



PUBLISHER



CAST Director & Editor
Ruslan Pukhov

Advisory Editor
Konstantin Makienko

Researcher
Alexei Pokolyavin

Researcher
Sergei Pokidov

Researcher
Ruslan Aliev

Editorial Office

Russia, Moscow, 119334, Leninsky prospect, 45, suite 480
phone: +7 095 135 1378
fax: +7 095 775 0418
<http://www.mdb.cast.ru/>

To subscribe contact
phone +7 095 135 1378
or e-mail: cast@cast.ru

E-mail the editors: editor@cast.ru

Moscow Defense Brief is published bimonthly by the Centre for Analysis of Strategies and Technologies

All rights reserved. No part of this publication may be reproduced in any form or by any means, electronic, mechanical or photocopying, recording or other wise, without reference to Moscow Defense Brief. Please note that, while the Publisher has taken all reasonable care in the compilation of this publication, the Publisher cannot accept responsibility for any errors or omissions in this publication or for any loss arising therefrom. Author's opinions do not necessarily reflect those of the Publisher or Editor.

Computer design & pre-press: ZEBRA
www.3ebra.com

Cover Photo: Dmitry Litovkin

The editorial team would like to thank **Simon Saradzhyan**, News Editor, *The Moscow Times*, for his insightful guidance and generous advice

© Centre for Analysis of Strategies and Technologies, 2004

Printed in Russia

CONTENTS

Editorial 2

Russian Armed Forces

THE FUTURE OF THE RUSSIAN STRATEGIC FLEET 3

STRATEGIC FLEET COMBAT CAPABILITY — A PRIORITY FOR THE RUSSIAN NAVY 8

RUSSIA'S NEW STRATEGIC WEAPONRY 10

Defense Industry

THE CONCEPT BEHIND THE FORMATION OF A UNIFIED RUSSIAN AIRCRAFT-MANUFACTURING CORPORATION 11

Arms Trade

RUSSIA'S MILITARY-TECHNICAL COOPERATION WITH OTHER COUNTRIES IN 2003 13

RUSSIAN-INDIAN MTC: AN ATTEMPT AT A QUALITATIVE ANALYSIS 17

HERBERT YEFREMOV: THE BRAHMOS JOINT VENTURE AND THE FUTURE OF RUSSIAN MILITARY-INDUSTRIAL COOPERATION 20

THE TRANSFER OF THE ADMIRAL GORSHKOV AIRCRAFT CARRIER TO INDIA 23

Facts & Figures

RUSSIAN ARMS TRANSFERS IDENTIFIED IN 2003 24

KEY RUSSIAN ARMS CONTRACTS AND DELIVERIES TO INDIA FROM 1999-2004 25

IDENTIFIED CONTRACTS FOR RUSSIAN ARMS DELIVERIES SIGNED IN 2003 26

Moscow Defense Brief aims to provide timely and accurate analysis of the leading trends in Russian defense policy and industry, tailored to the requirements of demanding professionals in the English-speaking world.

Our publication combines the unique perspective of leading Russian experts with the knowledge and expertise of Russia's most prominent and fiercely independent arms export and defense industry watchdog: the Centre for Analysis of Strategies and Technologies.

Over the past eight years, CAST has established a reputation for informed and objective analysis of the Russian defense industry through its flagship publication *Eksport vooruzheniy* (Arms Exports), regular commentary published in the Russian and international press, and consultation services to government and industry.

This unbroken track record of continual, independent work gives CAST a uniquely authoritative voice in the Russian defense world.

After a rather steep decline and fall in the early 1990's, Russia's defense and arms export industry has staged an impressive comeback with both domestic and foreign sales growing for the fourth consecutive year.

Moreover, the Russian military's own procurement budget, which was once trailing far behind the arms exports from this Russia is now soaring to levels comparable to those of foreign sales of Russian-made arms.

Still falling short of arms sales that hit a post-Soviet record of \$5.6 billion in 2003, this year's federal budget allocates a whopping total \$4.7 billion to arms procurement and R&D, for instance.

Yet, paradoxically, there has been to date no professional, independent and unbiased effort to discern the trends in this strategically important industry and in Russia's military and technical policy in general meets the needs of an English-language audience.

Nor have the Russian military and defense industry policy-making elite made any coherent effort to outline what their strategy and tactics are to both domestic and foreign experts and academic communities.

This first issue focuses on burning issues of Russia's military and technical policy, ranging from the possibility that Russia will be sidelined in India's arms market to analysis of what the Russian defense industry can do — and is doing — to develop the means to overcome the American National Missile Defense programme.

Future issues will focus on individual sectors of the defense and arms export industry while continuing to brief you on the most important trends and developments in Russian defense policy.



Ruslan Pukhov,
CAST Director & Editor of Moscow Defense Brief

THE FUTURE OF THE RUSSIAN STRATEGIC FLEET*

Mikhail Barabanov

Since the fall of the Soviet Union, the substantial reduction in the size and combat strength of the Russian Armed Forces has increasingly compelled the government and the general public to regard the strategic nuclear forces inherited from the U.S.S.R. as the cornerstone of Russia's national security. The current official line towards what are officially known as the Strategic Deterrence Forces is that "the Russian Federation's main objective regarding strategic deterrence is to prevent any form of pressure or aggression against Russia or its allies, and if such pressure or aggression is initiated, to guarantee to defend the sovereignty, territorial integrity and other vitally important national interests of Russia and its allies."¹ The objective of strategic deterrence in times of peace is "to prevent pressure or aggression against Russia and its allies," and in the event of war "to de-escalate aggression," or otherwise "to conclude hostilities on terms acceptable to Russia and to inflict controlled damage on the adversary."²

The Russian Strategic Deterrence Forces currently comprise the Strategic Rocket Forces (SRF) and the Strategic Air and Strategic Naval Nuclear Forces (SANF and SNNF). The deterrence capability of these forces should stem from their ability "to cause retaliatory damage on a scale that would put the achievement of the aggressor's objectives in doubt."³ In other words, current strategy consists of deterrence through retaliatory capacity and not an explicit first-strike capacity.

The Doctrines Behind the SNNF's Development

"The Fundamentals of the Russian Federation's Maritime Policy until 2010" approved by a presidential decree on March 4, 2000, declare that the Russian Navy's primary task is "to prevent the use of armed force or the threat of force against the Russian Federation and its allies from seas and oceans, in particular, to participate in strategic nuclear deterrence."⁴

The Navy's Commander in Chief, Vladimir Kuroyedov, has said that to achieve this, the Russian Navy should develop the following by 2016:

- A nuclear missile capability that permits the Navy to fulfill all peacetime tasks in all zones of application (oceans and seas);

- The capability to sufficiently fulfill minimal wartime tasks in littoral zones;
- A combination of naval strategic nuclear forces and general-purpose marine forces;
- A balance between arms of service, types of supplies and logistical systems.

Kuroyedov has said that these factors should be brought about through the development of the SNNF and general-purpose forces and by improving extended logistics. The SNNF will advance and develop mainly through an across-the-board adoption of fourth-generation ballistic missile submarines (known by the Russian acronym, SSBNs) armed with a new strategic missile system. With the Navy's resources and efforts behind it, the SNNF will be able to fully achieve its tasks. The completion of the mission is regarded as "guaranteed."⁵

Because the naval component of the Strategic Deterrence Forces has been maintained despite significant budget constraints, its preservation and development has in fact become the Navy's main priority, so a significant proportion of its general budget is, therefore, concentrated on it. Its development has been helped by START-II Treaty provisions that require all land-based ICBMs with MIRVs to be destroyed but permit such missiles on SSBNs. It has also been backed up with an energetic propaganda campaign from the Navy's top brass which underscores their lack of a clear argument for persuading the powers-that-be to develop general-purpose naval forces. This rhetoric appears to be an attempt to bargain for increased funds for the Navy by stressing the strategic fleet's key role in Russia's future military potential.

It has been obvious for several years that the SNNF gets more funds than other naval forces. Since 1999 four SSBNs (two Project 667BDRM Delta IV class, one Project 667BDR Delta III class and one Project 941 Typhoon class) have been overhauled, and two Project 667BDRM SSBNs are undergoing overhaul. During this period only two multi-purpose nuclear submarines were overhauled.⁶ The construction of the *Yuri Dolgoruky* Project 955 SSBN prototype (Borei class) and the new Bulava-30 SLBM (SS-NX-30) missiles for it are also clearly a priority, not only over other shipbuilding and naval arms programs but also probably over other Russian military upgrade programs. The downside of this is that the general-purpose naval forces have fewer resources, in particular

* This article was written solely on the basis of open information and represents the personal opinion of the author.

surface forces, which are left with mere tidbits from state coffers.

The development of the SNNF is on schedule with a plan covering its development until 2010. The first stage of this plan covers the SSNF's development until 2005 and envisions that efforts should be concentrated on maintaining the combat readiness of existing SSBNs, primarily the Project 667BDRM SSBNs. The second stage calls for the construction of new Project 955 SSBNs.⁷

The Configuration of the SNNF

It is worth noting that the SNNF has from its very foundation been burdened with substantial contradictions. Firstly, it was established in a clear attempt to copy and catch up with the United States. Given the de facto naval dominance enjoyed by the United States and NATO, the Soviet initiative completely ignored the fundamentally different conditions that the Soviet SNNF was operating under and thus undermined its biggest advantages — stealth and substantial combat stability. Secondly, though the U.S.S.R. built 50 percent more SSBNs than the United States, it proved incapable of keeping many of them operational, further undermining the SNNF's general combat stability and reducing its cost effectiveness in comparison to the ground-based ICBMs of the Strategic Rocket Forces. Although it had 50 percent more SLBMs than the United States, the Soviet Navy had 70 percent fewer SSBNs on active duty than the Americans.⁸

These disadvantages worsened during the crisis that broke out in the armed forces after 1991. Since the late 1990s, the Russian Navy has barely been able to keep more than two SSBNs on combat duty at a time (with anywhere from 96 to 258 warheads aboard)⁹. This level is comparable to that of Britain and France, each of which has only four such submarines. So the actual contribution of the Russian Navy to nuclear deterrence is very small compared to the Strategic Rocket Forces, despite the SNNF's relatively generous budget. Moreover, according to U.S. reports, in 2002 Russia had no SSBN on active duty for the first time.¹⁰ Northern Fleet exercises in February 2004 also demonstrated serious flaws in the combat readiness of the missiles that Russian nuclear submarines are carrying.¹¹

Between 1961 and 1992 the U.S.S.R. built a total of 91 SSBNs. The 1979 Soviet-American SALT-II Treaty limited the Soviet Navy's total number of SSBNs to 62, not including the old Project 658 and Project 701 subs. After START-I was signed in 1991, the Soviet Navy's high command planned to implement its responsibilities under the treaty by cutting its number of SSBNs to 24: six Project 941, seven Project 667BDRM and 11 Project 667BDR.¹² However, the political and economic upheavals of the 1990s coupled with a new

understanding with Americans radically altered these plans. SSBNs were decommissioned not only in accordance with international commitments, but also because heavy cuts in funding, maintenance and repairs had left them in poor condition. All submarines of Projects 658 (Hotel class), 701 (Hotel III class), 667A/AY (Yankee class), 667B (Delta I class) and 667BD (Delta II class) have now been decommissioned.¹³ The Russian Navy still has 22 SSBNs: 14 with the Northern Fleet and eight with the Pacific Fleet, though no more than 12 of these are seaworthy and capable of combat.¹⁴

Project 667BDR (Kalmar or Delta III class) submarines remained the most common SSBNs throughout the 1990s and were continually sent on patrol. They were built between 1976 and 1981, so they had already undergone medium-scale overhauls in the late 1980s and early 1990s before funding was cut.¹⁵ Russia currently still formally retains 11 of these submarines. However, their overdue overhaul, coupled with the expiry of the service life of R-29R SLBMs (the SS-N-18 Stingray) and their modifications, is likely to mean many of them will be decommissioned in the near future. At present it appears that only the Northern Fleet's *Ryazan* and *Borisoglebsk* and the Pacific Fleet's *Petropavlovsk-Kamchatsky*, *Podolsk*, *Svyatoi Georgy Pobedonosets* and *Zelenograd* remain fully combat ready.¹⁶ This estimate is substantiated by the fact that Russia announced during information exchanges with the United States in 2002 that it has only seven operational Kalmar class SSBNs.¹⁷ Over the next decade, it is likely that only the *Svyatoi Georgy Pobedonosets* will remain on combat duty as it only returned from the Zvezda shipyard in 2003 after more than 10 years of repairs.¹⁸ Since 1994 one submarine has been at the Zvezdochka Engineering Plant in Severodvinsk, where it is being converted into a Project 09786 special purpose support sub.¹⁹

The Navy's high command is now clearly concentrating most of its efforts on keeping the latest Project 667BDRM SSBNs (Delfin or Delta IV class) built in the 1980s combat ready. Thanks to dedicated financing, the first two *Verkhoturys* type subs (returned to the Navy in December 1999²⁰) and the *Yekaterinburg* (at the beginning of 2003²¹) were given a medium-scale overhaul at Zvezdochka. The *Tula* and *Bryansk* SSBNs are undergoing repairs and upgrades and are slated to be transferred in 2004 and 2005 respectively, even though financial constraints are hindering the work.²² An additional submarine of the same project has been undergoing conversion into a special-purpose vessel since 1994, though in fact this work has been frozen.²³ Thus, no more than four SSBNs of the project are currently on duty with the Northern Fleet (the *Karelia*, the *Novomoskovsk*, the *Verkhoturys* and the *Yekaterinburg*). The Project 667BDRM SSBNs are expected to be equipped with a new modification of the SLBM R-29RM Sineva missile (SS-N-20 Sturgeon) to preserve their combat potential. The

Krasnoyarsk Machine-Building Plant was to resume production of these more modern missiles in 2000. The Sineva carries 10MIRVs and a guidance system developed for the Bark SLBM (SS-NX-28).²⁴ However, this program also has funding problems. Because the Sineva's R&D program was undermined, the Navy has not received a single Sineva, even though it was supposed to take delivery of the missile in 2002, according to the state's strategy for arms development until 2010.²⁵ Project 667BDRM submarines can be expected to constitute the core of the SNNF from 2015 through 2020; the Navy's leadership has voiced its intention to keep these SSBNs operational until at least 2016.²⁶

The biggest and most powerful of the Russian Navy's SSBNs are the Project 941 (Akula or Typhoon class) heavy nuclear-powered strategic cruisers commissioned from 1981 to 1989. They are also the world's biggest submarines (with a submerged displacement of 48,000 tons).²⁷ However, their record is tainted by their high operating and repair costs and problems with their main launch system, the D-19. Their R-49 (SS-N-20 Sturgeon) solid-fuel missiles also have a short shelf life, and their production was too dependent on Yuzhmash Plant in Ukraine, which manufactured their first stages. The Makeyev Design Bureau developed the Bark missile system as a replacement. However, in 1998, after three unsuccessful launches, further work on the Bark was stopped for some vague reasons, most likely political.²⁸ As a result, the Project 941 *Dmitri Donskoy* submarine — which had been undergoing an overhaul and upgrade at Sevmash in Severodvinsk since 1991 in keeping with Project 941U, under which the Bark system is installed — was reactivated at the end of 2002 after post-repair trials without its main weapon. The *Dmitri Donskoy* is expected to be used in sea trials for the Bulava-30²⁹ missile system currently being developed by the Moscow Institute of Thermal Technology. Later on, it will probably be fully fitted with this new system.³⁰ The Navy, however, expects the *Dmitri Donskoy* to be officially reintroduced only in 2005.³¹

The absence of a replacement for the launch system since the expiry of service life of the last R-39 missiles in 2003³² has cast great doubt on the future of the other five Project 941 submarines. Only the project's final two SSBNs, the *Arkhangelsk* and the *Severstal*, remain operational with the Northern Fleet. The Navy has announced that their service lives may be extended to 2005-2007, even though they were due for a medium-scale overhaul a long time ago.³³ The second Project TK-202 submarine, deactivated in 1999, was transferred to Sevmash for dismantling. The TK-12 and TK-13 were placed in reserve some time ago and will evidently follow in the footsteps of the TK-202.³⁴ Note that, back in 1998, the Cooperative Threat Reduction program called for the disposal of exactly five Typhoon class SSBNs.³⁵

The construction of new, fourth-generation Project 955 (Borei) SSBNs developed by the Rubin Central Design Bureau

for Marine Engineering is regarded as a key program in the SNNF's development. The project boasts several fundamentally new Russian SSBN design solutions, namely a single-shaft power plant and an Amfora spherical antenna with a state-of-the-art Irtysh sonar located on the bow. A grand ceremony was held at Sevmash on Nov. 2, 1996, for the keel-laying of the project's lead unit, the *Yuri Dolgoruky*.³⁶ However, the submarine's construction is still incomplete: work on the hull was supposed to be completed by the end of 2003.³⁷ The chances of completing even the prototype submarine in the foreseeable future have been hit by several technical problems and, until recently, a lack of steady funding. The commissioning of the submarine has been postponed many times, with 2007 as the latest date announced³⁸, and the uncertainty around the submarine's main weaponry has further aggravated the situation. Initially, Project 955 submarines were to carry Bark SLBMs,³⁹ but as was mentioned above, work on the Bark system has been halted, and the Moscow Institute of Thermal Technology started developing the new Bulava-30 solid-fuel missile for the new SSBN instead.⁴⁰ This prompted a significant redesign of the submarine while it was being built. Moreover, although the institute initially claimed that the Bulava-30 would be compatible with the Topol-M ICBM, during the development process it discovered that the two had little in common. This, combined with financial problems and the institute's lack of experience in the design of sea-launched missiles, badly hindered work on the new SLBM. The first of the system's flight trials was postponed from 2003 to 2005, and grave doubts remain over whether even that date is realistic, despite the fact that by 2002 some 6.5 billion rubles had been spent on developing the Bulava-30.⁴¹ The first mockup test launch of the Bulava was made from the *Dmitri Donskoy* on Dec. 10, 2003, in the White Sea.⁴²

Nevertheless, in 2002, work on the *Yuri Dolgoruky* was stepped up, and Sevmash even prepared blocks for the hulls of two more project submarines.⁴³ It also announced plans to launch the serial production of Project 955 SSBNs after 2005.⁴⁴ In August 2003 Deputy Defense Minister Alexei Moskovsky announced that in accordance with the state's arms development strategy until 2010, the second Project 955 SSBN would be commissioned in 2009 and the third in 2010, thus bringing the total number of submarines armed with the Bulava to four: three Project 955s and the upgraded *Dmitri Donskoy*.⁴⁵ However, given the numerous problems mentioned above, this timetable seems overly optimistic.

Conclusions

On the whole, the author believes that the idea of building Project 955 SSBNs in the present economic climate is clearly a mistake. The Russian Navy will probably not get a new

submarine with a new missile system in the foreseeable future (before 2010), let alone a series of such vessels. Meanwhile, the funds allocated for these vessels could have been much more effectively spent on maintaining, overhauling and upgrading Project 941 and 667BDRM SSBNs with the Bark and Sineva missile systems, and finally improving the SNNF's existing combat capability and increasing patrols, while the question of building new generation SSBNs could have been raised again after 2010. It should be noted that the United States is not planning to replace its Ohio class SSBNs before 2026. Most of those submarines were commissioned at

approximately the same time as Russian Project 941 and 667BDRM submarines.⁴⁶ In the best-case scenario, the Russian Navy in 2015 is likely to have no more than five or six Project 667BDRM SSBNs, one Project 941U and one or two of the new Project 955s on active duty. However, steps taken over the past few years by the Russian government to moderately increase funding for the Armed Forces, and for the Navy in particular, are expected to boost the future combat readiness of the SNNF, which will play an ever greater role in the steadily shrinking nuclear potential of the Russian Strategic Deterrence Force.

- 1 "Voyennaya reforma: Sokhraneniye potentsiala Strategicheskikh sil sderzhivaniya," the Russian Defense Ministry web site, <http://www.mil.ru/articles/article3926.shtml>.
- 2 Ibid.
- 3 Ibid.
- 4 *Nezavisimoye Voyennoye Obozreniye*, 31.03.2000.
- 5 Interview with V.I. Kuroyedov on 21.12.2001 posted on www.strana.ru.
- 6 Author's statistics based on publications in the open press.
- 7 Statement by Rear Admiral G. Perminov to Interfax news agency on 29.10.2002.
- 8 O. Shkiryatov, O. Zolotov. "Sistemnyi podkhod k obespecheniyu otsenke boyegotovnosti sil," *Morskoi Sbornik*, #2, 2002. P.30
- 9 96 warheads if two SSBN of project 667BDR are on duty, 248 if one SSBN of project 941 and one of project 667BDR are on duty.
- 10 D. Ruppe. "Russia: Strategic Submarines Made No Patrols Last Year, U.S. Navy Says". Posted on <http://www.nti.org> on 01.07.2003.
- 11 D. Litovkin. "Ballisticheskiye rakety Putina ne porazili," *Izvestia*, 17.02.2004.
- 12 «Yadernyye vooruzheniya i respublikansky suverenitet.» Editor A.G. Arbatov. Moscow, 1992. P.45-47.
- 13 Yu. V. Apalkov. "Korabli VMF SSSR." *Spravochnik*. V.1. "Podvodnyye lodki". P.1. "Raketnyye podvodnyye kreisera strategicheskogo naznacheniya". "Mnogotsel'nyye podvodnyye lodki". St. Petersburg, 2002. P. 24.
- 14 Russia and the CIS. - Jane's Sentinel Security Assessment, 2004. Also www.globalsecurity.org/wmd/library/news/usa/2003/usa-030401-dos-18973pf.htm and <http://www.nti.org/db/nisprofs/russia/weapons/ssbns/starttab/htm#warheads>. Only 7 SSBN of Project 667BDR were counted, but 2 decommissioned subs of Project 667B were included.
- 15 Yu. V. Apalkov. "Korabli VMF SSSR." *Spravochnik*. V.1. "Podvodnyye lodki". P.1. "Raketnyye podvodnyye kreisera strategicheskogo naznacheniya". "Mnogotsel'nyye podvodnyye lodki". St. Petersburg, 2002. P. 28-31; S.S. Berezhnoy. "Atomnyye podvodnyye lodki VMF SSSR i Rossii," *Naval-Kolleksiya Journal*, #7, 2001 special issue, p. 71-75.
- 16 www.submarine.id.ru.
- 17 www.globalsecurity.org/wmd/library/news/usa/2003/usa-030401-dos-18973pf.htm.
- 18 Svyatoi Georgy Pobedonosets, www.petropavlovsk.ru/html/modules/news/article.php?storyid=156.
- 19 Yu. V. Apalkov. "Korabli VMF SSSR." *Spravochnik*. V.1. "Podvodnyye lodki". P.1. "Raketnyye podvodnyye kreisera strategicheskogo naznacheniya". "Mnogotsel'nyye podvodnyye lodki". St. Petersburg, 2002. P. 31.
- 20 Yu. V. Apalkov. "Korabli VMF SSSR." *Spravochnik*. V.1. "Podvodnyye lodki". P.1. "Raketnyye podvodnyye kreisera strategicheskogo naznacheniya". "Mnogotsel'nyye podvodnyye lodki". St. Petersburg, 2002. P. 31.
- 21 Report on shipbuilding.ru web site dated 16.01.2003.
- 22 L. Shurindina. "Tula," "Bryansk", "Kaluga"... Kto sleduyushchy?," *Severny Rabochy*, 01.10.2003.
- 23 Yu. V. Apalkov. "Korabli VMF SSSR." *Spravochnik*. V.1. "Podvodnyye lodki". P.1. "Raketnyye podvodnyye kreisera strategicheskogo naznacheniya". "Mnogotsel'nyye podvodnyye lodki". St. Petersburg, 2002. P. 33.
- 24 D.Litovkin. "Sineva" podnimetsya nad morem," *Nezavisimoye Voyennoye Obozreniye*, 12.05.2000.
- 25 D. Litovkin. "Ballisticheskiye rakety Putina ne porazili," *Izvestia*, 17.02.2004.
- 26 Statement of Rear Admiral G. Perminov for Interfax news agency on 29.10.2002.
- 27 V.P. Kuzin, V.I. Nikolsky. *Voyenno-Morskoi Flot SSSR 1945-1991*. St. Petersburg. *Istoricheskoye Morskoye Obschestvo*, 1996. Pp.55-58.
- 28 D.Litovkin. "Sineva" podnimetsya nad morem," *Nezavisimoye Voyennoye Obozreniye*, 12.05.2000.
- 29 *Korabelnaya storona*, 28.01.2003.
- 30 N. Novichkov. "Russian Navy set to revive submarines project," *Jane's Defense Weekly*, August 13, 2003.
- 31 A. Bogatryov, A. Garavsky. "Dmitri Donskoy" yeshchyo posluzhit Otechestvu," *Krasnaya Zvezda*, 27.06.2002.
- 32 D.Litovkin. "Sineva" podnimetsya nad morem," *Nezavisimoye Voyennoye Obozreniye*, 12.05.2000.
- 33 Information posted on www.bellona.no on 11.06.2000.

-
- 34 Information posted on www.submarine.id.ru.
 - 35 Information posted on www.bellona.no on 11.08.1999.
 - 36 S.S. Berezhnoy. Atomnyie podvodnye lodki VMF SSSR I Rossii, Naval-Kollektsiya journal, # 7, 2001 special issue, p.80.
 - 37 Interfax-AVN report dated 05.02.2003.
 - 38 Information posted on www.shipbuilding.ru on 03.03.2003.
 - 39 D. Litovkin. "Taifuny" derzhat kurs na utilizatsiyu, " *Yadernaya Bezopasnost*, December 1999.
 - 40 D.Litovkin. "Sineva» podnimetsya nad morem", *Nezavisimoye Voyennoye Obozreniye*, 12.05.2000.
 - 41 Information posted on www.grani.ru on 24.07.2002.
 - 42 V. Kalinin. "I poletyat tut telegrammy," posted on www.grani.ru on 26.12.2003.
 - 43 Information posted on www.shipbuilding.ru on 20.02.2003.
 - 44 Statement by Rear Admiral G. Perminov to Interfax news agency on 29.10.2002.
 - 45 N. Novichkov. "Russian Navy set to revive submarines project," *Jane's Defense Weekly*, August 13, 2003.
 - 46 "SSBN-726 Ohio-Class" posted on www.globalsecurity.org/wmd/systems/ssbn-726.htm.

STRATEGIC FLEET COMBAT CAPABILITY — A PRIORITY FOR THE RUSSIAN NAVY

An Interview with Rear Admiral
Mikhail Barskov (Ret.)*

Q. The Russian Navy's budget for R&D and armaments has been published in the open press for the first time: for 2004, this figure will be almost 17 billion rubles. Will this be sufficient to maintain combat capability and ensure the Navy can deal with both current and future threats?

A. Over the past few years the navies of the United States and other leading world powers have stepped up their maritime activities significantly, often out of proportion with actual national security threats. Under the pretext of combating international terrorism and protecting human rights, military operations are being conducted in which naval ships and vessels play a decisive role by delivering troops, providing firepower support and furnishing vital supplies to forces stationed on foreign territory.

The role of the Navy as a guarantor of the interests of Russia and its maritime allies has grown substantially due to these circumstances. A budget increase for the development and maintenance of naval armaments and military hardware, in 2004 in particular, has resolved several of the Navy's equipment problems. The construction of new ships continues; new, advanced arms and military hardware are being developed; and work on the overhaul and reconstruction of existing ships, armaments and other equipment has been stepped up. However, the rate of fleet amortization is not being met. On the whole, state funding for the development and maintenance of naval armaments and military hardware is insufficient to guarantee that the Russian Navy can fulfill the tasks set before it. In comparison, the United States annually assigns over \$37 billion for R&D and arms procurements for its navy.

Q. Which shipbuilding programs currently have the highest priority for the Russian Navy? Which component — strategic nuclear forces (MSYaS) or general-purpose forces — gets more of the Navy's attention today? Are you satisfied with the volume of funding and the speed of construction for submarines right now?

A. The most pressing tasks for the Russian Navy today are, of course, maintaining the combat capability of the existing MSYaS grouping and the commissioning of the next generation Yuri Dolgoruky SSBN. The Navy is also paying serious attention to the development of general purpose naval forces: Sevmash is completing construction of the Severodvinsk-type nuclear submarine, and Admiralty

Shipyard is completing the Sankt-Peterburg conventional submarine.

In recent years the amount of funding allocated for the construction of ships under government defense contracts has grown significantly compared to the 1990s, but it is still insufficient to guarantee the completion and commissioning of the submarines on schedule. At this point in time the main hull work has been completed on the Severodvinsk and the Yuri Dolgoruky, and the vessels are being fitted with armaments, other equipment and components.

Q. Will the Project 1154 frigates (the Yaroslav Mudry and the Novik) be completed at the Yantar plant?

A. The Yantar shipyard is currently building two ships for the Russian Navy. A training ship for the Russian Navy is being constructed on the basis of R&D carried out for the Novik, a Project 12441 ship, the construction of which has been suspended pending a Russian government order. The training ship is scheduled to be commissioned by the Navy in 2008. In 2002 work resumed on the Project 11540 ship, which is due to be delivered to the Navy in 2005.

Q. When will the tender be announced for the construction of a next-generation lead frigate? Will the design of the ship rely on Project 11356?

A. The Navy and the shipbuilding industry are currently conducting a set of operations to develop advanced surface ships. The Severnoye Design Bureau plans to complete the general technical project for a next-generation frigate in 2005. This is an original project; the Project 11356 ship will not serve as a prototype. The tender for the construction of the lead frigate for the Russian Navy is scheduled for 2005.

Q. What will happen to the Admiral Ushakov and the Admiral Nakhimov heavy missile cruisers?

A. The Admiral Ushakov was written off in 2001, and the Admiral Nakhimov is undergoing repairs at Sevmash. Its overhaul is due to be completed in 2007.

Q. What impact will the project to upgrade the Admiral Gorshkov heavy aircraft carrier for the Indian Navy have on the construction of the Yuri Dolgoruky?

A. Construction work on the SSBN Yuri Dolgoruky is being financed from the federal budget, while the work on the Admiral Gorshkov will be conducted at the customer's expense, so the two projects will not directly affect each other.

* Until 2004 chief of ship-building, armaments and arms maintenance and the Russian Navy's Deputy Commander-in-Chief for armaments; currently deputy general director of the New Programs and Concepts industrial holding.

Indirectly, of course, the implementation of a contract with a foreign customer stabilizes the financial position of a company, thus helping it meet work deadlines for the Russian Navy.

Q. What is the position of the Russian Navy as regards the consolidation of the Russian shipbuilding industry? Does the Navy have its own ideas on the ideal structure for the industry? Which facility would the Navy prefer to see as the center of consolidation? Is there any sense in placing orders at the Yantar plant, given the fact that it is located in the Kaliningrad enclave? What does the future hold for Sevmash and the shipbuilding facilities in the Far East?

A. The Russian State Center for Nuclear Shipbuilding was established in 1992 on the basis of the Sevmash Production Association by a Russian presidential decree. The center was

meant to take advantage of the unique research and production potential of the Severodvinsk shipbuilding center, and it has design bureaus, research institutes and industrial facilities that supply key components for nuclear-powered vessels.

For the foreseeable future, Sevmash will remain Russia's main facility for the construction and maintenance of nuclear submarines and surface warships.

In general, the Navy currently places maintenance orders at shipbuilding facilities in the Far East, though in the future the same enterprises may be contracted to construct promising new ships for the Navy.

The government's armaments program through 2016 stipulates that a considerable volume of the Navy's orders be placed with facilities in the Far East.

RUSSIA'S NEW STRATEGIC WEAPONRY

Ivan Safranchuk

During a visit to the Plesetsk Space Center on Feb. 18, 2004, Russian President Vladimir Putin announced that the Russian Strategic Missile Forces will in the near future obtain "state-of-the-art technical systems capable of intercepting targets at intercontinental distances with a high level of precision, while flying at a hypersonic speed and being able to maneuver widely in terms of both altitude and course." Putin's statement was to the point, but its brevity raised many questions. This was not the first time that the president had talked about new weapons; he referred to some new strategic weapons in his annual address to the Federal Assembly in May 2003.

Colonel General Yuri Baluyesky, the Deputy Chief of Staff of the Russian Armed Forces, clarified the president's remarks to some extent when summing up the results of strategic command post exercises that were conducted in February 2004. He said that the vehicle in question is capable of flying at hypersonic speeds along a ballistic trajectory, but can also change trajectory in the atmosphere. The vehicle demonstrated these capabilities during the exercises by repeatedly leaving and re-entering the atmosphere.

The reason for constructing such a vehicle is clear. Ballistic missiles armed with warheads with these technical capabilities would be capable of penetrating any missile shield. Baluyesky claimed that this weapon "will make any missile defense system defenseless against Russian strategic offensive forces."

It is encouraging that Russian designers have had the opportunity to demonstrate their technical competence and the ability to work under difficult financial conditions. However, the design, testing and procurement of new arms is not only a technical matter; it also involves politics, and this naturally triggers certain questions.

The testing of the hypersonic vehicle has been confirmed as a response to the U.S. NMD program. But while the United States has been developing strategic missile defense programs, Russian military officials have made a number of statements to the effect that Russia could penetrate an U.S. missile defense system in the event of it being created and that the United States is 15 to 20 years away from being able to build a shield of sufficient coverage. These comments suggest that Russia currently has enough multiple, independently targetable warheads to penetrate a future U.S. missile umbrella, and that new technological solutions in response to the United States' missile defense program will become necessary only in the very distant future, if ever.

This fact clearly contradicts President Putin's statement that the Russian Strategic Rocket Forces will be rearmed with "state-of-the-art technical systems" in the near future.

The hypersonic vehicle was created as a result of two factors. Firstly, Russia inherited a rich arsenal of engineering, exploratory research and projects from the Soviet Union. The vehicle originated as part of the Soviet Union's so-called "asymmetric response" to the United States' Strategic Defense Initiative. Secondly, then-Defense Minister Igor Sergeyev allocated substantial funds for the development of the Strategic Rocket Forces in the late 1990s.

It is worth recalling that Marshal Sergeyev mentioned "gliding warheads" back in 1997-1998, and it was when he was defense minister that the lion's share of military research and development efforts were concentrated on the strategic missile forces. Sergeyev

was regularly criticized for ignoring conventional weapons: the argument is well known, and we need not elaborate on it. But Sergeyev's effective dismissal

signified that a certain choice had been made in regard to that issue. Russian military officials, the arms industry and experts commonly understood that the proportion of expenditure on R&D and the procurement of new weapons had to be rebalanced in favor of conventional weapons. Consequently the procurement of conventional weapons increased, the production of Topol-M silo ballistic missiles was reduced, and the construction of Topol-M road mobile systems was decelerated.

After 2001, this common understanding in regard to the proportion of expenditure on nuclear and conventional weapons was translated into concrete decisions. It is true that Russia's overall military budget is growing, and the share of expenditure on R&D and the provision of troops with new weapons and military hardware is growing as a consequence. But this general growth and the growing share of expenditure on new weapons will not resolve the problem of having to make a choice between these priorities in the foreseeable future, as there is still not enough money to develop both conventional and strategic weapons systems concurrently.

Following from this, the main questions still unanswered are whether the successful testing of the hypersonic vehicle and the president's statement that the Strategic Rocket Forces will be armed with such weapons is an indicator of a change in these priorities, and whether the trend towards redistributing expenditure in favor of conventional weapons will be reconsidered. This choice is a strategic and political issue, and it should emerge as a subject of debate among experts in the near future.

However, the design, testing and procurement of new arms is not only a technical matter; it also involves politics, and this naturally triggers certain questions.

THE CONCEPT BEHIND THE FORMATION OF A UNIFIED RUSSIAN AIRCRAFT-MANUFACTURING CORPORATION

Konstantin Makienko

At the turn of the year Russian newspapers were carrying reports that aides to Deputy Prime Minister Boris Alyoshin, together with leading Russian aircraft-manufacturers, were drafting plans to establish a unified aircraft-manufacturing corporation (UAC) with the aim of bringing together all enterprises, both public and private, engaged solely in the design and manufacture of aircraft platforms. It was reported that the corporation would be divided into four business units according to type of production (combat aircraft, military transport and special aviation, civil aircraft, and units and components), each most likely operating as a subsidiary of the UAC. The integration of engine and avionics manufacturers in the proposed UAC is not being considered at the present stage.

What distinguished this revolutionary restructuring plan was the declared intention of leaving the state with just a 25 percent blocking stake in the holding. The authors of the UAC plan envisage that substantial government orders would ensure its competitiveness, though the corporation would concentrate its main efforts on international markets. At the same time, competition in the domestic units and components sector, primarily among engine, radar and avionics manufacturers, would be preserved. The UAC plan was clearly greatly influenced by the structure of the European Aeronautic Defense and Space Company (EADS), with the only difference being that EADS from the very start was set up as an international venture, whereas the UAC would remain a purely Russian, state-owned enterprise in the first stages of its development.

The ideological legacy of Ilya Klebanov, the former first deputy prime minister in charge of the defense industry, has been revised somewhat. Klebanov's own restructuring plan for the aircraft-manufacturing industry envisions the formation of aircraft and helicopter holdings in which the state would hold controlling shares, at least at first. Although the UAC and Klebanov approaches differ, the net result of both may ultimately be fairly similar: under the UAC plan it could prove impossible to privatize three-quarters of the holding very

quickly; and under Klebanov's plan, the state would theoretically privatize the apart from Klebanov's.

The helicopter manufacturing sector has conspicuously been left outside the UAC. Ostensibly, this is a sensible and well thought out decision given the current complex ownership structure of helicopter design and manufacturing facilities: the state is a minority shareholder in these firms, and therefore lacks the blocking stake that would be vital in securing its interests. Meanwhile, the exclusion of the helicopter manufacturing sector from the UAC plan indirectly confirms unofficial reports that active preparations are being made to form a separate helicopter manufacturing holding based on the Mil Moscow Helicopter Plant and other production facilities. This process was partly initiated by the manufacturers themselves but mainly by Oboronprom, a company controlled by Rosoboronexport, the government-owned arms trader. Notably, in contrast to the UAC, the

state will clearly have a controlling stake in the helicopter manufacturing holding via its ownership of Rosoboronexport, although the final outcome is unpredictable as the

government holds only negligible stakes in Kazan Helicopters, the Ulan-Ude Aviation Plant and the Mil Plant, and had no shareholding in Rostvertol until March 2004, when the company transferred 3.6 percent to the state via a share issue.

Newspaper reports do not answer the main question: how will the UAC be formed? Klebanov's plan envisions the nationalization of private industrial facilities and companies through a reallocation of intellectual property. Such a step can be viewed as retrograde or even ineffective, but at least there is evidently an understanding of the way in which the aircraft and helicopter manufacturing holdings should be formed, though in the case of the UAC this question still remains unanswered.

Though the idea of one large-scale Russian aircraft manufacturing holding predominates in discussions among both Russian experts and politicians, the idea of forming two

Though the idea of one large-scale Russian aircraft manufacturing holding predominates in discussions among both Russian experts and politicians, the idea of forming two aircraft manufacturing centers holds many compelling advantages.

aircraft manufacturing centers holds many compelling advantages. One of these holdings could be a major private company with international trade connections — a UAC based on Irkut Corporation, RAC MiG, the Nizhny Novgorod Aviation Plant Sokol and the Voronezh Aircraft-Making Joint Stock Company would already have links with EADS and the Indian aircraft-making industry and could quite feasibly become one of the centers. Its largely privatized structure would readily lend itself to eventual integration within the international aircraft manufacturing sector, with EADS being the most likely partner. This large, private enterprise could be balanced by a smaller, completely state-controlled company, perhaps comparable to Dassault of France, and could be supported by domestic government orders. Government orders would give it a sufficient competitive advantage to become a leader in one or two niche sectors in the global arms market. Such a company could be formed around Sukhoi AMPC and focus on two types of products — heavy fighters and regional aircraft. This company would differ from Dassault in that it would probably have to be state-owned.

The process of forming a unified holding has lost momentum and may have reached a dead end since Boris Alyoshin lost his post as deputy prime minister and was appointed head of the Federal Industry Agency. This new agency is not

authorized to develop new ideas or policy — its task is merely to implement the policy of the Industry Ministry. In addition, the opposition of at least one key entity of the proposed UAC — RAC MiG — has become evident. This opposition existed when Nikolai Nikitin headed the corporation, and continues even under the new general director, Valery Toryanin. On March 12, 2004, RAC MiG signed a memorandum of understanding with the Kaskol group of companies on a merger between MiG and the Kaskol-controlled Sokol Aviation Plant. This memorandum seems to indicate that RAC MiG is actively seeking an industrial site for the production of its MiG-29 deck fighters for India, and also that Kaskol, which used to be an outspoken advocate of the UAC plan, has either turned neutral or even become an outright opponent of the process.

The loss of momentum behind the UAC concept and the sharp weakening of Alyoshin's positions have created an ideological and institutional vacuum in which second-tier players such as Oboronprom (in helicopter-making) or Mezhprombank (in ship-building) can be expected to radically step up their activities. As of March 2004, the strategic direction of developments within the Russian defense industry remain uncertain. The opportunity to restructure and unify Russia's aircraft manufacturing industry may ultimately be lost if no one moves to push the concept forward.

RUSSIA'S MILITARY-TECHNICAL COOPERATION WITH OTHER COUNTRIES IN 2003

Maxim Pyadushkin

In 2003 Russia set another post-Soviet record for arms exports.

The official figures on military-technical cooperation (MTC) with foreign countries last year were announced on March 1, when President Vladimir Putin announced that the volume of Russian arms exports in 2003 amounted to \$5.568 billion.¹ While he did not specify whether he meant arms deliveries or foreign currency revenues from arms exports, there are reasons to believe he was referring to the latter.

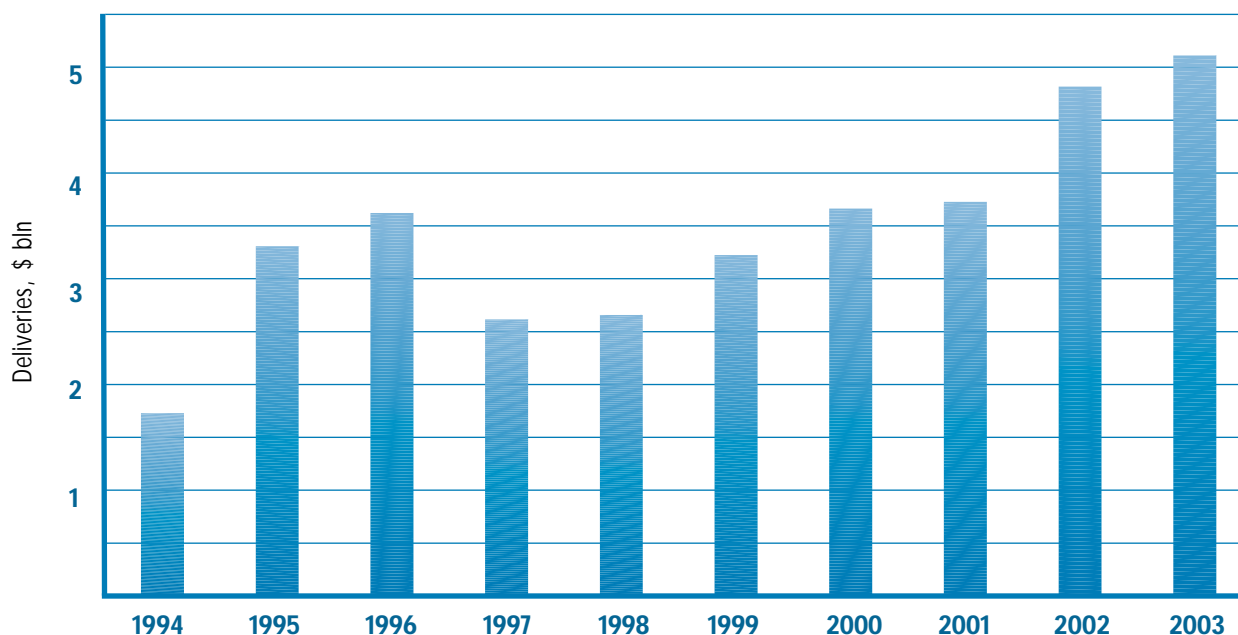
Foreign currency revenues at Rosoboronexport, the state-owned arms trader, jumped from \$4.2 billion in 2002 to \$5.1 billion in 2003 alone.² According to our estimates, exports by the Tula-based Instrument Building Design Bureau (Russian acronym KBP) totaled about \$250 million with sales of military purpose hardware accounting for almost all of this sum. The combined revenues of the three other Russian arms exporters — RAC MiG, the Kolomna-based Machine-Building Design Bureau (Russian acronym KBM) and the Reutov-based NPOMash —

stood at \$218 million. Russia's foreign currency revenues in 2003 surpassed the 2002 figure of \$4.5 billion by over \$1 billion.

As regards 2003 Russian arms exports, Alexander Denisov, the first deputy chairman of the Russian Committee for Military-Technical Cooperation with Foreign States (CMTC), announced at the beginning of January that their value had exceeded \$5 billion,³ which also beats the 2002 volume of \$4.8 billion. Denisov estimated Rosoboronexport's share in overall exports at 94%,⁴ i.e. \$4.7 billion, and the share of the four independent exporters⁵ — RAC MiG, KBP, KBM and NPOMash — at a mere \$300 million. However, these estimates were made using statistics only through the beginning of December, so we can assume that the volume for the year as a whole was greater.

In 2003 the list of export items did not change drastically compared with the previous year. Aircraft (70 percent of the total) continued to constitute the bulk of sales. The delivery of two frigates to India raised the share of naval hardware

Chart 1. Russia's arms exports 1994-2003



The Chart is prepared by CAST

deliveries to about 12 to 15 percent of the total, while exports of weapons for ground forces constituted another 10 to 12 percent, thanks largely to the commencement of transfers of T-90S main battle tank assembly kits for licensed production in India.⁶

Rosoboronexport

In 2003 the state arms trader broke its own record, boosting deliveries almost 20 percent from \$4 billion in 2002.

Aircraft deliveries were the main reason for Rosoboronexport's success, primarily the aircraft of the Su-27/30 family, with 36 units being exported in 2003, including Su-30MKK and Su-30MKI multirole fighters, Su-27SK air superiority fighters and Su-24MK frontline bombers.⁷ China was evidently the main recipient, since it received the last batch of 19 Su-30MKKs under a 2001 contract for 38 aircraft in 2003. In addition, 12 Su-30MKIs made at Irkut Corporation⁸ were

While none of the independent arms exporters published official reports on their performance in 2003, it is clear that their arms exports shrank significantly after the successes of 2002.

transferred to India as the second batch of a 1996 contract for eight Su-30K air superiority fighters and 32 Su-30MKIs. Two Su-27SKs and two Su-30MKs, along with a couple of Mi-35 assault helicopters, were delivered to Indonesia under a \$193 million contract signed in 2003.⁹

There was also active foreign trade in helicopters, primarily those designed by the Mil Design Bureau: the Indonesian Air Force received helicopters under a 2002 contract for 10 Mi-2 light and two Mi-17 multi-mission helicopters;¹⁰ large consignments of Mi-17 helicopters were shipped to Algeria under a \$200 million contract for 42 units signed in 2002; and Kazakhstan also received these helicopters.¹¹

The biggest naval export involved the delivery of two Project 11356 frigates — the *Talwar* and the *Trishul* — to India in the summer of 2003.¹² Under the 1997 contract a third frigate was transferred at the beginning of this year.

Shipments of T-90S tank assembly kits for licensed production in India under a 2001 contract accounted for the bulk of the reported deliveries of arms and military hardware for ground forces and air defense. The first tank was assembled at a plant in Avadi in early January 2004. An unspecified number of S-300PMU1 (SA-10 Grumble) medium-range surface-to-air missile systems was also delivered to China.¹³

At the beginning of December 2003, Rosoboronexport's order book amounted to \$12 billion;¹⁴ during the year it grew by at least \$3 billion.¹⁵

Last year the company concluded most of its contracts with Southeast Asian countries, not with the traditional importers

of Russian arms: China and India. A deal worth \$900 million was signed with Malaysia for the delivery of 18 Su-30MKM multirole fighters¹⁶ and another, worth \$71 million, for 10 Mi-171Sh cargo helicopters.¹⁷ Indonesia acquired two Su-27, two Su-30MK fighters and two Mi-35P multipurpose assault helicopters for \$193 million. An impressive number of contracts worth a total of \$500 million were concluded with Vietnam. These included a \$120 million contract for a construction license for Project 12418 missile boats¹⁸, a \$250-300 million contract for the delivery of at least two battalions of S-300 (SA-10 Grumble) surface-to-air missiles¹⁹, and the sale of four Su-30MK fighters for at least \$100 million.²⁰

As for Russia's traditional partners, there was definite news on only one deal with China: a \$1 billion contract for the delivery of 28 Su-30MK2 fighters to the Chinese Navy.²¹ There were no reports of any major contracts concluded with India in 2003. In October, a letter of intent was signed on the delivery of three Israeli Phalcon radar systems to be installed on Russian Il-76 cargo aircraft. However, Russia's share in this \$1.25 billion contract, currently still in the pipeline,²² will be a mere \$150 million, which the Russian side will receive for refitting aircraft withdrawn from the Air Force to carry the Israeli-made radar.

Independent Arms Exporters

While none of the independent arms exporters published official reports on their performance in 2003, it is clear that their arms exports shrank significantly after the successes of 2002.

Up until the beginning of December, RAC MiG exports amounted to \$131 million.²³ Exports dropped by more than half compared to the previous year, due mainly to the completion of major delivery contracts signed with Myanmar and Yemen in 2001-2002. In 2003, the company began delivering MiG-29s to Sudan under a 2001 contract for 12 units. It also fulfilled contracts signed in 2002 for repair and maintenance services for MiG-29s belonging to the air forces of Poland, Slovakia, Hungary and Bulgaria. There were no reports of further orders, though some pre-contact work with India and Algeria was completed. A \$700 million contract for 12 MiG-29 deck fighters and four MiG-29KUB fighter-trainers for the air wing of the *Admiral Gorshkov* aircraft carrier transferred to India was signed in January 2004.²⁴

Tula-based KBP had exported arms to the tune of \$113 million by the beginning of December 2003.²⁵ However, since it carried out the bulk of its export shipments at the end of the year, we can assume that the final export volume was much bigger. There were reports that KBP made deliveries

to India, Greece and South Korea in 2003²⁶, and it continued fulfilling a 2000 contract with the United Arab Emirates for the development and delivery of Pantsyr-S1 wheeled anti-aircraft systems.

The export prospects of Kolomna-based KBM were badly harmed in 2003 when Russia joined international efforts to resist the spread of Man-Portable Air Defense Systems (MANPADs), which constitute the core of its output. KBM announced that a contract for the delivery of Igla-S (SA-18 Grouse) MANPADs to a Middle Eastern country had been cancelled for political reasons. As a result, KBM posted deliveries of about \$17 million, 60 percent²⁷ short of its 2003 target volume of \$28.6 million.²⁸

NPOmash successfully continued a Russian-Indian project to develop the BrahMos anti-ship missile. Four test launches were made, including launches from a ship and a mobile launcher.²⁹ Russian Defense Minister Sergei Ivanov announced that the Russian and Indian navies had adopted the missile.³⁰ Even though NPOmash's exports stood at a mere \$10.43 million at the start of December 2003,³¹ we can assume that the figure for the entire year was close to its usual \$30 million.

It should be noted that the practice, begun in 2002, of giving companies the right to independently deliver spare parts and upgrade arms delivered earlier did not produce the expected results. Sukhoi AMPC proved the most active player in this area, signing two contracts worth a total of \$110 million for maintenance and component deliveries for Su-family aircraft.³²

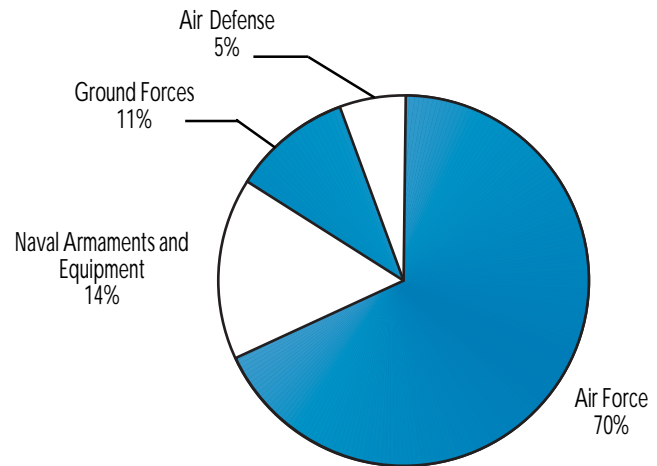
Conclusions

A preliminary estimate of Russia's MTC in 2003 leads to the following conclusions.

Since 1999 Russia has been stepping up exports of arms and military hardware. In 2003 it not only maintained its arms export volume, but also set a post-Soviet record both in terms of volume and foreign currency revenues for the fourth year running. But it is clear that, despite this growth, Russian defense exports still mainly comprise Soviet-designed systems and technology. This means that exports have improved because of overall economic growth and the strengthening of the state (which has also improved Russia's image on the international arms market), as well as because of the improved efficiency in Russia's system of military-technical cooperation in the wake of the reforms of 2000-2001.

The geographic destination for Russian arms exports began shifting in 2003. First of all, India surpassed China as the primary recipient of Russian arms for the first time in several years.³³ India became the No. 1 client primarily as a result of contracts for the transfer of two Project 11356

Diagramm 1. Product range of Rosoboronexport arms transfers in 2003



The diagram is prepared by CAST

frigates and 12 Su-30MKI fighters, and also through the sale of assembly kits for the licensed production of T-90S tanks. As for Russian arms sales to China, we can only list the delivery of 19 Su-30MKKs. This shift among Russia's key customers is likely to be temporary, but it might be the first sign that Russian-Chinese MTC is running into a technological blind alley as a result of political restrictions imposed on deliveries of Russia's latest weaponry to Beijing. This assumption is supported by China's increasingly insistent struggle for the lifting of an arms embargo imposed by the EU at end of the 1980s.

Second, we can point out a third destination emerging for Russian arms exports (Southeast Asia), in addition to the two traditional clients (China and India). The Southeast Asian troika of Malaysia, Indonesia and Vietnam combined surpassed China and India in the volume of arms contracts signed with Russia in 2003. The volume of identified 2003 contracts for Russian arms deliveries to these three countries exceeded \$1.5 billion. There was only one identified \$1 billion contract with China, for the delivery of 28 Su-30MK2 anti-ship attack aircraft. There were no reports of any major arms delivery contracts with India in 2003.

It should be noted that 2003 once again failed to bring a long expected breakthrough on Middle Eastern markets. Even though there was much talk about various potential contracts, including for the delivery of the latest S-400 (SA-20) surface-to-air missile systems, no actual deals were signed. Hopes for the expansion of MTC with the oil-rich

monarchies of the Persian Gulf seem to be growing dimmer after these countries announced that they are ending large-scale arms procurements and beginning to upgrade military hardware stocks. Iran remains Russia's only potential client in the Middle East. According to Russian media reports,³⁴ in late 2003 Tehran approached Moscow with a request for new arms deliveries for a total sum of \$1.6 billion.

Rosoboronexport's order book has remained steady at the \$11 to \$12 billion mark, which indicates that its export volumes will be maintained for the next few years. Taking into account contracts signed at the beginning of 2004, Rosoboronexport's current portfolio is estimated at \$14 to \$14.5 billion. These numbers give reason to believe that Russian arms exports will remain at \$4 to \$4.5 billion for the

next two to three years while these contracts are being fulfilled. The more distant future is not so promising. Export volumes may be undermined by the technological stagnation in the Russian armaments industry as well as by the shrinking of MTC with China and India. While the slump in Chinese procurements may stem from Moscow's refusal to lift political restrictions on the quality of delivered armaments, India itself has declared a policy of diversifying sources of arms procurements and expanding relations with Western arms suppliers. The new market — Southeast Asia — is unlikely to become a reliable replacement, since even the combined needs of the countries in this region for Russian military hardware will be smaller in scale and shorter in contract duration.

- 1 Nikolai Poroskov. "Voyenno-tekhnicheskiy balans," *Vremya Novostei*, 02.03.2004.
- 2 FSUE Rosoboronexport press release, 26.01.2004.
- 3 "Rossia vykhodit na tot uroven obyomov postavok vooruzheniy, kotoryi sootvetsvyet realnym vozmozhnostyam strany," *Arms-Tass*, 05.01.2004.
- 4 Ibid.
- 5 Antey Concern, which was the fifth independent exporter in 2002, lost the right to independent export of military-purpose goods after it was included in the Air Defense Concern, which has not yet received rights to export arms independently.
- 6 In 2003 exports by the Russian Agency for Conventional Armaments grew 8.5%, *RIA "OREANDA"*, 14.02.2004.
- 7 "Kompaniya "Sukhoi" v 2003 g.," *Sukhoi AMPC* press release, 27.02.2004.
- 8 "V Indiyu otpravlenny yeshchyo dva Su-30," *Gazeta.ru*, 25.12.2003.
- 9 "V Indoneziyu dostavleny dva istrebitelya Su-30 rossiiskogo proizvodstva," *RIA Novosti*, 01.09.2003.
- 10 *Itar-Tass*, 17.03.2003.
- 11 *Krasnaya Zvezda*, 05.02.2003; *Soyuz-Info*, 21.04.2003.
- 12 Alexander Manushkin. "Talvar" ukhodit pervym," *Krasnaya Zvezda*, 19.06.2003; "Proshche otdat dengi," *Kommersant*, 26.06.2003.
- 13 "V Rossii rezko snizilos kachestvo proizvodimoi produktsii," *Arms-Tass*, 25.02.2004.
- 14 "Rosoboronexport vykhodit na rekordnyye obyomy eksporta vooruzheniy," *Arms-Tass*, 08.12.2004.
- 15 See table "Identified Contracts for Russian Arms Deliveries Signed in 2003," *Eksport Vooruzheniy*, # 1 (January-February) 2004.
- 16 Arkady Dubnov. "Kak po maslu," *Vremya Novostei*, 06.08.2003.
- 17 Alexei Nikolsky. "Vertolyoty letyat v Malaiziyu," *Vedomosti*, 02.10.2003.
- 18 Viktor Matveyev. "Shou v Finskom zalive," *Vremya Novostei*, 26.06.2003.
- 19 Leonid Zavarsky, Konstantin Lantratov. "Dengi na MAKs upali s neba," *Kommersant*, 25.08.2003.
- 20 Alexei Nikolsky. "Vyetnam pokupayet Su-30," *Vedomosti*, 02.12.2003.
- 21 Konstantin Lantratov. "Kitaiskiy flot budet usilen rossiiskimi istrebitelyami," *Kommersant*, 25.01.2003.
- 22 "Israel to Sell Russian Defense Systems to India for \$1.1 Bln.," *The Moscow Times*, 09.02.2004.
- 23 Ibid.
- 24 "RSK "MiG" podpisala kontrakt na postavky v Indiyu 16 istrebitelei MiG-29K na summu 700 mln doll.," *RIA RosBusinessConsulting*, 21.01.2004.
- 25 Nikolai Novichkov. "Rosoboronexport boosts defense industry with record \$5.1 million in 2003," *Jane's Defense Weekly*, 04.02.2004.
- 26 "Tulskoye KBP rasschityvayet zaklyuchit novyye kontrakty s Indiyey," *ITAR-TASS*, 07.02.2004.
- 27 "Prichiny nevyopolneniya kolomenskimi mashinostroitelyami eksportnykh postavok v 2003 gody nosyat obyektivnyi kharakter," *ITAR-TASS*, 06.02.2004.
- 28 Nikolai Novichkov. "Rosoboronexport boosts defense industry with record \$5.1 million in 2003," *Jane's Defense Weekly*, 04.02.2004.
- 29 Information from www.brahmos.com.
- 30 Vladimir Kuzar. "Yest kontrakt," *Krasnaya Zvezda*, 21.10.2004.
- 31 Nikolai Novichkov. "Rosoboronexport boosts defense industry with record \$5.1 million in 2003," *Jane's Defense Weekly*, 04.02.2004.
- 32 "Kompaniya "Sukhoi" podpisala ocherednoi samostoyatelny kontrakt na postavky zapchastei k boyevym samolyotam," *Finmarket Novosti*, 02.01.2004.
- 33 Statement by Rosoboronexport Deputy General Director Viktor Komardin. See "Rossia sokhranyayet svoi pozitsii na indiiskom rynke vooruzheniy," *ITAR-TASS*, 05.02.2004.
- 34 Ivan Safronov. "Tegeran prosit ognya," *Kommersant*, 12.11.2003.

RUSSIAN-INDIAN MTC: AN ATTEMPT AT A QUALITATIVE ANALYSIS

Konstantin Makienko

The basic programs of Russian-Indian military-technical cooperation (MTC) are fairly well known; the Russian and Indian press provide detailed coverage of both the financial and technical aspects of deals. Consequently, there is no need to repeat commonly known details. This article seeks instead to present a qualitative description of Russian-Indian military-technical ties and to make a prediction on the prospects for further cooperation.

Characteristics of Russian-Indian MTC

India's procurements of Russian armaments have the following distinctive features:

- Contracts yield relatively low profit. According to unofficial reports, the profit on some contracts is close to zero or even drops into the red, due to rising expenses and a Russian ruble that is strengthening against hard currencies;
- High technological requirements demand intensive R&D and often stretch Russian industry's capabilities to the limit. The most striking examples of this are the Indian RFPs for Su-30MKI multirole fighters and Project 11356 frigates. The project to refit and upgrade the *Admiral Gorshkov* aircraft carrier, signed on Jan. 20, 2004, is also quite complex, and significant R&D will be needed for the MiG-29 deck fighters on the air wing;
- High requirements burden the contracts with significant risks, resulting in lags in contract implementation. Baltiysky Zavod, for example, was forced to delay the delivery of the first of two Shtil-1 medium-range SAM frigates. There have also been delays in the Su-30MKI program, resulting from the need to develop new components — AL-31FP engines with thrust vectoring — and to integrate with foreign-made parts;
- Lengthy projected implementation periods. The Su-30MKI project, not due for completion until 2012, sets a record in this category;
- A noticeable preference for hybrid, international arms systems;
- New Delhi traditionally purchases licenses to produce weaponry imported from Russia at its own industrial facilities.

Contracts yield relatively low profit. According to unofficial reports, the profit on some contracts is close to zero or even drops into the red, due to rising expenses and a Russian ruble that is strengthening against hard currencies

Importers of Russian arms and military hardware effectively make the transition from trade and mediation to production. This is best exemplified by the BrahMos project and the Indo-Russian Transport Aircraft Program (IRTAP).

The contracts for Su-30MKIs and Project 11356 frigates are quite typical, featuring all or most of these characteristics. Smaller programs, however, also feature some of the above attributes. One example is the contract for the upgrade of MiG-21bis fighters to MiG-21-93 standard, which requires the integration of foreign components and is characterized by low profitability and delays.

These factors are having a deep impact on the institutional structure of the Russian defense industry. New corporate entities are emerging around two key Russian-Indian MTC programs: IAO evolved into the Irkut Corporation during the implementation of the Su-30MKI project, while the Baltic United Ship-Building Company emerged during the construction of the Project 11356 frigate at Baltiysky Zavod. Contracts with China have not had such an amalgamating effect on the industry. For example, KnaAPO, which currently produces Su-30MKK multirole fighters for China, for many years has successfully blocked the formation of a corporate structure within the Sukhoi group; while the Severnaya Verf shipyard, which holds the contracts for Project 956E and Project 956EM destroyers, has failed to become a center of consolidation for the Russian

ship-building industry despite participating in high-tech financial deals undertaken by the New Programs and Concepts industrial holding.

These two examples do not provide sufficient proof of a link between Indian contracts and corporate development, but we can safely assume that the low profit margins prod contractors into taking advantage of debt and investment instruments, seeking strategic investors and looking for other contracts to mitigate the high financial risks associated with Indian orders. These moves are particularly necessary in the case of major landmark orders for fighters and frigates. The demands of Indian contracts thus motivate the management of Russian companies; in contrast, Chinese and Arab contracts, though much more financially attractive, help to perpetuate existing ineffective company structures.

The lengthy implementation period for the Su-30MKI contract has also affected the Russian defense industry. The order,

guaranteed through 2012, has enabled the Irkut Corporation to develop long-term corporate, financial and technical plans. In contrast, Sukhoi AMPC has very profitable but short-term (2 to 3 year) contracts with China that fail to provide guarantees or consistent resources for the development of a similar long-term strategy.

Indian clients' stipulations concerning the installation of Western and Israeli parts also stimulate R&D. Most importantly, they promote international cooperation, which is absolutely essential in this era of globalization. Irkut Corporation and NPO Mash are accumulating absolutely essential experience while working with IRTAP and BrahMos on joint projects. Other entities in the Russian defense industry will also benefit from this experience, as will officials, who will need to push for amendments to Russian legislation, which currently places various barriers in the way of internationalizing high-tech and military production.

Latest Trends in Indian Policy: Diversification or Reorientation?

In the past 2 to 3 years, India has signed a number of major contracts for (or begun negotiations on) the purchase of expensive weapons systems not made in Russia. After signing agreements for the licensed production of Su-30MKI fighters, T-90S battle tanks, Ka-31 AEW helicopters and Il-78 air tankers in December 2000-February 2001, the Indian armed forces decided not to place any more orders with Russia for the time being, though the long-awaited contract for the *Admiral Gorshkov* was one exception. This has led to Russian fears that New Delhi is seeking new sources of large-scale arms procurements, primarily from Israel and France. However, upon closer examination, Russia often had no reason to expect to win these other tenders, and most of the time the Russian defense industry was simply unable to submit competitive offers.

Two of the most unfortunate cases when Russia failed to promote its products involved Indian tenders for the purchase of light fighters and trainers, won respectively by France and Great Britain.

Fighter

Russia has often offered India weaponry not fully developed by the contract date, so incomplete R&D on the multirole modifications of MiG-29M/M2s should not have been a problem. In any case, the technical risks involved in finishing the MiG-29SMT/M/M2 multirole fighter are significantly lower than those present in 1996, when the Su-30MKI project was launched, or earlier, when the contract for upgrading MiG-21 fighters to MiG-21-93 standard was concluded. Deliveries of

MiG-29SMTs to Yemen will probably begin in 2004, and a similar upgrade may be conducted in other countries. The multirole modification of the MiG-29 could become a reality in the near future.

In addition, India has a large fleet of MiG-29s, the avionics of which could have been retrofitted to correspond to the most recently delivered batches. Finally, the facelift for the MiG-29K deck fighters could have been coordinated with existing and newly acquired aircraft. Thus, a number of factors could have supported Russia's case, and India's choice can be described as a painful loss for RAC MiG and Rosoboronexport, the state-owned arms agency. We believe that the main reason for missing out on the contract may have been Indian dissatisfaction with Russian maintenance on its MiG-29 aircraft and a lack of aggressiveness among Russian exporters in this sector.

Advanced Jet Trainer

The main reasons cited for India's preference of British Hawk trainers were the extensive application of these aircraft by the air forces of some 15 countries and the option of converting them into light combat planes. There were fundamental arguments against choosing Britain, namely the contract price and outdated design of the Hawk. Russia evidently did have the chance to offer its trainers, even though they had still not been completed. In addition, MiG-ATs could have been

promoted as a joint project between France, Russia and India.

In other cases India's decisions cannot be interpreted unequivocally as indications of a

large-scale reorientation to non-Russian suppliers: Russia has no viable competitive unmanned aerial vehicles (UAV), land and air-borne radars, air defense weaponry, or small ship-borne SAMs.

The question of India's reorientation to other suppliers remains unclear. In our opinion, the following factors will provide the most accurate indication of India's attitude to the further development of MTC with Russia:

- The choice of the Indian Navy between Russian and German conventional submarines (SSK);
- The outcome of a tender for the upgrade of the S-125 Pechora (SA-3 Goa) short-range surface-to-air missile system (Russia is competing with Poland);
- Decisions on several upgrade programs, primarily for the MiG-29 and the T-72S battle tank.

On the whole, the prospects for Russian-Indian MTC depend less on the aggressiveness of competitors than on the capability of the Russian defense industry to improve the quality of products delivered to India, and its ability to organize proper maintenance services for weaponry and military hardware.

Indian clients' stipulations concerning the installation of Western and Israeli parts also stimulate R&D. Most importantly, they promote international cooperation, which is absolutely essential in this era of globalization

It should be borne in mind that, in addition to the above projects, in which Russia will face tough competition from other arms manufacturers, there are still several major tenders in which Russia faces no competition. These include:

- The further development of the *Admiral Gorshkov's* air wing. Clearly, the final air wing will not be limited to the 16 MiG-29K/K-UBs that have been ordered, and an option for 30 MiG-29s, signed together with the contract, demonstrates this;
- The possible delivery of three more Project 11356 frigates or comparable ships. The need for additional escort ships is also related to the acquisition of the *Admiral Gorshkov*;
- The delivery of the high-precision Iskander-E (SS-26) tactical missile system;
- The lease or sale of one or two nuclear powered submarines, most likely Project 971;
- The lease or sale of 4 to 6 Tu-22M3 strategic bombers and/or Tu-22MR reconnaissance aircraft.

Joint projects are also a key way of promoting Russian-Indian ties. Key projects could include:

- A program for an advanced combat aircraft system;
- The development of a family of civilian and military cargo planes within the framework of IRTAP;
- The development of a family of missiles for various applications on the basis of PJ-10 BrahMos.

However, the development of an amalgamated state defense industry holding will require solutions for at least three strategic problems in the Russian defense industry:

- The reform of laws that currently impede joint projects;
- The allocation of sufficient funds for government defense orders, which is essential for securing equal financing for joint projects with Indian partners;
- The development of a clear and definite policy for reducing government involvement in the defense industry and, above all, in aircraft production.

Conclusions

Over the past 2 to 3 years, developments on the Indian market have been disturbing, while the presence of Russia's rivals, primarily France and Israel, has been growing. Britain has also been successful in promoting its trainer. However, India is too important for Moscow — not only in terms of military-technical and industrial cooperation, but also in a geopolitical and military-political sense. A decline in MTC with India would therefore be an absolutely unacceptable scenario, and we hope that steps are taken to reverse the recent trends and to ensure there are no further setbacks. These efforts should focus directly on the Russian defense industry and result in a more responsible approach to the quality of delivered items and maintenance services, the liberalization of the industry and the formation of government defense orders on a scale and structure that would allow Russian companies to be equal and reliable partners in joint projects with Indian defense companies.

Table 1. Bids by Western Arms Manufacturers on the Indian Market

Subject of contract/talks	Approx. price	Possible reasons for Russia's losing	Comments
Barak ship-borne air-defense system made by IAI, Israel	\$160 mln	The closest Russian analogue, the Klinok, is large and heavy.	R&D on the Palma (a modern, effective and compact ship-borne automated air defense missile-gun system) and the Poliment (a ship-borne missile system) is not completed.
Israeli-made UAV		Russia has no competitive UAV to offer.	
Phalcon airborne radars	Up to \$1 bln	Russia has no competitive AWACS aircraft to offer.	
6 Scorpene SSKs	\$1.8 bln	Absence of a Russian SSK with an air-independent power plant; absence of an operational Project 677 SSK in the Russian Navy; absence of export deliveries.	Russia is conducting an expensive retrofit of 4 Project 877EKM diesel-electric torpedo submarines. A contract for 4-6 Project 677 SSKs still has a chance of competing with Germany's Project 212 SSKs.
126 Mirage 2000-5 fighters made by Dassault Aviation	\$4 bln	Russia has no light single-engine fighters to offer. Incomplete R&D on MiG-29M/M2 multirole fighters; unsatisfactory standard of RAC MiG's maintenance services.	
Arrow-2 air defense system made by IAI		Disintegration of production cooperation on S-300V/VM SAM; incomplete R&D on S-400.	
Hawk trainers	\$1.3-1.5 bln	Incomplete R&D on the MiG-AT and Yak-130 trainers.	Talks were conducted for 18 years; the general decision to acquire British aircraft was made in the early 1990s.

HERBERT YEFREMOV: THE BRAHMOS JOINT VENTURE AND THE FUTURE OF RUSSIAN MILITARY-INDUSTRIAL COOPERATION

Interview with Herbert Yefremov,
General Director and General Designer,
Russian State Enterprise NPO Mashinostroyenia

Since the 1950s, Herbert Yefremov has worked at top Soviet and Russian engineering and design bureaus within the military-industrial complex. The recipient of many prestigious awards, he eventually came to work for Scientific Production Association of Machine-Building (NPO Mashinostroyenia), a top-secret Russian design and engineering bureau with small series production capacity that was founded in 1944. NPO Mashinostroyenia was one of the central players in the development of Russian cruise missiles, ICBMs and launch vehicles for heavy spacecraft, and it designs space hardware for various purposes. Yefremov has served as both general director and general designer at NPO Mashinostroyenia since December 1991.

Today, NPO Mashinostroyenia is one of the few Russian enterprises with an export license for military-purpose equipment; in 2000, the President extended its license for another seven years. The company is a partner in BrahMos, an Russian-Indian joint venture engaged in the design, development, manufacture and marketing of supersonic anti-ship cruise missile systems.

Yefremov doesn't readily speak with the press, as much of his and NPO Mashinostroyenia's activities are classified. But he was kind enough to respond in writing to a number of questions posed by CAST analysts about his work at NPO Mashinostroyenia.

Q. What were your enterprise's financial results in 2000-2002? How much profit did the company make, and what were its revenues and expenses? How are your projects structured?

A. NPO Mashinostroyenia's financial performance in 2000-2002 can be described as follows: the company's independent work and cooperation with other companies went according to plan, with volume generally growing by 60 percent from 1998 to 1999. State defense contracts account for about 25 to 30 percent of the company's business, and military-technical cooperation with foreign contractors constitutes 65 to 70 percent. The profit margin varies for different projects, 10 to 15 percent on average. NPO Mashinostroyenia was granted state loans to begin the BrahMos project. We view this as an indication of the government's high degree of confidence in us, and that it regards our work with special significance.

Q. NPO Mashinostroyenia is one of the better-known Russian weapons and military hardware exporters. What kinds of state defense contracts does your company hold?

A. NPO Mashinostroyenia is known for its military-technical cooperation, but primarily for its missile and space rocket projects, for example, cruise missiles for the Russian Navy, space systems for the Defense Ministry, and 100th-generation strategic ICBMs. Our company is contracted by the state defense sector to work in all of these spheres on a regular basis, and the value of these contracts grew 40 to 50 percent annually in 2002-2003.

Q. Could you describe the background of the BrahMos project? Who initiated it? How did the idea originate? How successful is its R&D? Is it keeping to schedule? When is it expected to begin generating commercial profits?

A. Acting on instructions from the Soviet government, NPO Mashinostroyenia was, in 1989, engaged in a number of research and technological consultations with Indian specialists on military-technical cooperation. Teams of Russian specialists in aerodynamics, hydrodynamics, materials dynamics, and designers and mathematicians traveled to India, as the Indians were looking to become world leaders in rocket engineering, even though they lacked specialists and proper computers.

The next stage in the interaction between NPO Mashinostroyenia and the Indian Defense Research and Development Organization (DRDO) came in the form of a proposal by Dr. Abdul Kalam, then head of the DRDO and later President of India. Dr. Kalam suggested that we should not limit ourselves to mere consultation and urged the establishment of a joint venture to work together on the research, development, manufacture and marketing of anti-ship cruise missile systems. After a brief discussion, this proposal was forwarded to the Russian government.

It hardly makes sense to describe how difficult it was for Russia to believe in this undertaking. However, after getting the go-ahead from the President in 1997, the Russian government finally signed an agreement with the Indian government to set up such a joint venture based on a common charter and with \$250 million in capital, with the two

countries contributing roughly equal amounts of money to jointly exploit the results of some relevant groundwork that the two countries had already done.

NPO Mashinostroyenia and the DRDO were selected to become the co-founders and shareholders of this Russian-Indian organization, which is headquartered in New Delhi.

The history behind the name of the joint venture, BrahMos, is interesting and unusual. Dr. Kalam had been on a trip to Russia, where he had visited St. Petersburg and walked along the banks of the Neva — he later even wrote a poem about this river. He suggested that the enterprise be called BrahMev, combining the names of the prominent Indian and Russian rivers. We pointed out that Mashinostroyenia is located in the Moscow region, so it would be more proper to take the name from the Brahmaputra and Moskva rivers. This is how this name — BrahMos — appeared.

The first launch of a missile built by the joint venture took place at the Chandipur range in India on June 12, 2001. It was totally successful, even though the launch program was quite complicated.

Now that the work of both partners in the joint venture has been praised and the venture is seen to be working efficiently, Russia and India really need to replicate this cooperation in the high-tech field.

Q. What do the founders of the BrahMos joint venture think about its current performance?

A. Ahead of a state visit to India on Dec. 3-5, 2002, Russian President Vladimir Putin said, "I want to point out that your company is fulfilling its commitments accurately and qualitatively under the contracts with our Indian partners. It is a pleasure to note that the Russian-Indian joint venture has matured, works efficiently, and has good potential." An appraisal by Indian President Dr. Kalam also gives grounds to expect that the joint venture's output will be successfully introduced in India and in third countries with the mutual consent of India and Russia. The venture's general achievements are already visible. A basic missile system with 12 launchers has been commissioned for the Russian Navy and installed onboard the *Nakat*, a small project 1234.7 missile ship with a water displacement of under 700 metric tons.

Cooperation between NPO Mashinostroyenia and India, which began in 1998, has so far withstood the test of time and the challenge of complicated projects, thus laying the foundations for further achievements. BrahMos was the brainchild of two presidents. It will not only advance the two countries' existing technology but also develop know-how for the 21st century.

We have achieved the following results:

- NPO Mashinostroyenia and the DRDO have completed the design of missile prototypes, built and tested them;
- Sufficient numbers of missiles been built and are ready for flight testing;

- Launchers have been manufactured to fire the missiles from *Rajput*-type destroyers;

- Six missiles were launched on extremely complicated trajectories from the Chandipur range in the Bay of Bengal between June 2001 and November 2003. The last launch from the *Rajput* destroyer was aimed at a real target vessel, which took a direct hit.

All conditions have been met for the switch to serial production of the joint version of the missile in 2004. On May 26, 2003, the joint venture was renamed BrahMos Aerospace, indicating that its plans are not only limited to cruise missile systems.

Q. Do you have any plans to continue working with your Indian partners after the BrahMos project has been completed? Do you have plans to build a PJ-10 version for aircraft or submarines, or to use it to deliver strikes on land targets?

A. Naturally there are plans to continue working together following the completion of the BrahMos project. Our creative cooperation thus far gives grounds to expect fruitful and reliable work for years to come, especially bearing in mind that both the Russian and Indian leaders value this cooperation. Joint work between equals is an extremely productive form of partnership for countries that view each other as strategic partners.

Q. How do the PJ-10 missiles differ from others that India has at its disposal, primarily those of the Club family?

A. First, the BrahMos missiles boast extremely good technical and tactical characteristics for this class of missile, and they can be used successfully against any enemy, including the most powerful. Second, they can be attached to various carriers, such as surface vessels, submarines, self-propelled launchers, or warplanes. Third, they are based on a missile commissioned for the Russian Navy in 2002. Fourth, these missiles are to be produced jointly at both Russian and Indian plants. Each of these Russian missiles and their families (*Uran*, *Club*, and *Yakhont-BrahMos*) occupies its own niche in the weapons system and has its specific tasks.

Q. Are there plans to turn NPO Mashinostroyenia into a joint-stock company or to privatize it?

A. There is a special federal program aimed at setting up strong, economically profitable structures that will be competitive on the world market and well integrated. But the most important precondition for this program is both domestic and foreign investment. Therefore, the investment appeal of a newly integrated structure will play a major role in ensuring its viability and successful development. Another condition at least as important is that it will be necessary to ensure the integrated structure operates efficiently; this primarily implies manageability, prompt decision-making and sound financial skills. Enterprises organized as open joint-stock companies — in which the state holds over 50 percent of shares to ensure it maintains control — best meet these

requirements. This factor, along with the existence of substantial legal restrictions on the activities of state unitary enterprises (which hinder their development), prompted the decision to organize the military industrial corporation (VPK) NPO Mashinostroyenia as an open joint-stock company.

Q. NPO Mashinostroyenia is chiefly a design bureau and an experimental production enterprise. Are there any plans to set up an integrated structure with companies engaged in serial production or with other research and experimental organizations?

A. An industrial holding company is being established in which NPO Mashinostroyenia will be the lead enterprise and take on the managerial role. Mashinostroyenia's achievements as the principal designer and manager of major projects and its vast experience in administering sophisticated scientific, design and production cooperation prove its ability to successfully found and develop this corporation. The holding will comprise state enterprises Production Association Strela (PO Strela), Perm Plant Mashinostroitel (Permsky Zavod Mashinostroitel), Scientific Production Association of Electromechanics (NPO Electromechaniki), Production Association Avangard (PO Avangard), Scientific Research Institute of Electromechanics (NII Electromechaniki), Urals Scientific Research Institute of Composite Materials (Uralsky NII Kompozitsionnykh Materialov), the Institute of Thermal Chemistry (Thermochemistry Institut), the Federal Scientific Production Center Granit-Electron Concern (FNPT's Granit-Elektron Concern) incorporated in Central Scientific Research Institute Granit (TsNII Granit), Severny Press, Kulakov Plant (Zavod Imeni Kulakova) and PP Ravenstvo.

The purpose of establishing the VPKNPO Mashinostroyenia is to maintain and develop the scientific and production potential of the domestic space rocket industry and mobilize resources to build highly efficient missile weaponry and spacecraft to guarantee Russia's national security and strengthen its position on the world weapons and aerospace market. The new corporation's priorities will be in the sectors in which NPO Mashinostroyenia has been engaged, which include:

- Combat systems armed with cruise missiles;
- Strategic missile systems and launch vehicles;
- Integrated information-space systems;
- Information technology;
- Recoverable power engineering.

All the enterprises to be included in the corporation have been cooperating with NPO Mashinostroyenia on the design of weapons and military hardware for several decades, and it's assumed that they will all be incorporated voluntarily. The corporation will be established in two stages. During the first stage, the enterprises will be turned into joint-stock companies. Another joint-stock company, OAO Concern FNPTs Granit-Elektron, will be set up, which will be state-owned. Controlling stakes in these newly established joint-

stock companies will be added to the charter capital of the corporation's lead company. During the second stage, the lead company, NPO Mashinostroyenia, will be turned into a joint-stock company, OAO VPK NPO Mashinostroyenia, with all its shares remaining state-owned.

Turning the future members of the corporation into joint-stock companies during these formative stages before NPO Mashinostroyenia becomes a joint-stock company has several advantages. NPO Mashinostroyenia will be able to function as the lead organization, overseeing cooperation between the other enterprises on state contracts and at the same time ensuring it has control over the restructuring process of the component companies during the initial stage.

The legal documents necessary to establish VPK NPO Mashinostroyenia have been cleared with all the relevant ministries and agencies and have been approved by a special commission responsible for implementing the defense industry reform program in 2002-2006. These documents have been submitted to the government for final approval.

Q. Most Russian defense industry enterprises are looking to diversify their production. Is Mashinostroyenia doing anything in this direction?

A. Diversification has been key to NPO Mashinostroyenia's work for over 40 years. In the early 1960s, this was prompted not by market realities nor by the desire to survive in a rapidly changing economic environment, but rather by the need to create mutually complementary combat systems to ensure greater efficiency. For instance, long-range anti-ship cruise missiles gave rise to a naval reconnaissance space-based system using special satellites. The need to quickly put satellites into orbit required launch vehicles based on durable components to be built. The principle of universality was adopted in the construction of these rockets, making it possible to use them as ICBMs and, theoretically, to set up a nuclear shield on the basis of high-precision rocket weapons.

The appearance of these weapons in turn necessitated the creation of a new generation of space reconnaissance devices, including military-purpose manned stations boasting exclusive qualities and characteristics. The high-tech activities of the future enterprise, (which has been working with its main partners as a kind of multifaceted consortium for a long time), the creative potential of its personnel (which we have managed to maintain and develop), and our unique production and testing approach have been applied in our military-technical cooperation with foreign partners, in civil IT projects, and in the development of nontraditional environmentally pure energy resources and state of the art materials.

We would like to thank you, Dr. Yefremov, for your time and willingness to discuss developments at your enterprise.

THE TRANSFER OF THE *ADMIRAL GORSHKOV* AIRCRAFT CARRIER TO INDIA

Maxim Pyadushkin

The transfer of the *Admiral Gorshkov* aircraft-carrying cruiser accompanied by an entire air wing of MiG-29s to India could be one of the biggest arms export deals in Russia's history, but it also poses certain production and technological risks, given the low price of retrofitting this vessel.

Under a bilateral memorandum signed in 1998, the ship itself will be transferred to India for nothing, while the overhaul and upgrade of the ship and the delivery of its air wing are covered by contracts worth a total of \$1.6 billion. The official ceremony presenting the ship to India took place on March 9 this year, though it won't be until 2008 when India actually receives the upgraded aircraft carrier and its MiG-29 air wing.

Meanwhile, Russia has already come to face certain production and technological risks in relation to the contract.

For Sevmash, a shipbuilding firm based in the town of Severodvinsk, these risks stem primarily from the relatively low price agreed upon for the overhaul and upgrade (in comparison to initial plans), which is driving profit margins to a minimum.

The price tag on the refit by Sevmash is approximately \$650 million. The upgrade includes an extension of the runway on the cruiser's bow section and the installation of a ski-jump take-off ramp at the bow, as well as new missile systems.

The flight deck has to be modified because it was initially designed for Yak-38 jump jets, which have since been decommissioned. MiG-29K naval fighters have been chosen as the deck aircraft, and a contract for 12 MiG-29K and four MiG-29KUB fighter trainers has been signed with an estimated \$730 million price tag. Another \$200 million will be spent on Ka-27 and Ka-31 deck helicopters and training for the Indian crew.

Additionally, an option on the delivery of 30 more MiG-29 fighters and pending contracts for the construction of coastal infrastructure for the aircraft carrier may boost the total price for the *Admiral Gorshkov* to between \$2.5 and \$3 billion. Despite the fact that the Indian side managed to win impressive price cuts for both the refit and the delivery of the air wing during the negotiations, which began in 1994, the deal was one of the biggest in the history of Russian-Indian military-technical cooperation, as well as the world's most expensive for a single naval vessel.

India took the opportunity to acquire a ship it needs primarily as a replacement for its navy's *Viraat* aircraft carrier, which is due to be decommissioned in 2010. For a brief time India will have two aircraft carriers, which will correspond with its strategy of establishing control over the Indian Ocean. Future chances of

maintaining two aircraft carriers will evidently depend on the success of India's program to develop its own *ADS* aircraft carrier.

In contrast to Sevmash's low profit margins, Russian Aircraft Corporation MiG will get the financial means it so desperately needs. This is clearly important for the company, since most previous deliveries of MiG aircraft to poor countries in Africa and Asia in 2001-2002 involved disadvantageous deals with long periods of payment by installments. The main risks for RAC MiG are technological, since the only MiG-29Ks to have been constructed at this point are two test prototypes. The Indian contract will require the serial production of MiG-29s after a break of almost 11 years, as well as some R&D work to finish the aircraft

and design its combat trainer modification. Given RCA MiG's vague status (the government plans to merge several firms into a united aircraft manufacturer), the question of launching

production of the MiG-29K at the aviation plants in Komsomolsk-on-Amur or Irkutsk is being actively discussed. The transfer of the *Admiral Gorshkov* may be the last contract of such a scale with India. India has now fully satisfied its needs for Russian armaments, and its government's policy has changed to diversify sources of arms purchases. Russia is increasingly becoming an exporter of arms platforms and low-tech models, while Western countries and Israel are becoming niche high-tech military hardware suppliers. Russia's share of the \$100 billion that India plans to spend on arms procurements over the next 20 years will amount to no more than 25 percent. In addition to the contracts mentioned above, the most promising deals include an order for a second batch of Project 11256 frigates and the delivery of Smerch (SA-17 Grizzly) short-range surface-to-air missiles.

The sale of the *Admiral Gorshkov* raises the question of whether it is expedient for the Russian Navy to operate aircraft carriers at the current time. Considering the disgraceful demise of the other three Project 1143 aircraft carriers — the *Kiev*, the *Minsk* and the *Novorossiisk* were sold for scrap after being decommissioned by the Navy in 1993 — the fate of the *Admiral Gorshkov* seems fortunate for both the warship itself and for Russia as an arms exporter. Because it is plagued by technical problems, it is becoming clear that the Russian Navy's last remaining heavy aircraft carrier, the *Admiral Kuznetsov* (Project 11435), is incapable of carrying out actual combat missions. The military top brass has no plans to build new aircraft carriers before 2015, and has instead assigned priority to littoral ships — corvettes and frigates. Thus, the only reason for keeping the *Admiral Kuznetsov* operational is to preserve its school of deck aircraft pilots.

The sale of the *Admiral Gorshkov* raises the question of whether it is expedient for the Russian Navy to operate aircraft carriers at the current time.

RUSSIAN ARMS TRANSFERS IDENTIFIED IN 2003

The following table lists confirmed arms sales and transfers that took place in 2003. A discrepancy between the stated price of the sales in various publications compared to the actual amount received by Russian arms manufacturers is evident in this CAST table. These discrepancies may be due to any number of factors, particularly vagaries between the stated dollar values of the equipment and the actual values

or differences between the value of the equipment and the actual price paid. Other factors distorting the estimated value of transfers include arms transfers in exchange for debt-reduction schemes or other non-cash payments, such as the exchange of raw materials or services whose values are difficult to estimate.

Exporter	Importer	Date	Event Description	Estimated Value	Notes
Russia	India	June	Transfer of the <i>Talwar</i> and <i>Trishul</i> Project 11356 frigates. Ships built at Baltiysky Zavod in St. Petersburg. ¹	Approx. \$600 mln ²	1997 contract for 3 ships worth \$1 bln. The transfer of the 3 rd frigate is expected in 2004.
Russia	India	October-December	Delivery of 12 Su-30MKI fighters made by Irkut Corp. ³	Approx. \$420 mln ⁴	1996 contract for 8 Su-30Ks and 32 Su-30MKIs. The first 10 Su-30MKIs were delivered in 2002. The remaining 10 are due to be transferred in 2004.
Russia	Indonesia	August	Delivery of 2 Su-27SK, 2 Su-27SK and 2 Su30-MK fighters along with 2 Mi-35P helicopters. ⁵	\$193 mln	2003 contract; \$108 mln of the \$193 mln to be paid in kind with palm oil.
Russia	Kazakhstan	April	Delivery of 2 Mi-17 V-5 helicopters. ⁶	Approx. \$9 mln ⁷	Delivered by Kazan Helicopters under a \$63 mln contract for 14 Mi-17V helicopters signed with Kazakh Defense Ministry at the end of 2002.
Russia	China	2003	Delivery of the S-300PMU1 SAM system. ⁸	undisclosed	
Russia	India	March 3, 2003	Delivery of first of 6 Il-78 air tankers. ⁹	undisclosed	\$150 mln contract for 6 Il-78MKIs for the Indian Air Force signed with the Tashkent Aviation Production Association in December 2001. 5 additional air tankers were to be transferred before the end of 2003. ¹⁰
Russia	Indonesia	March 14, 2003	Delivery of the first of 2 Mi-2 deck helicopters for the Indonesian Navy. ¹¹	undisclosed	2002 contract for 10 Mi-2 and 2 Mi-17 helicopters. The deadline for completing deliveries was October 2003. ¹²
Russia	Uruguay	March	The Ulyanovsk Auto Plant delivered 186 UAZ-315123 and UAZ-315143 off-road vehicles. ¹³	undisclosed	2002 contract for some 400 Ural trucks and UAZ vehicles for \$10 mln. Deliveries made as payment of Soviet-era debts to Uruguay. ¹⁴
Russia	Afghanistan	September 11, 2003	Transfer of two repaired Mi-8 helicopters. ¹⁵	undisclosed	The Afghan helicopters were repaired free of charge under bilateral MTC. According to the agreement, Russia is to repair 2 more helicopters and 2 aircraft from the Afghan Air Force.
Total volume of identified Russian arms transfers in 2003				Over \$1.22 bln	

1 Alexander Manushkin. "Talvar" ukhodit pervym,» *Krasnaya Zvezda*, 19.06.2003; "Proshche otdat dengi,» *Kommersant*, 26.06.2003

2 CAST estimate

3 "V Indiyu otpravleny yeshchyo dva Su-30,» *Gazeta.ru*, 25.12.2003

4 CAST estimate

5 "V Indoneziyu dostavleny dva istrebitelya Su-30 rosiiskogo proizvodstva," *RIA-Novosti*, 01.09.2004

6 *Krasnaya Zvezda*, 05.02.2003; *Soyuz-Info*, 21.04.2003

7 CAST estimate

8 "V Rossii rezko snizilos kachestvo proizvodimoi voyennoi produktsii," *Arms-Tass*, 25.02.2004

9 *The Hindu*, 4.03.2003; *The Hindustan Times*, 3.03.2003

10 Ibid

11 *Itar-Tass*, 17.03.2003

12 *Interfax-Asia*, 18.06.2002

13 *Finmarket Novosti*, 02.04.2003

14 *RIA-Novosti*, 01.04.2003

15 "Rossiya chinit voyennuyu tekhniku Afganistana," *MIGnews*, 11.09.2003

KEY RUSSIAN ARMS CONTRACTS AND DELIVERIES TO INDIA FROM 1999-2004

Contract	Price	Contract date	Delivery completion date	Delivery completion date
Package of contracts for the delivery of the <i>Admiral Gorshkov</i> heavy aircraft carrier	\$1.6 bln ¹	2004	2008	The aircraft carrier itself is transferred free of charge. There are contracts for ship overhaul and upgrade, delivery of an air wing of 12 MiG-29K fighters, 4 MiG-29KUB combat trainers for approx. \$700 mln and Indian personnel training. ²
Construction of 3 Project 11356 frigates	\$1 bln	1997	2004	The first two, the <i>Talwar</i> and the <i>Trishul</i> , delivered in 2003. ³
8 Su-30K and 32 Su-30MKI fighters		1996	2004	
6 Il-78 air tankers ⁴	\$150 mln	2001	2003	
310 T-90S tanks ⁵	\$800 mln	2001	2003	Contract entailed the delivery of 124 tanks and licensed production of 186 in India.
5 Ka-31RLD helicopters ⁶	\$108 mln ⁷	2001	2002	
Upgrade of 5 Il-38 anti-submarine aircraft for the Indian Navy ⁸	\$205 mln	2001		Upgrade involves the installation of Morskoi Zmei anti-submarine search and homing system. The first upgraded Il-38 to be transferred at the end of 2003.
40 Ĭ i-17-1V helicopters ⁹	\$170 mln ¹⁰	2000	2001	
Organization of licensed production of 140 Su-30Ĭ Ĭs in India ¹¹	Over \$3 bln	2000	2012-2017	
Several hundred Igla MANPADs	\$32 mln ¹²	2000	2001	
1,000 Krasnopol-M laser-guided artillery shells ¹³	\$34.5 mln	1999	2000	

1 Alexei Nikolsky. "Strategicheskaya rasprodazha," *Vedomosti*, 21.01.2004.

2 «RSK «MiG» podpisala kontrakt na postavku v Indiyu 16 istrebitelei MiG-29K na summu 700 mln doll.," RIA RosBusinessConsulting, 21.01.2004.

3 Alexander Manushkin. "Talvar" ukhodit pervym," *Krasnaya Zvezda*, 19.06.2003; "Proshche otdat dengi," *Kommersant*, 26.06.2003.

4 The Hindu, 4.03.2003; *The Hindustan Times*, 3.03.2003.

5 AVN, 15.02.2001.

6 CAST archives.

7 CAST archives.

8 "Indiiskiy Il-38SD," *Nezavisimoye Voyennoye Obozreniye*, 18.07.2003.

9 Mikhail Kozyrev. "Mi-17 pokoryayut Indiyu," *Kommersant*, 27.05.00.

10 Ibid.

11 AVN, 28.12.00.

12 *Aviatsiya, kosmos i oruzhiye Rossii*, 28.02.2001.

13 *Jane's Defence Weekly*, 16.09.99.

IDENTIFIED CONTRACTS FOR RUSSIAN ARMS DELIVERIES SIGNED IN 2003

Exporter	Importer	Date	Description	Price	Notes
Russia	China	January	Chinese Defense Ministry, Rosoboronexport signed a delivery contract for 28 Su-30MKK fighters for the Chinese Air Force. ¹	\$1 bln ²	KnAAPO will manufacture the aircraft. Expected delivery date: first half of 2004 ³
Russia	Malaysia	05.08.2003	Contract signed for the delivery of 18 Su-30MKM fighters to Malaysia in 2006-2007. ⁴	\$900 mln ⁵	To offset agreements supplementing the contract, Malaysia will pay 30% of the sum with palm oil deliveries.
Russia	Vietnam	August	Rosoboronexport signed a delivery contract for 12 S-300 SAM launchers and 2 system command posts. ⁶	\$250–300 mln ⁷	2002 contract for 10 Mi-2 and 2 Mi-17 helicopters. The deadline for completing deliveries was October 2003. ¹²
Russia	Indonesia	24.04.2003	Contract signed for the delivery of 2 Su-27SK and 2 Su30MK fighters and 2 Mi-35P helicopters. ⁸	\$192.9 mln ⁹	Deliveries completed in August 2003. Indonesia will pay about 80% of the sum with farm produce and electrical equipment. ¹⁰
Russia, Israel	India	10.10.2003	Letter of intent signed for the delivery of 3 AWACS aircraft to India based on the Russian Il-75 with an Israeli Phalcon radar for \$1.25 bln. ¹¹	\$150 mln	Russia's contribution will amount to refitting 3 Il-76 from Russian Air Force stocks, installing Israeli radar and replacing D-30 with PS-90 engines. Russia's share will be \$150 mln. ¹²
Russia	Vietnam	05.08.2003	Rosoboronexport, Vietnam signed a contract for the licensed production of Molniya missile boats in Vietnam. ¹³	\$120 mln ¹⁴	
Russia	Vietnam	01.12.2003	Rosoboronexport, Vietnamese Defense Ministry agreed on the delivery of 4 Su-30MK fighters for at least \$110 mln. ¹⁵	\$110 mln	The delivery contract was slated to be signed before the end of 2003. KnAAPO will manufacture the aircraft and deliver it to Vietnam in 2004. ¹⁶
Russia	Unknown	06.05.2003	A contract with a foreign country for the delivery of 3 Kasta-2 E2 radar stations for a total of \$100 mln. ¹⁷	\$100 mln	Kasta-2 E2 radar stations are made at the Murom Radio Instrument Plant.
Russia	Malaysia	01.10.2003	Rosoboronexport, Malaysian government signed a contract for the delivery of 10 Mi-17Sh helicopters. ¹⁸	\$71 mln ¹⁹	To offset agreements supplementing the contract, Malaysia will pay 30% of the sum with palm oil deliveries.
Russia	Iran	February	Kurganmashzavod JSC signed contract for the delivery of 300 BMP-2 fighting vehicles to Iran. ²⁰	\$60 mln ²¹ (estimated)	
Russia	Germany	21.08.2003	Russian Space Forces, Rosoboronexport signed a contract with OHB-System (Germany) for launching 5 SAR-Lupe radar reconnaissance satellites with Kosmos-3M and Rockot LVs from the Plesetsk Cosmodrome in 2005-2007. ²²	\$40 mln ²³	
Russia	Indonesia	2003	Contract signed for the delivery of 4 Mi-17 helicopters to the Indonesian Air Force. ²⁴	\$21.6 mln	Helicopter delivery was planned for February 2004 but postponed due to the failure of the Indonesian side to stand by its financial commitments under the contract.

Identified Contracts for Russian Arms Deliveries Signed in 2003

Exporter	Importer	Date	Description	Price	Notes
Russia	Algeria	15.07.2003	Sukhoi AMPC, Algeria signed a maintenance agreement for Su-24MK bombers. ²⁵	About \$10 mln ²⁶	In 2001-2001 some 12 units were delivered to Algeria under a 2000 contract for 22 Su-24MKs. ²⁷
Russia	Malaysia	22.08.2003	Ural Optical & Mechanical Plant (Yekaterinburg) signed a maintenance contract for the optical equipment of 18 Malaysian Air Force MiG-29 fighters. ²⁸	\$7 mln ²⁹	
Russia	Latvia	10.12.2003	Latvian Defense Ministry decided to buy 2 Mi-8MTV-1 helicopters for search and rescue operations. ³⁰	\$4.8 mln ³¹	Ulan-Ude Aviation Plant will deliver the helicopters.
Russia	USA	01.03.2003	Spektr-Konversiya (Snezhinsk, Chelyabinsk region), Stolar Horazing (USA) and Seattle Systems (USA) signed a contract worth over \$1 mln for the development of a land mine clearing device. ³²	Over \$1mln ³³	Contract will be implemented in two stages: stage 1 — concept development; stage 2— device development and production. The price of stage 1 is \$120,000. The U.S. side is to test the device and find markets.
Russia	Poland	January	Sukhoi AMPC signed 2 contracts with Polish aircraft plants WZL-2 (Bydgoszcz) and WZL-4 (Warsaw) for repairs and technical supplies of Su-22M4 and Su-22UM3K fighter-bombers of the Polish Air Force. ³⁴	\$1 bln ²	The Polish Air Force has 80 Su-22U 4s and 18 Su-22U 3Es. Up to 60 such aircraft should remain operational until 2010-2012. ³⁵
Russia	India	06.02.2003	Irkut Corporation, HAL (India) signed an agreement on component production for Su-30MKI fighters in India. ³⁶	\$900 mln ⁵	The agreement was signed in the framework of the contract for the delivery and licensed production of 140 Su-30MKI in India. ³⁷
Russia	France	February	Ural Optical & Mechanical Plant, Thales Navigation (France) signed an agreement on the joint production of satellite surveying systems. ³⁸		
Russia	Unknown	11.03.2003	Kaluga Engine Plant received an export contract to equip S-300 SAM systems with gas turbine power plants. ³⁹		The order will guarantee the plant's operations for the next 2 years. ⁴⁰
Russia	Libya	11.08.2003	Staraya Russa aircraft repair plant, Libya signed a contract for the repairs of Il-76 and Il-78 aircraft. ⁴¹		
Russia	India	September	Reports that India would acquire 6 Mi-17 helicopters. ⁴²		The first batch of helicopters was to be delivered before mid-September 2003, the rest at the beginning of 2004. ⁴³
Russia	Peru	07.11.2003	Russia, Peruvian government signed a military assistance agreement under which Russia is to overhaul a significant number of malfunctioning Soviet/Russian-made aircraft and helicopters of the Peruvian Air Force. ⁴⁴		The Peruvian Air Force has 20 MiG-29s, 3 MiG-25s, 30 Su-22s, 18 Su-25s, 4 Il-103 aircraft, 53 Mi-8s, 76 Mi-17s, 16 Mi-24s, 5 Mi-6s, 2 Mi-26s helicopters. ⁴⁵
Russia	Mexico	22.12.2003	Rosoboronexport signed a contract for the delivery of 52 Ural-4320 trucks and 2 MRS-AM1 repair shops for the Mexican Navy. ⁴⁶		Expected delivery date: first half of 2004. ⁴⁷
Total volume of identified 2003 contracts for Russian arms deliveries				Over \$3.1 bln	

- 1 Konstantin Lantratov. "Kitaitskiy flot budet usilen rossiiskimi istrebitelyami," *Kommersant*, 25.01.2003.
- 2 Ibid.
- 3 Ibid.
- 4 Arkady Dubov. "Kak po maslu," *Vremya Novostei*, 06.08.2003.
- 5 Ibid.
- 6 Leonid Zavarsky, Konstantin Lantratov. "Dengi na MAKS upali s neba," *Kommersant*, 25.08.2003.
- 7 Alexei Nikolsky. "Rossiya prodavot S-300 vo Vyetnam," *Vedomosti*, 22.08.2-3; Ivan Yegorov. "Rossiyskiye zenitki budut zashchishchaty nebo Vyetnama," *Gazeta*, 25.08.2003.
- 8 Alexander Popov, Konstantin Lantratov. "Indoneziya zavalit Rossiya svoimi tovarami," *Kommersant*, 28.04.2003.
- 9 Ibid.
- 10 Ibid.
- 11 "Rossiya postavit Indii tri samolyota dalnego radiolokatsionnogo dozora, obnaruzheniya inavedeniya A-50," Interfax-AVN, 10.10.2003; Dror Marom. "Phalcon deal with India believed barely profitable," *Globes (Israel)*, 12.10.2003.
- 12 Alexei Nikolsky. "Rossiya zarabotayet \$150 mln," *Vedomosti*, 13.10.2003.
- 13 Viktor Matveyev. "Shou v Finskom zalive," *Vremya Novostei*, 26.06.2003.
- 14 Ibid.
- 15 Alexei Nikolsky. "Vyetnam pokupayet Su-30," *Vedomosti*, 02.12.2003.
- 16 Konstantin Lantratov. "Vyetnam vernulsya k zakupke "sushek," *Kommersant*, 02.12.2003.
- 17 Interfax-AVN, 06.05.2003.
- 18 Alexei Nikolsky. "Vertolyoty letyat v Malaiziyu," *Vedomosti*, 02.10.2003.
- 19 Ibid.
- 20 *Ekspert-Ural*, 10.02.2003; Alexei Nikolsky. "Kurganmashzavod postavit 300 BMP na Sredniy Vostok," *Vedomosti*, 12.03.2003.
- 21 Ibid.
- 22 Nikolai Golikov. "Kosmicheskiye voiska budut rabotat na inostrantsev," *Nezavisimaya Gazeta*, 22.08.2003; Ivan Safronov, "Rossiya pomozhet Germanii zapustit sputniki-shpiony svoimi lyogkimi raketami," *Kommersant*, 22.08.2003.
- 23 Ibid.
- 24 Fabiola Desy Unidjaja. "Mega orders resolution of M-17 choppers fiasco," *The Jakarta Post (Jakarta)*, 02.03.2004.
- 25 "Firma "Sukhoi" zaklyuchila s Alzhirom soglasheniye na posleprodazhnoye obsluzhivaniye samolyotov Su-24MK," ITAR-TASS, 14.07.2003.
- 26 "Sukhoi podpisal kontrakt na \$100 mln." *Vedomosti*, 12.01.2004.
- 27 UN Register of Conventional Arms, <http://disarmament2.un.org>.
- 28 Leonid Zavarsky, Konstantin Lantratov. "Dengi na MAKS upali s neba," *Kommersant*, 25.08.2003.
- 29 Ibid.
- 30 "Minoborony Latvii priobretyot v Rossii dva vertolyota Mi-8," RIA-Novosti, 10.12.2003.
- 31 Ibid.
- 32 Interfax-Urals, 03.03.2003.
- 33 Ibid.
- 34 *Kommersant*, 23.01.2003.
- 35 Ibid.
- 36 Konstantin Lantratov. "Agregaty dlya rossiiskikh samolyotov budut proizvoditsya v Indii," *Kommersant*, 07.02.2003.
- 37 Ibid.
- 38 *Interfax-Urals*, 13.02.2003.
- 39 *Promyshlennyye novosti (Derric_Ru)*, 11.03.2003.
- 40 Ibid.
- 41 "Nashy samolyoty otremontruyem sami," *Ekonomika i Vremya (St. Petersburg)*, 11.08.2003.
- 42 RIA-Novosti, 05.09.2003.
- 43 Ibid.
- 44 "Peru i Rossia zaklyuchili soglasheniye o kapitalnom remonte aviatekhniki," *Flight International*, 07.11.2003.
- 45 The Military Balance 2003-2004, IISS, Oxford University Press, October 2003.
- 46 RIA-Novosti, 22.12.2003.
- 47 Ibid.