nuclear energy program, especially in view of its intention to build new

nuclear reactors, and it falls in line with the global tendency to secure guaranteed supplies of fuel. Moreover, while being in possession of a significant number of working centrifuges, should Iran's nuclear power plant construction program slow down, or if it manages to increase its enrichment capacity, Iran could also become a supplier of nuclear fuel services. This would only increase the global supply of enriched uranium during a time of increased demand due to the "nuclear renaissance" and ongoing technical difficulties involved in the creation of new enrichment capacity.

Russian Arms Deliveries to Arab Countries of the Persian Gulf Region

Mikhail Barabanov

The Persian Gulf region is one of the main new markets that has opened to Russian arms exports since 1991. The Soviet Union provided significant quantities of arms to Iran and Iraq, but of the conservative Arab regimes, Kuwait was the sole partner of the Soviet Union in this sphere of activity. The other "oil monarchy" governments were strongly set against cooperation with the USSR for political reasons. Indeed, the Soviet Union had not even established diplomatic relations with the majority of members of the Cooperation Council for the Arab States of the Gulf (CCASG) until the last years of its existence: with Oman in 1985, Qatar in 1988, Bahrain in 1990, and with Saudi Arabia only in 1991.

Decisive factors promoting improved relations between Moscow and the Gulf Cooperative Countries included the elimination of Communist ideological expansion as an element of Soviet foreign policy, the withdrawal of Soviet forces from Afghanistan, and the Iraqi invasion of Kuwait in 1990, which forced Kuwait's Gulf allies to seek the broadest possible international support and to isolate Iraq from the USSR. Implicit Soviet support for the anti-Iraq coalition, gave the Soviet Union an opening to establish diplomatic relations with Saudi Arabia and initiate military-technical cooperation with a range of states in the region.

Kuwait

Kuwait was practically the only Arab monarchy of the Persian Gulf to maintain broad relations with the Soviet Union before the late 1980s. This reflected the relatively close alignment of the foreign policies of the two states on a range of issues, as well as the traditional drive of Kuwait, wary of the Iraqi threat, to secure support not only from the United States but also from the Soviet Union – then Iraq's close ally – with the intent of diversifying its levers of influence over its northern neighbor. Moreover, Kuwait and the Soviet Union signed a trade agreement in 1985 granting each other most favored nation status for navigation and trade purposes. Kuwait was also the sole Gulf Cooperative country to purchase Soviet arms.

Military-technical cooperation between the Soviet Union and Kuwait began in 1977. Over the course of the following 10 years, Kuwait received 33 9K52 Luna-M (FROG-7) tactical rocket systems, along with a corresponding number of 9M21F tactical rockets with a maximum range of 68 km, 60 122-mm D-30 towed howitzers, 20 9K33M Osa (SA-8) self-propelled low-altitude surface-to-air missile (SAM) systems with 550 9M33 surface-to-air guided missiles, 9K32M Strela-2M (SA-7) man-portable air-defense (MANPAD) missile systems with 700 9M32M missiles, and 9K34 Strela-3 (SA-14) MANPAD systems with 200 9M36 missiles. The largest contract was concluded in 1988 for 245 BMP-2 infantry fighting vehicles, valued at about $300 million, along with 2,340 9M111 Fagot (AT-4) anti-tank guided weapons (ATGW) missiles. The delivery of BMP-2 occurred in 1989-1990, with the majority arriving before the Iraqi invasion. According to Soviet data, the total value of Soviet military deliveries to Kuwait from 1977 to 1990 was $625.8 million.

Following the 1991 Gulf War, Kuwait continued to sense a potential threat from Saddam's regime, and sought additional support from countries in addition to the United States. It is notable that in January of 1991, during the Iraqi occupation, Kuwait agreed to loan the Soviet Union $1.1 billion for seven years.

After the collapse of the Soviet Union, Kuwait sought to ramp up its military-technical relations with post-Communist Russia. In February of 1993 the two parties signed a memorandum of understanding in the military sphere, which allows for deliveries of Russian arms to the emirate and joint consultations in case of threats to the stability and security of Kuwait itself or to the region as a whole. The agreement is similar to those signed by the United States and West European countries with the Arab monarchies from the 1950s to the 1990s aimed at deepening military relations. Joint Kuwaiti-Russian naval exercises took place under this agreement in December of 1993.

In 1994, Russia sold 122 BMP-3 and 27 9A52 Smerch 300-mm multiple launch rocket systems (MLRS) to Kuwait. The BMP-3 were equipped with 1,250 9M117 Arkan (AT-10) ATGWs of the 9K116-3 Basnya missile system. The total value of these contracts amounted to $762.6 million.

The Russian MOD established a permanent representation with the Kuwaiti MOD in 1996. Kuwait paid more than $3.5 million for the services of 10 military advisors from 1999 to 2002. In 2000, the Russian state company Promeksport agreed to supply parts for the Smerch MLRS worth $12.9 million, and in January of 2001, Rosoboroneksport agreed to deliver ammunition for the Smerch MLRS and the BMP-2 and BMP-3 infantry fighting

vehicles for $156.7 million. A contract was signed in 1994 for 122 BMP-3 infantry fighting vehicles, four of which were delivered that year with the remainder in 1995 (91 units) and 1996 (27 units).

Kuwait Defense Minister Jaber al-Mubarak al-Sabah paid a visit to Russia in September of 2002, when he stated that Kuwait was interested in Russia's most advanced military technologies. However, since then not a single significant contract for the sale of Russian arms to Kuwait has been reached, due largely to the elimination of the Iraqi threat after the razing and occupation of Iraq by US and UK forces in the spring of 2003.

United Arab Emirates

In 1987, the UAE Army purchased a set of 9K310 Igla-1 (SA-16) MANPAD systems from the Soviet Union. Cooperation with Russia began with the notable contract for BMP-3 infantry fighting vehicles, concluded in 1992, only a few months after the collapse of the Soviet Union. Since then, the UAE has become the leading importer of Russian arms in the Persian Gulf region.

A larger contract for the delivery of 402 BMP-3 for the Army of another emirate, Dubai, followed in 1994. The total deliveries of BMP-3 to the UAE has never been published officially, and unofficial sources are often contradictory. According to the data presented by the Russian Federation to the UN Register of Conventional Arms, 653 BMP-3 were delivered to the UAE in 1992-2000.

In addition to the BMP-3, the Kurgan Machine-Building Plant also delivered command vehicles and BREM-L Beglyanka armored recovery and repair vehicles. The quantity of such vehicles was not provided to the UN register, but since the total number of BMP-3 vehicles is 815 units, one could conclude that 162 special-purpose vehicles were delivered. Thus, the UAE has become the world's largest user of BMP-3, and the orders placed by the Emirates literally saved the Kurgan Machine-Building Plant, the leading Russian producer of armored equipment, from closure during the difficult times of economic crisis in Russia during the 1990s. The total value of all contracts for the BMP-3 and related vehicles and armaments has never been officially published but has been estimated in the Russian press as surpassing $1 billion.

The BMP-3s delivered to the UAE differ from the standard Soviet version in that they are equipped with French thermal imagers. According to Kurgan Machine-Building Plant executives, negotiations are under way with the UAE to establish a joint venture offering turnkey full repairs of all versions of the BMP-3 fleet.

The UAE Army had plans to modernize its BMP-3 in five aspects: the installation of an automatic gearbox, an automatic antitank missile loader, a rear-view chamber, updated fire-control and driver observation systems, and fume reduction systems. The Kurgan Machine-Building Plant presented the UAE army with a BMP-3 refurbished along these lines, plus an air conditioner, in early 2005. The UAE military was offered an even deeper modernization of the BMP-3, including a new, more powerful engine and a commander panoramic sight, developed by the Belarusian firm Peleng. Other versions offered include BMP equipped with an explosive reactive armor kit and passive (Shtora) or active (Arena-E) countermeasures systems. However, the UAE has yet to conclude any contracts with Russia on the modernization of its BMP-3 vehicles.

In 1996 Rosvooruzheniye concluded a contract to deliver six 9A52 Smerch 300-mm MLRS. By our estimates, the value of this contract could be up to $100 million. The systems were shipped in 1999. In 1997, Rosvooruzheniye contracted to deliver 40 Dzhigit twin-round tripod-based launchers to the UAE for mounting on jeeps and firing 9M313 and 9M39 missiles of the 9K310 Igla-1 (SA-16) and 9K38 Igla (SA-18) MANPAD systems, respectively. According to some reports, the Dzhigit launchers were especially developed by the Kolomenskoye Machine-Building Design Bureau for the UAE Army. In the UAE, the Dzhigits were mounted on Nissan Patrol jeeps, and were later adapted to fire 9M338 missiles of the new 9K338 Igla-S (SA-24) MANPAD system – such missiles were also sold to the UAE.

In 1999, the Tula Instrument Design Bureau delivered a batch of 9K129 Kornet-E (AT-14) ATGW systems with 9M133 missiles. In 2004, the Kolomenskoye Machine-Building Design Bureau demonstrated the Kvartet, a quadruple launcher version at the Paris arms exhibition, with 9M133 ATGW missiles, mounted on the French Panhard VBL light armored vehicle, and it is thought that this version was designed specifically for the UAE. A batch of Kvartet was purchased by the UAE and mounted on US-made HMMWV vehicles. The system is also meant to be installed on Nimr vehicles.

In February of 2007, Rosoboroneksport signed a contract to deliver a batch of infantry armaments for over $50 million, including small arms, ammunition, RPG-29 Vampir antitank rocket launchers and several Kornet-E ATGW systems.

The KamAZ automobile plant delivered about 1,000 KamAZ-4326 double-axis all-wheel trucks to the UAE armed forces. The first batch of 200 vehicles was shipped in July of 2001; a second contract was apparently concluded in 2002 for about 500 vehicles, and the third, in 2004, was for "more than 300." The total cost of those deliveries, by our estimates, was about $40 million. In 2007, the manager of KamAZ Vladimir Samoylov said that "we plan to open a service and sales center in the UAE."

The UAE is highly interested in the Iskander-E (SS-26) short-range ballistic missile system with a maximum range

of 280 km. In August of 2006 it was announced that the UAE is conducting negotiations with Russia to acquire Club-M mobile coastal defense cruise missile systems for an estimated $250-$300 million. This could involve the delivery of two or three self-propelled launchers, each of which carrying four or six antiship cruise missiles (evidently, the 3M54E missiles with supersonic third-stage, whose Western designation is SS-N-27B).

Naval cooperation has thus far been limited to the delivery to the UAE in 1994 of two Project 11770 Serna "air-lubricated" high-speed utility landing craft, built by the Volga plant in Nizhni Novgorod. However, these craft were not retained by the military and were transferred to civilian service in 1998.

Likewise, Russian aviation has yet to show any success in the UAE. Negotiations on the possible delivery of 24 Sukhoy Su-39 (Su-25TM) attack aircraft concluded with no results in the early 1990s. In the mid-1990s, the Sukhoy Su-35 (T-10M) fighter participated without success in the international air-force competition held by the UAE for a new fighter, losing out to the Lockheed Martin F-16 Block 60 offered by the United States. In November of 2005, the deputy director of the MiG Russian Aircraft Corporation Vladimir Vypryazhkin said his company was negotiating to establish the licensed production of a new MiG-AT trainer jet in Egypt and the UAE, though in the end this proposal did not make the list of UAE tenders for basic and advanced trainers in 2006.

On the whole, Russia has captured a well-defined place on the UAE arms market and earned a degree of trust on the part of the military elite of this country as a reliable supplier of arms. This gives Russia some hope for continuing and deepening relations with the UAE in the military-technical sphere. In November of 2006, Russia and the UAE signed an intergovernmental agreement on military-technical cooperation. The agreement envisages projects relating to the delivery of Russian arms and ammunition for the ground forces, the development of the UAE air-defense systems, and space research. In the future, both countries are looking at signing an agreement in the sphere of protecting secret information and intellectual property.

Russian Engineering Design

The UAE is among the pioneers of emerging international forms of military-technical cooperation, such as the financing of the design of new types of weapons and equipment by other nations. With Russia, the UAE is financing the development of the Nimr off-road vehicle and the Pantsyr-S1 (SA-22) self-propelled antiaircraft gun-missile system.

The contract for the development of a vehicle with the Arabic designation AB17 Nimr (Tiger) was concluded in early 1999 with a consortium that included the Jordanian King Abdullah II Design and Development Bureau (KADDB) and Bin Jabr Enterprises. The latter initially figured as a joint Russian-Emirates venture, with the GAZ automobile plant from Nizhni Novgorod holding a 50-percent stake. Engineers from GAZ and the Industrial Computer Technologies engineering firm (a subsidiary of GAZ) were the de-facto designers of the Nimr, designated GAZ-2975. The UAE provided financing to the tune of $60 million.

Three prototypes were made in 2000; an armored versions and a 6x6 version were later developed as well. The vehicle was to be assembled in the UAE at Advanced Industries of Arabia (AIA), established by KADDB and Bin Jabr, and in Jordan, with plans to produce up to 12,000 vehicles in the nonarmored and 2,000 in the armored versions. In early 2005, the UAE army awarded AIA a contract worth $41 million to deliver 500 vehicles. In 2007, Bin Jabr continued to advertise the vehicle in several versions, offering it for exportation to India, for instance. The Tiger was developed in Russia as the GAZ-2330 and produced for the Ministry of Internal Affairs and for the Russian Army.

The development of the Pantsyr-S1 air-defense system by the Tula Instrument Design Bureau was one of the most important military R&D projects in Russia for a foreign customer. An order for the development of the 96K6 Pantsyr-S1 self-propelled short-range antiaircraft gun-missile system was first awarded to the Tula Instrument Design Bureau in 1990 by the Air Defense Forces command of the Soviet Union. In 1995, the first version of the Pantsyr-S1 mounted on a vehicle chassis and equipped with a fire-control radar was developed by Fazotron-NIIR, but during testing it fell short of requirements. As a result, the Air Defense Forces lost interest in the system, and in the end it was offered by the Tula Instrument Design Bureau for exportation, with any further development to be paid for by a potential customer.

The UAE showed interest, but set extremely high technical requirements for the system, which made it necessary to develop an actually new system, including a new combat module with 2A38 30-mm guns, new 57E6-E antiaircraft missiles with an expanded 18-km maximum range, and new surveillance and target tracking/missile guidance radars. In May of 2000, the Tula Instrument Design Bureau signed a contract with the UAE government for $734 million (50 percent of which went to paying the Russian government debt to the Emirates) to develop and deliver 50 Pantsir-S1 systems (24 for the KamAZ-6350 four-axle wheel chassis and 26 for the GM-352M1E tracked chassis). To conduct the required R&D, the UAE paid Russia $100 million in advance.

The initial deadlines were missed due to R&D problems, so an additional contract was signed in 2003, committing the UAE to pay another $66 million and providing an extension of the delivery date to 2007-2009. Thus, the total value of the contract rose to $800 million. In the end, the new system began live testing in the spring of 2006 and was presented to

the UAE military at the end of 2006, with the delivery of the first 12 serial systems planned for the end of 2008. Another 24 systems will be transferred to the customer in 2009, and a further 14 systems in 2010.

In spite of the difficulties, the job was successful in the end, and the UAE received the most advanced short-range air-defense system in the world. In addition, the Tula Instrument Design Bureau was able to conclude contracts worth $1.8 billion for deliveries of Pantsyr-S1 systems to Syria and Algeria. The Russian Armed Forces have also renewed their interest in this system, and plan to acquire a significant number of units.

Oman, Bahrain, and Qatar

Russia's military-industrial cooperation with these three countries has not developed broadly. In our view, this is due to the almost complete orientation of the local political and military elites toward the West, and the absence of any serious political stimulus toward the development of relations with Russia, including in the military sphere. The US and the UK continue to dominate the three states as the main suppliers of arms. The unresolved issue of the Russian debt to Qatar poses an additional complication.

Saudi Arabia

Like Kuwait and the UAE, Saudi Arabia has shown the greatest interest in the acquisition of Russian tank technology. Over the last few years Rosoboroneksport has been conducting negotiations on the possible sale of 150 T-90S main battle tanks. President Vladimir Putin's visit to Saudi Arabia in February of 2007 included discussions on military-technical cooperation. The main points of discussion included the possible delivery of 150 T-90S tanks for $1 billion, as well as a batch of BMP-3 infantry combat vehicles and armored personnel carriers (probably the BTR-80A).

This deal would have a greater importance than the recent megacontracts with Venezuela ($3 billion) and Algeria (over $7 billion), because it would not only crack open the biggest market in the world but also give Russia's relations with the most important Islamic state a new dimension, including on security matters. However, to date the contract has not been signed.

It has also been reported that Saudi Arabia is interested in the S-300PMU-2 (SA-20) and S-400 (SA-21) SAM systems, the Tor-M1 (SA-15) and Pantsyr-S1 (SA-22) air-defense system, the Mi-17 and Mi-35 helicopters, and special forces armaments. However, one must presume that the path toward concluding any such deliveries to Saudi Arabia will be long and difficult for Russia.

Summary

The total value of contracts for the delivery of Russian arms to the states of the CCASG can be estimated at $3.6 billion, of which the UAE accounts for $2.5 billion and Kuwait for $1 billion, with no more than $100 million going to the remaining four countries. These are relatively insignificant sums, and the role of Russian arms in this important market is decreasing.

But although Russian deliveries to these states account for only 5 percent of the total Russian arms exports over the past 15 years, the market is important for political reasons and due to the high purchasing power of the CCASG states. Sales to the region are highly profitable, and the prestige value of sales to the respectable, Western oriented "oil monarchies" is very high. Kuwait and the UAE purchased the most advanced Russian defense system in volumes that were critical to the survival of the Kurgan Machine-Building Plant and the Tula Instrument Design Bureau. The creation of the Pantsyr-S1 by the Tula Instrument Design Bureau, financed by the UAE, was uniquely valuable to Russia, allowing for the creation of a cardinally new type of armament for both exportation and internal military use.

Russia's position as a supplier of arms to the countries of the CCASG is at a critical juncture. The best-case scenario would see large-scale commissions from Kuwait and the UAE, as well as a historical breakthrough to the defense market of Saudi Arabia. Agreements to create an air-defense system for the UAE on the basis of the S-400 air-defense missile system, to modernize the BMP-3 already purchased by the UAE and Kuwait, the acquisition by Gulf States of modern Russian supersonic antiship missiles, and the purchase by Saudi Arabia of T-90S tanks, BMP-3s, armored personnel carriers, helicopters, and Russian air-defense systems would be key to Russian success in this area.

Post-Soviet Russia's National Armament Programs

Andrey Frolov

Since the demise of the Soviet Union, Russia has adopted three national armament programs: NAP-2005, NAP-2010, and NAP-2015. It is too early to judge the effectiveness of the last program, which was launched only in 2007, but the failure of the first two programs do not augur well for the third. This situation is largely due to mistakes in planning and to external socioeconomic factors.

Given the amendments to NAP-2015, announced in the wake of the conflict in South Ossetia, as well as the recent onset of a global economic crisis, it seems likely that the current program will suffer the same fate as its predecessors. This calls for a review of Russia's experience with the development and implementation of national armaments programs as a whole.

NAP-2005: The First Attempt

In May of 1992, President Boris Yeltsin approved a concept paper on military-technical policy that could be called Russia's first armaments program. It put a priority on optimizing the selection of equipment and the modernization of existing weapons – command, control, and communication systems first of all. The paper also envisaged an increase in R&D spending to 10 percent of the defense budget. It was a first attempt at meeting not only the needs of the Ministry of Defense but also the security requirements of the nation as a whole. This aspect was reflected, for example, in the introduction of joint programs for tactical communications systems. The concept paper addressed Russia's armaments needs to 2000 in a comprehensive fashion, and to 2005, 2010, and 2015 with respect to a number of discrete issues.

In July of 1993, the MOD presented the government with several options for a long-term armaments program. They bore a range of price tags, but none was adopted, as they failed to identify sources of funding for concrete programs and were vague on the distribution of financing over the years.

The next attempt was more successful. In November of 1996, the first official National Armament Program for 1996-2005 (NAP-2005) was adopted. It focused on long-term planning for force development, linking actual requirements and missions to be undertaken by the armed forces with existing sources of funding.

However, NAP-2005 fell apart as early as 1997 as a result of optimistic economic forecasts. For example, the program assumed a GDP growth of 5-7 percent, while in reality the economy shrank in 1996-1997 and grew by only 2 percent in 1998-1999. Moreover, the program overestimated the share of defense spending at 3.6-5.2 percent of GDP, whereas real spending was limited to 2.3-2.8 percent. The program continued to be implemented on paper, but from 1996-2000, only 23 percent of the planned budget was actually disbursed. As a result, NAP-2005 loaded the defense industrial complex at only 25-30 percent capacity.

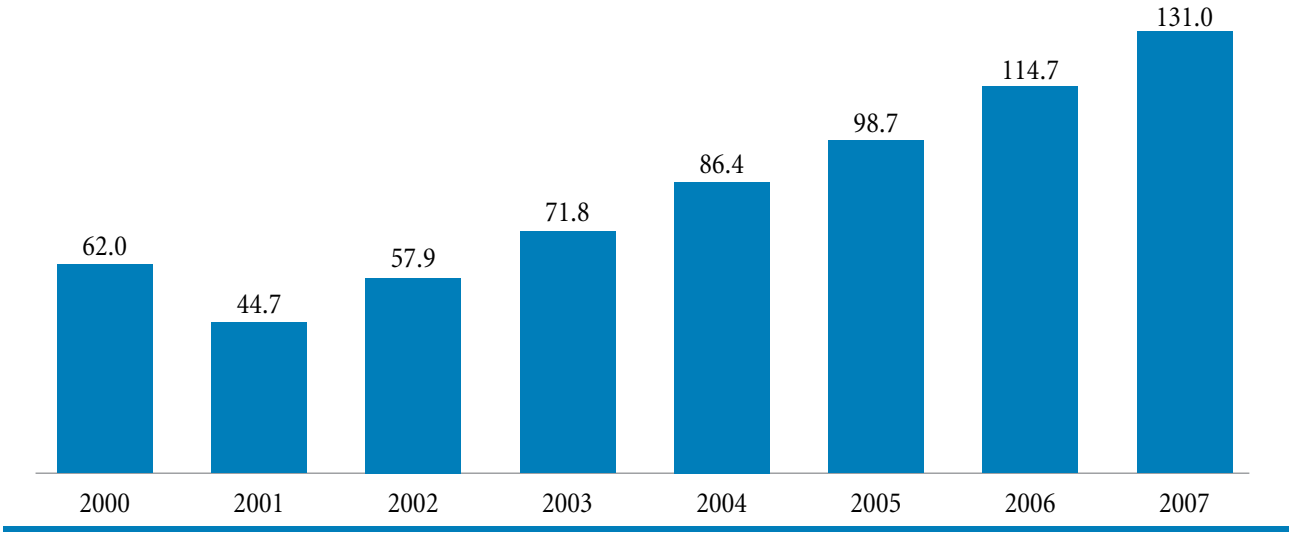
NAP-2010: Emphasis on R&D

The change of national leadership and signs of economic growth called for a review and renewal of the anemic NAP-2005. The Security Council, the MOD, and other federal executive agencies analyzed Russia's defense and security situation and drafted a national force development policy. This policy study was at the heart of the Force Generation and Development Plan for the Armed Forces 2001-2005 and the related National Armaments Program for 2001-2010 (NAP-2010).

NAP-2010 was drafted toward the end of 2000 and approved in early 2002. It was oriented to financing the development of new weapons types, leaving defense industry firms to survive on their export earnings. Thus, NAP-2010 included an inventory of arms and military equipment designated for exportation. It envisaged serial production of new generation weapons to equip the Russian army by 2020 and unified the procurement of arms and military equipment not only for the MOD but also for other ministries and agencies as well.

The program assumed defense expenditures averaging 2.7 percent of GDP from 2001 to 2010. In absolute terms, the MOD initially requested 7.5 trillion rubles for the program, assuming the replacement of 70 percent of obsolete systems over 10 years. Ultimately, however, NAP-2010 was allocated only 2.1 trillion rubles, or an average yearly expenditure of about 210 billion rubles on defense procurement, with 100 million rubles coming from the budget, and the remainder from extrabudgetary sources, read weapons exports. Moreover, because the program was designed to promote the development of new technologies, 40 percent of all

Figure 1. National Defense Procurement Order 2000-2007, billion rubles in 2000 prices



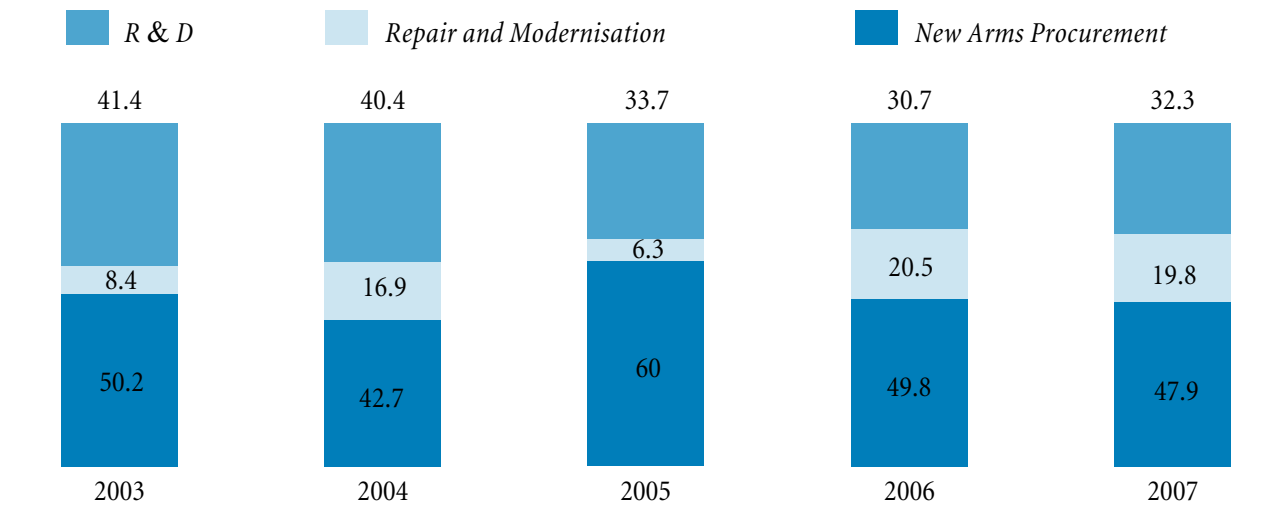
Source: The Russian media, with data on inflation from the Federal National Statistics Agency.

funds from 2001-2005 were targeted toward R&D. About 70 percent of the most advanced projects were expected to be completed by 2006 (as of 2004, the MOD had financed more than 3,000 R&D projects).

The program also aimed gradually to shift expenditures from upkeep (components, fuel, and ammunition) to development (modernization and purchases of new arms and military equipment). The ratio of such expenditures – 70:30 in 2001 – was to reach 60:40 by 2005 and 50:50 by 2010. Since the acquisition of new equipment was not feasible until 2005, the emphasis was placed on the modernization of old systems.

This second program – while it made some significant achievements, such as the elimination of debts to defense industry enterprises, the launch of serial modernization programs, and the completion of a significant number of R&D projects – was not ultimately sustainable. NAP-2010 was notoriously biased in favor of the strategic nuclear forces, serving their needs first and leaving only leftovers for the purchase of

Figure 2. Distribution of the National Defense Procurement Order 2003-2007 in percentage



Source: SIPRI Year books for 2002 and 2003 and the Russian media.

conventional weapons. In practice, up to two-thirds of the funds allocated for purchases of arms and military equipment were diverted to meeting the day-to-day needs of the armed forces, meaning that only a handful of new weapons were acquired.

Experts estimate that only half of the funds designated for the implementation of NAP-2010 were actually spent. Even with an increase in the annual budget from 100 billion to 250–300 billion rubles, its implementation remained incomplete, due mostly to delays in the development and testing of new weapons systems and the corresponding postponement of serial production. Moreover, the military-industrial complex had problems absorbing the rapid increase in budget spending. In 2005, the National Defense Procurement Order was fulfilled to only 97.3 percent (or even 96.4 percent, according to some sources). Ultimately, about 1 billion rubles of MOD funds were left unspent, as "not all enterprises were ready for the large increases in the national procurement order that have taken place over the past few years." Because of a lack of necessary hardware and components, industry proved unable to develop and manufacture products with the required tactical and technical specifications.

Conclusion

The experience of developing and implementing NAP-2005 and NAP-2010 has demonstrated the relatively low ability of the Defense and the Finance ministries to forecast political and economic risks or the long-term needs of the Armed Forces. Moreover, the MOD has proven itself to be a poor lobbyist, unable to secure a defense budget in the respectable range of 3.5 percent of GDP.

That said, the priority given to R&D in NAP-2010 as a means of supporting military science through a difficult period was surely justified, as was the channeling of serial production toward export contracts (though this practice has divided serial production plants among those geared toward exports, those just getting by on symbolic national defense procurement orders, and those which are stagnating).

It seems that the third program – NAP-2015 – is more balanced and considered than the first two and better harmonized with Russia's prospects for long-term economic development. However, aside from the onset of a global economic crisis, several risks remain, including questions regarding the ability of industry to meet the national procurement order on time and according to specifications and simultaneously to meet export contracts and civilian production needs.

Serdyukov's Plan for Russian Military Reform

Ruslan Pukhov

On October 14, 2008, following a meeting of the Collegium of the Russian Defense Ministry, Minister Anatoly Serdyukov announced the launch of a new stage of military reform. If the Defense Minister's reforms go through as planned, it will mark the most radical transformation of the Russian military system since 1945, touching upon every aspect of the armed forces, including service strength, central command and control bodies, tables of organization, and the officer training system. The reforms were clearly influenced by lessons drawn from the August military campaign against Georgia, even if the strategy had been developed much earlier. Indeed, the general thrust of reform was expected from the moment Serdyukov was installed at the Arbat. Nevertheless, events in Georgia have enabled Serdyukov to act decisively.

The main points of Serdyukov's plan are as follows:

- Accelerate the downsizing of the armed forces;
- Reduce the number of officers and restructure the composition of the officer corps;
- Establish a non-commissioned officer corps;
- Centralize the system of officer training;
- Reorganize and downsize central command and control bodies, including the MOD and the General Staff;
- Eliminate cadre formations and bring all formations to permanent readiness status;
- Reorganize the reserves and their training system;
- Reduce the number of units, formations, and bases;
- Reorganize the Ground Forces into a brigade system, eliminating the regiment, division, corps, and army echelons; and
- Reorganize the Airborne Troops, eliminating divisions.

Cuts to Personnel and the Number of Officers

According to Serdyukov's announcements, the planned reduction of the service strength of the armed forces from 1.13 million to 1 million servicemen will be advanced from 2016 to 2012. The number of officers will be reduced radically, from 355,000 positions currently on the books to just 150,000. That said, the actual number of officers to be discharged is less. Some 40,000 positions are currently vacant, and these will be eliminated by the end of the year. Moreover, 26,700 officers are due to be retired, and another 9,100 will have reached retirement age in 2009. In addition, 7,500 serving officers were called up for two years after graduation from civilian institutes of higher learning. They will be discharged at the end of their term, and this category of specialists is no longer being recruited. The remaining 117,500 officers will be discharged over the course of three years. To a large extent, their release will be effected as a result of another reform, announced by Serdyukov in early 2008, concerning the transfer of a number of positions, such as military medics and lawyers, to the civilian public service.

The central command and control bodies also face steep cuts. Serdyukov counted 10,523 people in the central apparatus of the Ministry of Defense and another 11,290 working for the military command bodies of the Ministry; in all, almost 22,000. This total is to be reduced to just 8,500, including 3,500 in the central apparatus of the MOD. In line with these changes, personnel at the General Staff will be reduced by 50 percent by March 1, 2009.

Serdyukov described the current personnel profile of the army as "shaped like an egg, swollen in the middle. There are more colonels and lieutenant colonels than junior officers. By the end of three years we will have built a pyramid, where everything will be clearly structured and proved." Accordingly, the number of lieutenants and senior lieutenants in the armed forces is to increase from 50,000 to 60,000.

The creation of a non-commissioned officer (NCO) corps, formally lacking in the Soviet Army, is an important element of the reforms. A strong corps of NCOs should serve as the basis for soldier training and military discipline. But the introduction of sergeants into the system will take not three to four years as envisaged, but at least 10-15. This delay could undermine reform by creating problems with management and the manning of those combat arms where a relatively high percentage of officers are involved in the direct operation of military equipment, such as the submarine fleet, air- defense forces, etc.

Reform of Military Education

The centralization and downsizing of the military education system is closely related to planned reductions to the officer corps. Serdyukov announced that the 65 military institutions of higher learning (15 academies, four universities, 46 colleges and institutes) will be reduced by 2012 to just ten

"systemic institutions": three research and teaching centers, six academies and one university. The new institutions will not only serve to train officers, but also to conduct research. They will be established according to territory, not combat arm. For now, all existing facilities will become affiliates of these ten centers; decisions regarding potential closures will be taken later.

Serdyukov affirmed that the entire faculty of existing military institutes will be preserved and absorbed into the new system, and that only the managerial layer will be reduced. He also said that many formerly military specializations, such as lawyers, will now be educated at civilian facilities.

Permanent Readiness Forces

The elimination of the division-regimental structure of the Russian Ground Forces and changing over to a brigade organization is one of the most interesting aspects of the announced reforms. "Today, we have a four-link command and control system: military district, army, division, and regiment. We are changing over to a three-link system: military district, operational command, and brigade. That is, the division-regimental link will disappear, and brigades will appear in their place." Serdyukov went on to say that the changeover to the new structure will eliminate excess layers of command and will increase the effectiveness of troop command and control. He said the number of military units and formations in the Ground Forces will be reduced from 1,890 to 172 within three years. He repeated the announcement made earlier by President Dmitry Medvedev that all non-fully manned (cadre) units will be disbanded, bringing all Army units to a permanent state of combat readiness.

Two aspects should be singled out. First, the conversion of all units and formations of the Ground Forces to permanent-readiness status marks a sharp increase to the peacetime combat capability of the army and a departure from the longstanding structure of the Soviet Army, which was based on formations subject to full deployment only upon general mobilization. The Russian Army will thus cease to be a mobilization army. The Soviet Army of the 1980s had four categories of tank and motorized-rifle divisions, depending on the degree to which they were manned with personnel in peacetime. Of approximately 200 divisions, only about 50 belonged to the so-called Category A, that is, manned at 100 percent and ready to go quickly into battle. The remaining 150 divisions required partial or full manning by mobilized reservists and took quite a long time to deploy to wartime levels. This combination of permanent readiness and cadre units has been preserved up to the present time.

According to the plan, all formations will be fully manned by 2012 and maintained in a state of permanent readiness. The transition to a contract system of manning supports this goal. Thus, the peacetime combat capabilities and reaction speed of the Russian army will increase significantly, enabling the rapid engagement of forces in any type of conflict, including those similar to the recent one in Georgia. At the same time, the increase in permanent-readiness forces should compensate for the general reduction in the size of the Ground Forces. The disbanding of a number of cadre formations manned with only officers in peacetime and no privates enables reductions to the size of the officer corps, especially senior officers.

Of course, Russia's inherent need for a large reserve, created by its enormous size and long borders, remains unchanged. But it is clear that there is no threat of an unexpected, large-scale land invasion of Russia's territory now or for the foreseeable future. Any enemy, even if potentially capable of carrying out such an invasion (United States and NATO, China) would require a lengthy period for mobilization, deployment, and concentration of ground forces on Russia's borders. The long period of time leading to a ground war allows Russia significantly to reduce the demands on its reserve component. Russia will have significant time to mobilize its forces, permitting the elimination of expensive maintenance of cadre formations during peacetime.

Judging from the overall sense of the reform plan, it would seem that existing arms and equipment depots, where divisional and brigade equipment is stored, will become the main reserve component of the Ground Forces. Upon general mobilization, further brigades and divisions could be deployed from these depots. It is noteworthy that Russia held an entire series of exercises specifically on deployment from these depots. It would seem that the new mobilization concept was worked out during these exercises.

From Regiments and Divisions to Brigades

The actual transformation of brigades is the second essential step of the reform. To date, Russia has kept the structure of the Soviet Army. The current table of organization of the Ground Forces was established during the postwar reorganization of 1945-1946, took its final form during the Zhukov reforms of 1956-57, and has essentially remained unchanged since then. The basic formations of the Ground Forces are four-regiment tank and motorized-rifle divisions (usually three tank and one motorized-rifle regiment in a tank division and one tank and three motorized-rifle regiments in a motorized-rifle division). Three to four divisions, as a rule, make up a combined services army under the command of a military district; that part of the army has now been lowered in status to an army corps. Separate motorized-rifle brigades made their first appearance in the Ground Forces during the 1990s, as a result of reductions made to divisions for economic reasons. At the same time, the North Caucasus has seen the

emergence of several new-type brigades (including the 33rd and 34th Mountain Motorized-Rifle Brigades). It seems that this latter experiment was seen as relatively successful.

A brigade is considered to be an intermediate tactical formation between a division and a regiment, though the existing brigades in the Russian Army are closer in strength to individual regiments. It seems that the impending organization of Russian brigades will be based on a strengthening of their combat support units, which are now situated at the divisional level. Such brigades should be more flexible, with greater combat power, and capable of independent action on the tactical level. The new formations will be exclusively motorized-rifle brigades.

In place of the existing divisions and combined-services armies (and army corps), the new brigades shall form part of operational commands. The composition of these new formations (apparently at the corps level) is not yet clear, but would logically include the combat and support units of existing divisions and armies and, most importantly, correspond to the currently popular Western notion of "joint" forces, that is, uniting all services within a given zone of responsibility under a single command, including aviation, air defense, missile units, etc.

Perhaps the most controversial part of the reorganization is the planned elimination of divisions. On the one hand, this increases the independence of the brigade, but on the other hand, it could create difficulties for the concentration of forces and equipment on the battlefield. On the whole, the elimination of divisions and the complete transition to a brigade system orients the army primarily toward combat in limited, local conflicts that do not require large-scale conventional combat against a strong enemy pursuing highly consequential operational-strategic goals. Apparently, the experience of the recent war with Georgia had an influence on the final approval of the given scheme for reorganizing the army. During combat operations in South Ossetia, five regimental combat tactical groups (that is, reinforced motorized-rifle regiments) from the 19th (North Ossetia) and 42nd (Chechnya) Motorized-Rifle Divisions were put into action by Russia. The command and control of this grouping was not executed by the division staff or even the staff of the 58th Army, but directly by the staff of the North Caucasus Military District through a specially created group. The new, three-link structure of military district – operational command – brigade seems like the formalization of this scheme.

The approximate composition of the future Russian army can be established on the basis of the planned deliveries of arms and military equipment as published in the National Armament Program for 2007-2015. Accordingly, the Russian Army should receive 22 battalions of new tanks and 23 battalions of modernized tanks, as well as new and modernized equipment for more than 170 motorized-rifle battalions. Considering the small amount of new military equipment received up to 2007, this suggests that approximately 230–240 tank and motorized-rifle battalions will be equipped with new and modernized equipment. With four battalions to a brigade, this allows for the manning of about 60 "heavy" line brigades at permanent readiness. Russia now has about 110 tank and motorized-rifle regiments and brigades. Thus, the inevitability of nominal reductions is clear, though far from all regiments and brigades are maintained at permanent readiness.

It was announced that every tank or motorized-rifle division will be transformed, as a rule, into two brigades. This process began in October of 2008 with the transformation of the 2nd Taman Guard Motorized-Rifle Division near Moscow.

Not Just the Ground Forces

Anatoly Serdyukov's reforms affect the other services as well. The number of units in the Air Force will be reduced from 340 to 180, and the Navy will be cut almost by half, from 240 to 123 units. The Strategic Missile Troops will retain just eight in place of twelve missile divisions (although this was already part of planned reductions to the strategic nuclear forces) and the Space Troops will be reduced from seven to six.

It was announced that the Air Force plans to eliminate the reduced, two-squadron aviation regiments (those with 24 combat aircraft per regiment). All aviation regiments will be disbanded. The new organization of the Air Force establishes the Air Base as the basic structural element, with three or four combat aviation squadrons dislocated to each (that is, the equivalent of a Soviet-era aviation regiment). This same Air Force structure exists currently in Belarus.

At the same time, Serdyukov announced that he does not see the need to create independent rapid-reaction forces. "The Armed Forces already have such units in the Airborne Troops. They will be strengthened, and each military district will have an Airborne brigade to carry out urgent missions and operations under unpredictable circumstances."

The four existing two-regiment air-assault divisions will be transformed into air-assault brigades, of which there will be at least seven or eight. Thus, the composition of the Russian air-mobile forces will be strengthened even more, underlying the general direction of military reform toward the creation of a professional army at permanent readiness.

No matter how contentious individual aspects of the announced reforms may appear to observers, this is undeniably the first time in post-Soviet Russia that a full and comprehensive plan for the radical reformation of the Armed Forces is being advanced, supported by clear political and administrative will, and allocated sufficient economic resources to bring it to life.

Table 1. Planned Changes to the Size of Russia's Armed Forces

	2008	2012
Number of Servicemen	1,130,000	1,000,000
Officers	355,000	150,000
Generals	1,107	886
Colonels	25,665	9,114
Majors	99,550	25,000
Captains	90,000	40,000
Lieutenants and Senior Lieutenants	50,000	60,000
Military Units and Formations		
Ground Forces	1,890	172
Air Force	340	180
Navy	240	123
Missile Troops	12	8
Space Troops	7	6
Central Command and Control Bodies (Persons)		
Central Apparatus of the Ministry of Defense	10,523	3,500
Command and Control Bodies of the Defense Ministry	11,290	5,000

Source: CAST research

Russian Deliveries of Arms, Military Equipment, and Dual Use Items to Iran Since 2000*

System	Quantity	Supplier	Price, M USD	Date of contract	Delivery Date(s)	Notes
Mi-171 Utility Helicopter	21	Ulan-Ude Aviation Plant	~ 100	April 2001	January 2001 – February 2002	
Mi-171Sh Combat Utility Helicopter	12	Ulan-Ude Aviation Plant	~ 60	End 2001	2002 – 2003	Plan was for delivery of 30
Sinah-1 (ZS-1) Small Satellite	1	Omsk NPO Polyot	8 (development) + 1.6 (launch)	2001	Launched in October 2005	
Su-25UBK Combat Trainer Attack Aircraft	3	Ulan-Ude Aviation Plant	~ 30	2003	2003	
155- mm Krasnopol M Artillery Guided Projectile	*	Tula Instrument Design Bureau	*	*	2003	Officially denied
Mi-17V-5 MEDEVAC Helicopter	3	Kazan Helicopter Plant	~ 15	*	March 2005	For the Iranian Red Crescent Society
Zohreh Communication Satellite	1	Zheleznogorsk Mechanics NPO	132	January 2005	Launched in October 2007	
Su-25UBT Combat Trainer Attack Aircraft	3	Ulan-Ude Aviation Plant	*	2005	2006	
Project 877EKM Kilo Class Submarine Mid-Life Repair and Upgrade	3	Severodvinsk Zvyozdochka Shipyard	*	2005	2005 - 2009	Can be fitted with Club-S (SS-N-27) missiles
Tor-M1 (SA-15) Low- to Medium-Altitude Self-Propelled SAM System	29	Izhevsk Kupol Electro-Mechanical Plant	~ 700	December 2005	2006 – 2007	
Su-24MK Frontal Bomber Mid-Life Repair and Upgrade	30	Sukhoi Corporation	~ 300	December 2005	2007 - 2008	
Kvadrat (SA-6) Low- to Medium-Altitude Self-Propelled SAM System Upgrade	*	Almaz-Antey Concern	*	*	2007 - 2009	Includes deliveries of 9M317E (SA-17) surface-to-air missiles

** limited to contracts identified in published sources, excludes exports of civilian aircraft*

Tactical Missiles Corporation Missile Exportation Since 1992

Missile designation	Western designation	Destination	Quantity	Years of delivery
Air-to-Air Missiles				
R-27	AA-10	Malaysia	150	2007 – 2008
R-27	AA-10	Venezuela	100	2006 – 2008
R-27	AA-10	Vietnam	unknown	2004
R-27	AA-10	Yemen	100	2002 – 2005
R-73E	AA-11	Algeria	up to 800	1999 – 2009
R-73E	AA-11	Bangladesh	96	1999 – 2000
R-73E	AA-11	China	3,300	1992 – 2004
R-73E	AA-11	Hungary	168	1993
R-73E	AA-11	India	4,080	1995 – 2007
R-73E	AA-11	Malaysia	366	1995 – 2007
R-73E	AA-11	Myanmar	60	2001 – 2002
R-73E	AA-11	Peru	small quantity	1998 – 1999
R-73E	AA-11	Sudan	small quantity	2003 – 2004
R-73E	AA-11	Uzbekistan	15	2007
R-73E	AA-11	Venezuela	150	2006 – 2008
R-73E	AA-11	Vietnam	up to 200	1995 – 2004
R-73E	AA-11	Yemen	176	2002 – 2005
RVV-AE	AA-12	Algeria	up to 400	2007 - 2009
RVV-AE	AA-12	China	1,500	2002 – 2010
RVV-AE	AA-12	Eritrea	small quantity	2006
RVV-AE	AA-12	India	1,600	1999 – 2010
RVV-AE	AA-12	Malaysia	150	2007 – 2008
RVV-AE	AA-12	Peru	12	1999
RVV-AE	AA-12	Venezuela	100	2008 – 2009
RVV-AE	AA-12	Vietnam	small quantity	2004
RVV-AE	AA-12	Yemen	100	2002 – 2006
Air-to-Surface Missiles				
Kh-25ML	AS-10	China	unknown	since 1996
Kh-29L	AS-14	Iran	unknown	1994
Kh-29TE	AS-14	China	2,000	1997 – 2004
Kh-29TE	AS-14	India	unknown	since 1997

Missile designation	Western designation	Destination	Quantity	Years of delivery
Kh-29TE	AS-14	Venezuela	unknown	2006 – 2008
Kh-29TE	AS-14	Vietnam	unknown	2004
Kh-31A	AS-17	China	up to 300	2002 – 2007
Kh-31A	AS-17	India	unknown	since 2000
Kh-31A	AS-17	Yemen	unknown	2005 – 2006
Kh-31P	AS-17	Algeria	unknown	2002 – 2008
Kh-31P	AS-17	China	270 (licensed assembly)	2001 – 2007
Kh-31P	AS-17	India	unknown	since 2000
Kh-31P	AS-17	Malaysia	12	2007
Kh-31P	AS-17	Venezuela	unknown	2007 – 2008
Kh-31P	AS-17	Vietnam	unknown	2004
Kh-31P	AS-17	Yemen	unknown	2005 – 2006
Kh-35	AS-20	India	20	2006 – 2007
Kh-59ME	AS-18	Algeria	unknown	2002 – 2008
Kh-59ME	AS-18	China	unknown	since 2003
Kh-59ME	AS-18	India	unknown	since 2000
Kh-59ME	AS-18	Venezuela	unknown	2007 – 2008
Kh-59MK	AS-18	China	unknown	2007 – 2009
Surface-to-Surface Antiship Missiles				
3M24E Uran-E	SS-N-25	Algeria	96	2000 – 2004
3M24E Uran-E	SS-N-25	India	461	1997 – 2007
3M24E Uran-E	SS-N-25	Vietnam	120	2004 – 2008
3M80E Moskit-E	SS-N-22	China	100	1999 – 2006

Source: CAST research.
Note: For more details about Tactical Missiles Corporation see Moscow Defense Brief #3, 2008.

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