Russia intends to increase its conventional military capability and correspondingly plans to increase its defence budget in both relative and absolute terms. If the Russian political and military leadership is successful in this ambition, the overall military capability of Russia could increase significantly as early as in 2020. The Armed Forces that emerge at the other end of this process will look radically different compared to the military that Russia sent to war in Georgia in 2008. Russia has started to abandon an army based on mobilisation in favour of a military organisation that is smaller but better able to respond quickly to the military challenges that Russia might expect. Russia's development of its military capability will, however, not be dependent only on the military reform process and goals set by the military leadership. Economic, political, demographic and industry-related factors will decide how quickly and how successfully Russia can push forward towards creating a stronger and more modern military.

In a ten-year perspective, Russia will remain dependent on nuclear arms – both strategic and tactical – for its military security. During the next two to five years, the Armed Forces will be undergoing restructuring and reorganisation in order to develop new capabilities. Their conventional capability could decline somewhat during this process, but this will be a temporary set-back in order to build a more effective organisation and greater military capability.

Russian Military Capability in a Ten-Year Perspective – 2011

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Russian Military Capability in a Ten-Year Perspective – 2011

Carolina Vendil Pallin (ed.)

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Cover photo: Russian conscripts lining up in Moscow, 26 November 2010, AP Photo/Mikhail Metzel. Scanpix.

Sammanfattning

Ryssland avser att öka sin försvarsbudget även i relativa termer och det finns en tydlig intention att öka den konventionella förmågan. Om den ryska politiska och militära ledningen lyckas driva denna process framåt kan landets sammantagna militära förmåga komma att höjas avsevärt redan fram mot år 2020. De Väpnade Styrkor som då kommer ut på andra sidan processen kommer att se annorlunda ut jämfört med dem Ryssland förfogade över i Georgienkriget 2008. Ryssland har inlett en process där förmågan till massmobilisering gradvis minskas till förmån för att skapa ett försvar som är mindre, men som snabbare kan reagera på de militära utmaningar som Ryssland förutser, ett snabbinsatsförsvar. Rysslands militära förmågeutveckling kommer dock att vara beroende av ekonomiska, inrikespolitiska, demografiska och industriella faktorer, utöver de rent militära.

Ryssland kommer i ett tioårsperspektiv att vara fortsatt beroende av kärnvapen – såväl strategiska som taktiska – för sin militära säkerhet. Under de närmaste två till fem åren kommer Rysslands konventionella Väpnade Styrkor fortsatt att befinna sig i ett tillstånd där omstrukturering av organisationen och utveckling av ny förmåga står i fokus. Därmed kan Rysslands konventionella militära förmåga komma att gå ned under en övergångsperiod då man ändrar de strukturella förutsättningarna för att på sikt bygga en effektivare organisation och därmed en större militär förmåga.

Nyckelord:
Ryssland, OSS, militär förmåga, de Väpnade Styrkorna, demokrati, säkerhetspolitik, ekonomi, försvarsekonomi, energi, FoU, massförstörelsevapen, utrikespolitik, inrikespolitik, kärnvapen, kemiska vapen, biologiska vapen, doktrin, försvarsindustri, materielanskaffning, vapenexport, Putin, Medvedev

Abstract

Russia intends to increase its conventional military capability and correspondingly plans to increase its defence budget in both relative and absolute terms. If the Russian political and military leadership is successful in this ambition, the overall military capability of Russia could increase significantly as early as in 2020. The Armed Forces that emerge at the other end of this process will look radically different compared to the military that Russia sent to war in Georgia in 2008. Russia has started to abandon an army based on mobilisation in favour of a military organisation that is smaller but better able to respond quickly to the military challenges that Russia might expect. Russia's development of its military capability will, however, not be dependent only on the military reform process and goals set by the military leadership. Economic, political, demographic and industry-related factors will decide how quickly and how successfully Russia can push forward towards creating a stronger and more modern military.

In a ten-year perspective, Russia will remain dependent on nuclear arms – both strategic and tactical – for its military security. During the next two to five years, the Armed Forces will be undergoing restructuring and reorganisation in order to develop new capabilities. Their conventional capability could decline somewhat during this process, but this will be a temporary set-back in order to build a more effective organisation and greater military capability.

Keywords:
Russia, CIS, military capability, Armed Forces, democracy, security policy, economy, defence economy, energy, R&D, weapons of mass destruction, foreign policy, domestic policy, nuclear arms, chemical weapons, biological weapons, doctrine, defence industry, procurement, defence exports, Putin, Medvedev

Preface

Since 1998, the Russia Programme at the Swedish Defence Research Agency (FOI) has produced six reports on Russian military capability in a ten-year perspective in Swedish. Furthermore, these reports have been accompanied by a summary. This time, the Russia Programme has put together an English report based on the Swedish one that is considerably more than a summary but slightly less than the Swedish version. Compared to the Swedish report, the English study is more focused on military affairs. Therefore the chapters on domestic politics, economy, energy as well as research and development have been excluded in the English report. The study is based on open sources as was the Swedish original study.

A number of experts have generously contributed with their knowledge by reading the chapters and comment upon them. Johan Tunberger provided advice on how the conclusions could be trimmed and made more pertinent to the overall question; Bertil Nygren and Ingmar Oldberg read the chapter on foreign policy; Jan Leijonhielm, who previously headed the Russia Programme read the chapter on defence economics, as did Julian Cooper; Pär Blid read the chapter on the Armed Forces; Tor Bukkvoll and Paul Holtom read both the chapter on the defence industry and that on the Armed Forces; and Daniel Nord as well as Lena Norlander together with her colleagues at FOI in Umeå read the chapter on weapons of mass destruction. Their comments greatly enhanced the quality of the report and all the authors are deeply indebted to them. Any remaining errors are, of course, entirely the responsibility of the authors and editor of this study.

The personnel at the Swedish Embassy in Moscow both helped with logistics and generously shared their expertise during a research trip that the project as a whole undertook in May 2011. Not least, Defence Attaché Johan Huovinen was instrumental in coordinating the programme for the visit and providing both practical advice and important expertise on Russian military affairs.

The Russia Programme would also like to thank Pavel Podvig for the data for he provided for the diagrams on nuclear warheads as well as Per Wikström at FOI in Umeå, who was instrumental in providing maps for the study. Sanna Aronsson helped with practicalities during the entire research process, but even more importantly, did the final proof editing with a firm, expert hand.

Finally, all the authors would like to express their gratitude to Vitaly Shlykov, whom we met in Moscow in May 2011. As always, he was an invaluable source of expertise and new perspectives. We received the news that he had passed away in November the same year and his incisive comments will be greatly missed in the Russian debate on defence affairs.

Stockholm, June 2012
Carolina Vendil Pallin

Acronyms and Abbreviations

		Note
AFADC	Air Force and Air Defence Commands	
ALCM	air-launched cruise missile	
ASM	air-to-surface missile	
ASW	anti-submarine weapon	
AWAC	airborne warning and control system	
BMD	infantry combat vehicle	*Ru. boevaia mashina desanty*
BMP	infantry combat vehicle	*Ru. boevaia mashina pekhoty*
BRIC	Brazil, Russia, India and China	
BTR	armoured personnel carrier	*Ru. bronetransporter*
BTWC	Biological and Toxin Weapons Convention	
BW	biological weapons(s)	
C4ISR	command, control, communication, computers, intelligence, surveillance and reconnaissance	
CAST	Centre for Analysis of Strategies and Technologies	*Ru.* Tsentr Analiza Strategii i Tekhnologii (TsAST)
CFE	Conventional Forces in Europe (Treaty)	
CIS	Commonwealth of Independent States	
CSTO	Collective Security Treaty Organization	
CW	Chemical weapon(s)	
CWC	Chemical Weapons Convention	
DA	Long-Range Aviation	*Ru.* Dalnaia aviatsiia
EAU	Eurasian Union	
EST	European security treaty	
EU	European Union	
EU-27	The 27 member states of the European Union	
FOI	Swedish Defence Research Agency	*Sw.* Totalförsvarets Forskningsinstitut
FSB	Federal Security Service	*Ru.* Federalnaia sluzhba bezopasnosti
FSO	Federal Protection Service	*Ru*: Federalnaia sluzhba okhrany

		Note
G8	Group of Eight leading industrial nations	France, Germany, Italy, Japan, Canada, Russia, the United Kingdom and the US
GBI	Ground Based Interceptor	Element of American ballistic missile defence
GDP	Gross domestic product	
GOZ	Government Defence Order	*Ru.* Gosudarstvennyi oboronnyi zakaz
GPV	State Armament Programme	*Ru.* Gosudarstvennaia programma vooruzheniia
IAEA	International Atomic Energy Agency	
ICBM	intercontinental ballistic missile	
IISS	International Institute for Strategic Studies	
INF	Intermediate-Range Nuclear Forces Treaty	
ISAF	International Security Assistance Force	
ISTC	International Science and Technology Centre	
LMV	light multi-role vehicle	
MChS	Ministry for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters	*Ru.* Ministerstvo po delam grazhdanskoi oborony, chrezvychainym situatsiiam i likvidatsiia posledstvii stikhiinykh bedstvii
MD	Military District	
MIRV	multiple independently targetable re-entry vehicles	
MoD	Ministry of Defence	
MTA	multi-role transport aircraft	
NATO	North Atlantic Treaty Organization	
NCO	non-commissioned officer	
OPCW	Organisation for the Prohibition of Chemical Weapons	
OPK	Defence-industrial complex	*Ru. oboronno-promyshlennyi kompleks*
OSK	Joint Strategic Command	*Ru. Obedinonnoe -strategicheskaia komandovaniia*
OSK	United Shipbuilding Group	Obedinennaia Sudostroitelnaia Korporatsiia

		Note
OSCE	Organization for Security and Co-operation in Europe	
PAA	Phased Adapted Approach	
PCA	Partnership and Cooperation Agreement	
PPBS	Planning, Programming, and Budgeting System	
R&D	research and development	
Roskosmos	Russian Space Agency	*Ru.* Federalnoe kosmicheskoe agenstvo
RUR	Russian roubles	
SAM	surface-to-air missile	
SCO	Shanghai Cooperation Organisation	
SES	Single Economic Space	
SIPRI	Stockholm International Peace Research Institute	
SLBM	submarine-launched ballistic missile	
SLCM	submarine-launched cruise missile	
SRAM	short-range attack missile	
START	Strategic Arms Reduction Treaty	
STCU	Science and Technology Centre Ukraine	
TCP	Trans-Caspian Pipeline	
TRV	Tactical Missile Armament Corp.	*Ru.* Takticheskoe Raketnoe Vooruzhenie
UAV	unmanned aerial vehicle	
UK	United Kingdom	
UN	United Nations	
USD	United States dollar	
VDV	Airborne Forces	*Ru.* Voenno-desantnye voiska
VKO	Aerospace Defence	*Ru.* Vozdushno-kosmicheskaia oborona
WMD	weapon(s) of mass destruction	
VTA	Military Transport Aviation	*Ru.* Voenno-transportnaia aviatsiia
VVS	Air Force	*Ru.* Voenno-vozdushnye sily
WHO	World Health Organization	
WTO	World Trade Organization	

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1. Russian Military Capability in a Ten-Year Perspective

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> *I remember the conversation with the then chief of the General Staff very well. ... In order to give an effective answer to the terrorists we needed to gather a force numbering at least 65 000 men. But in all of the Ground Forces, there were 55 000 in battle-ready units, and these were scattered all over the country. An army of 1 million 400 thousand men, but there was no one who could go to war.*
>
> Vladimir Putin's Annual Address to Parliament in 2006[1]

The quotation from Vladimir Putin's Annual Address as president in 2006 neatly summarises the reason why Russia had to press forward with long-overdue reforms of its Armed Forces. Two decades after the fall of the Soviet Union, Russia was still left with an oversized military organisation built for large-scale mobilisation and the demands of the Cold War, but highly ineffective for the type of conventional military conflicts that Russia was most likely to become involved in. The rationale behind Russia's reforms of the Armed Forces were thus clear long before the war in Georgia, which has often been pointed to as the reason why the reforms were launched in October 2008.

At the annual evaluation meeting on 22 November 2011, the Russian minister of defence, Anatolii Serdiukov, started by stating that the task of transforming the Armed Forces, giving them a 'new look' (*Novyi Oblik*), had been fulfilled. However, he also pointed to a number of tasks ahead.[2] And, in spite of the many problems and criticisms levelled against Serdiukov's reforms, the achievements so far are worth taking note of. Few believed that Serdiukov would be successful where earlier ministers of defence had failed, but three years after the reforms were launched, the results are impressive. In little more than three years, Russia has managed to downsize its bloated officer corps, to dismantle empty cadre units and to introduce a new command system as well as a new branch of arms. Although there are significant tasks ahead, there is every reason to note the scale and depth of the restructuring that has taken place inside Russia's Armed Forces.

In order to understand what military capability Russia will have in 2020, it is important to establish and keep separate, first, what the capability is today, second, what the plans are for 2020 and, finally, which domestic, economic, demographic, infrastructural and international conditions will constrain or further the reform process.

1.1 Russian military capability today

Nuclear arms remain top priority

When discussing Russia's military capability, it is imperative to underline that nuclear arms, both on a strategic and on a sub-strategic level, remain a priority. Serdiukov's reforms very much focus on conventional capability, but this does not signify that the importance of strategic deterrence has in any way diminished in Russia's eyes. As Fredrik Westerlund concludes in the chapter on weapons of mass destruction (Chapter 6), Russia retains its second-strike capability in spite of a reduced arsenal. That this is a future priority as well was emphasised in a speech by the chief of the General Staff, Army General Nikolai Makarov, in November 2011 and by Vladimir Putin in his pre-election article in February 2012.[3]

Biological and chemical weapons

Turning to biological and chemical weapons, Roger Roffey draws the conclusion in Chapter 6 that Russia retains a high defence capability against these weapons, but also that there are no signs of increased transparency about these programmes.

A temporary drop in conventional capability

Russia's conventional military capability probably declined somewhat as Serdiukov's reform programme unfolded and was implemented with breath-taking speed from October 2008. Although there are no official statements to this effect, all organisations that undergo drastic reforms tend to become less efficient in fulfilling their tasks during the actual reform process, and Russia's Armed Forces are probably no exception to this rule. Considering the often harsh criticism levelled at Serdiukov's reform programme, the Ministry of Defence (MoD) is bound to be reluctant to admit to any loss of military capability. Most importantly, however, Märta Carlsson and Johan Norberg conclude in Chapter 5 that the reforms were undertaken in order to establish the structural preconditions for a gradual increase in conventional military capability.

Yearly strategic exercises

In spite of the reform process, Russia has been able to stage strategic exercises each year. The exercises have comprised large formations and sometimes as many as 20 000–25 000 men. In these, the focus has been on what will become key capabilities in Russia's new Armed Forces such as strategic mobility, command and control, and the ability to act effectively in joint operations. There is evidence of development of new concepts of warfare, but also on training in 'old skills'.

Certain aspects of the exercises almost bring Soviet warfare to mind. That new and old concepts continue to exist side by side is hardly surprising. Russia can ill afford to abandon old skills before new ones have been developed, trained and embedded in the organisation.

Probably not 1 million men

According to a presidential decision, Russia's Armed Forces should comprise 1 million men, but they probably number only about 700 000–800 000 currently. This figure is arrived at by adding together the official numbers of officers, contract-employed personnel and conscripts. The number of officers has been reduced drastically as part of the reform programme, but the difficulties in recruiting young men for contract service remain. At the same time, the cohort of conscripts has contracted and the Armed Forces are not the only troops that

compete for them: other troops such as the Interior Troops and the Federal Security Service (Federalnaia sluzhba bezopasnosti, FSB) also draft soldiers.

Ability to handle one local war

Russia distinguishes between three types of war: local, regional and large-scale war. According to the Russian definition, a local war is one between two or more states with limited military-political goals. A regional war involves two or more states within a region and can involve both conventional and nuclear weapons. The military-political goals in a regional conflict are 'important' (*vazhnye*). Finally, large-scale wars are fought between coalitions or large states in the international system and 'radical military-political goals' are pursued. Large-scale wars demand the mobilisation of all 'material and spiritual resources' of the states involved.[4] A local war is comparable to the war in Georgia in 2008 while a regional war could be, for example, a major war with China, to illustrate the difference. Given the evidence in Chapter 5, Russia can handle one local or, less likely, a regional war. However, it is worth underlining that the arithmetic would probably be different if Russia were to believe itself to be facing an existential threat.

Weaknesses and challenges

Ever since the fall of the Soviet Union and perhaps before that as well, Russia has struggled with a number of weaknesses when it came to its conventional Armed Forces. These problems have remained in spite of previous attempts at reforming Russia's military. First, manning Russia's military has developed into one of the main challenges. A career in the Armed Forces simply does not attract enough young, talented men in Russia. And the contract-employed soldiers and junior officers tend to leave when their contract is finished or, at times, even before this. The problem is compounded by the fact that the conscription cohort has shrunk as a result of falling birth rates beginning in the 1990s.

Second, Russian command and control needs to be more efficient and in line with the demands of modern warfare. The Ministry of Defence is acutely aware of the importance of developing command and control within the Armed Forces and integrating new technology (command, control, communication, computers, intelligence, surveillance and reconnaissance, C4ISR). Not only is there a need for new communications equipment and computer-based command systems, but a new culture of command as well as new training is also called for. Russia is also still working hard on developing its ability to conduct joint operations both inter-service and involving troops belonging to ministries and services other than the MoD.

Third, Soviet military strategy has not been replaced by a new Russian military strategy. Makarov has called on a number of occasions for intensive development of the country's military thinking. In March 2011, he even claimed that Russia had been unable to produce modern military thinking during the previous two decades.[5] Since April 2011, there has been a Council on Scientific and Technological Policy attached to the ministry and a former first deputy minister of defence, Andrei Kokoshin, who is also one of Russia's most prominent academicians in the field of strategy, was appointed chairman of the council.[6] The council is 'to assist in the development of a conceptual basis for future

forms and means of using the Armed Forces while using the newest findings in science and technology'.[7]

Fourth, as Russia has reduced its number of units drastically, the importance of strategic mobility will become even more accentuated. By tradition and in response to its geopolitical position, Russia has historically devoted much thinking and effort to this aspect of warfare. However, the new reform goals coupled with the vast size of Russia's territory will make strategic mobility even more of a challenge in the future.

Finally, there is a shortage of modern weapons and equipment. Certain types of weapons and equipment are not in sufficient supply, or the defence industry supplies the Armed Forces with versions of these that are not up to modern standards. This applies mainly to equipment such as unmanned aerial vehicles (UAVs), satellite-based positioning and high-precision weapons.

1.2 The plans for 2020

Rapid reaction capability

The plans for the period up to 2020 are in many ways a mirror image of the challenges that Russia faced in 2011, which is logical since the reforms were launched to rectify these problems. The overall purpose is to create a rapid reaction capability with fully manned units in a state of high readiness. Coupled to the requirement of high readiness is the demand for high strategic mobility. The Military Transport Aviation and the Railway Troops are set to play a key role in moving troops quickly, but high mobility will also signify new challenges when it comes to overall logistics and the rear services.

Procurement

The Armed Forces are to have 70 per cent modern weapons and equipment by 2020 (see Chapter 3). However, so far the political and military leadership has been, perhaps intentionally, vague on what 'modern' means. Clearly it does not signify 'new' but is rather a mix between new and modernised as well as possibly repaired and upgraded. Fredrik Westerlund concludes in Chapter 4 that the defence industry is divided into A and B teams, where some companies enjoy export successes and are set to be favoured in the planned increase in government orders, while others remain dependent on government subsidies. Furthermore, the lack of transparency and independent scrutiny coupled with a high level of corruption makes it doubtful whether the long-term plan for spending on procurement in the State Armament Programme up to 2020 will produce a corresponding increase in output.

The defence budget's share of the gross domestic product (GDP) is planned to increase from 2.9 per cent in 2011 to 3.9 per cent in 2014 and is mainly earmarked for procurement. In Chapter 3, Susanne Oxenstierna and Bengt-Göran Bergstrand project the future possible trends in Russian military spending according to different rates of growth of GDP and different levels of military expenditure shares of GDP over the period 2010–2020. It is obvious from these projections that both the rate of GDP growth and the Ministry of Defence's bargaining strength will be decisive factors in determining how much is actually spent on defence up to 2020.

Defence spending

The declared ambition is to create a rapid reaction capability with 1 million men in standing units and a mobilisation capability of 700 000 men in addition. This will prove a tall order, not least when it comes to increasing the number of soldiers and junior officers. The ambitious plan is to have recruited 425 000 contract soldiers by 2020. This will mean that the Armed Forces have both to attract and employ an additional 245 000 men and to make sure that they keep those already enlisted. Certain measures are already in place to raise the pay and improve the benefits for military personnel, and further reforms are on the way.

Manning and mobilisation

If Russia sticks to its goal of a standing force of 1 million men, these plans are likely to demand even further increases in the defence budget. And better pay and benefits will only be part of the solution. Serving in the Armed Forces is not an attractive career for other reasons as well. Not least, the high incidence of hazing (so-called *dedovshchina*) in the Armed Forces has made most Russians reluctant to serve or to send a young relative to do so, whether as conscripts or as contract-employed soldiers. Moreover, the cohort of eighteen-year-olds will not increase significantly up to 2020. In other words, introducing draconian new measures in order to draft more young men will not provide an easy way out of the problem.

Command and control

A crucial aspect of the reform programme concerns efforts to improve the command system and to introduce computer-based systems as well as new routines and training. Joint strategic commands have already been established in four strategic directions: West, South, Centre and East. In line with this, the number of military districts has been reduced from six to four. More work is also needed on establishing joint commands and conducting joint operations. Here the ambition is a broad process where concepts, organisation, technology and training are addressed.

1.3 Conditions outside the Armed Forces that influence the reform process

Regardless of how successful or unsuccessful the Ministry of Defence is in pushing forward with reforms, there are a number of conditions external to the MoD that will either promote the reform process or hinder it. These are first and foremost domestic political developments, the economy, demographics and the state of the defence industry. Furthermore, the number of military threats that Russia sees to its security will also decide what demands are made on the Armed Forces.

Political will in doubt

One explanation as to why Serdiukov has so far been successful in carrying out major reforms with surprising speed is that his programme had the support of both Putin and former President Dmitrii Medvedev. That the reform process is backed up by a strong political commitment is fundamental to its success. In early 2012, the Kremlin's support for increased defence spending and further reforms of the Armed Forces appeared secure. However, the Russian domestic political situation started to change drastically in 2011. Putin's public opinion

ratings are falling, albeit slowly, and political protest on the streets of Moscow gathered speed following allegations of large-scale fraud in the parliamentary elections in December 2011. There are an increasing number of analyses that suggest that the stability of the political system could be in danger.

Furthermore, a number of politically costly decisions lie ahead and difficult decisions will have to be made on what takes priority as between military reform and the urgent needs in the economy. For example, Russia will need to invest in infrastructure and to reform its underfinanced pensions system.[8] Taking all of these domestic political changes into account, strong political backing for increased defence spending and continued reforms cannot be taken for granted.

GDP growth will prove a determining factor

It is clear that structural problems remain in Russia's economy. Perhaps most importantly, the budget is still dependent on export revenues from the energy sector. This makes Russia highly vulnerable to fluctuations in the international prices of oil and gas. Furthermore, Russia exports its energy mainly to Europe and is therefore also vulnerable to fluctuations in European demand for energy. Russia will continue to try and diversify its energy exports in order to achieve increased security of demand.[9]

As mentioned above, the defence budget is set to increase to 3.9 per cent of GDP by 2014 and increased personnel costs could require a further increase above that. There are still, however, significant question marks as to whether the increased funding will produce the desired effects. Corruption levels are still very high while the level of transparency and outside scrutiny is low or almost non-existent.[10] Nevertheless, on a general level the rate of GDP growth and export revenues will be deciding factors for how much money can be devoted to the reform process even if the MoD is successful in lobbying for a larger part of the state budget.

Demographic challenges

Russia's population is still decreasing. The conscription cohort will hover at around 650 000–700 000 male eighteen-year-olds in the period 2011–2020 and this is something that new policies cannot change. Of these eighteen-year-olds, many cannot be drafted because of poor health or drug or alcohol abuse. In addition, university studies constitute ground for deferment and some of the young men already have a criminal record which makes them unsuitable for service.[11] The problem is, however, not only one of quantity but also one of quality. The goals of the reform of the Armed Forces include introducing new concepts of warfare, integrating new technology and not least introducing computer-based command and control systems. This will make new and greater demands on both soldiers and junior officers and specialists. An entirely new approach towards recruitment is called for if Russia is to be successful in attracting a sufficient number of talented young men to the Armed Forces.

The unreformed defence industry

The defence industry is still unreformed. It will not be able to produce the whole range of weapons systems that the MoD and the Armed Forces are demanding unless radical measures are taken. This could prove a greater political challenge than taking on the displeasure of Russia's military officers, since the companies of

the defence industry have proved themselves to be formidable lobbying entities in the past. Some of the companies play a key role in the so-called monocities or company towns (*monogrady*). Paying the political price and facing the social consequences of closing down such companies will demand considerable political courage and determination.

If Russia's defence industry is not reformed, there is every reason to expect an increased dependence on imports from abroad. Research and development will prove unable to constitute a driving force for modernisation and innovation. Furthermore, defence research will become increasingly dependent on civilian research.[12]

A multitude of threats prioritised

Russia's most acute military challenge is located in the North Caucasus – and the security situation there has deteriorated rather than improved since 2008.[13] The forces involved in the North Caucasus are mainly Interior Troops and units from the FSB, but the Russian Armed Forces could quickly become more involved should the situation deteriorate further.

As Jakob Hedenskog concludes in Chapter 2, Moscow prioritises the Commonwealth of Independent States area and Russia has strengthened its position in the region. There is, however, a risk of armed conflict especially in the Caucasus and in Central Asia. Russia has sought to strengthen the role of the Collective Security Treaty Organization in the region, but will realistically continue to carry the largest part of the military burden.

NATO is defined as a 'military danger' in the Russian Military Doctrine from 2010 and relations between the West and Russia remain troubled. Although China is not explicitly mentioned as a military threat or danger, evidence from military exercises and occasional statements by Russian generals suggest that China is considered to be a potential future military threat. In other words, Russia still sees a wide range of threats along its borders and this will have implications for its military planning since it will have to disperse fewer units and men over a territory that still makes Russia the largest country in the world.

1.4 The future of the reform of the Armed Forces

Although Russia will probably not be able to reach all of the ambitious goals of its reform programme for the Armed Forces, there is little doubt that its overall military capability will have increased by 2020. The structural conditions for pushing forward with the reform are in place. In other words, Russia will increase its conventional military capability up to 2020 and will continue to maintain a high nuclear capability.

One of the main problems ahead is manning, and Russia can do little to influence demographics to 2020. It can take measures to hinder the recruitment cohort from contracting further, but it cannot increase the number of young men available. Another serious challenge is the still unreformed Russian defence industry. The rate of growth of GDP will decide the economic base for military

spending but there are also problems connected to corruption and the lack of transparency that make it doubtful whether increased spending will result in the desired effect as regards, for example, procurement levels and recruitment. In the end, the reforms are also highly dependent on political will and determination.

Endnotes

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2. Foreign Policy

Jakob Hedenskog

Over the past decade, a consensus has developed in the Russian elite regarding the country's foreign policy. According to this consensus, the fundamental aim of Russian foreign policy is to boost the country's influence in the world and confirm its standing as a respected great power. This policy derives partly from Russia's geopolitical position and partly from the pragmatism of a political leadership that is aware of the country's abundant energy resources (primarily oil and gas). Under Vladimir Putin and Dmitrii Medvedev, there has been full agreement in the leadership about Russia's place in the international system and about where its national interests lie.[1] The Foreign Policy Concept adopted in July 2008 states that policy is to be distinguished by its 'balanced and multi-vector character', based on the country's geopolitical position. Russia is said to have a special 'responsibility' for maintaining security both globally and regionally. The document emphasises that Russia is a major power that other states have to take into consideration and that no problems can be solved without Russia. It stresses the importance of a multipolar world order – in contrast to the unipolar world order that the US is said to advocate – in which the key features are dialogue, the central role of the United Nations (UN), non-military solutions, and respect for territorial integrity and international law.[2]

For Russia, one way of achieving the status of a modern great power is to ensure that the strong economic growth it has experienced over the past decade continues. A new component in the foreign policy is that the priorities have increasingly come to reflect the government's modernisation agenda at home. Since modernisation is largely about investment, new technology and innovation, Russia has no choice but to seek better relations with those countries that are able to supply such input. Consequently, it has made active efforts to improve its relations with the US and the European Union (EU) in the hope of attracting investment and new technology from them. Moscow's decision to support UN sanctions against Iran and to enter into discussions with NATO on missile defence cooperation should be seen in this light. Modernisation has become a means of achieving the more traditional goal of Russian foreign policy, i.e. to restore the country to its former position of a major power in the world.[3] Without new technology and new economic institutions, this goal will be difficult to achieve.

The aim of this chapter is partly to provide a general account of Russia's current foreign policy, and partly to assess what foreign policy challenges Russia will face during the coming ten-year period. What are Russia's foreign policy priorities and will these remain in place over the coming decade? What conflicts may be expected to develop in Russia's immediate vicinity and how will Russia react to them? The analysis is divided up geographically and deals with Russia's relations with the Commonwealth of Independent States (CIS), the EU, the

Baltic Sea region and the Arctic, the US and NATO, Asia, and North Africa and the Middle East. This geographical order generally reflects the order of priority in the Russian Foreign Policy Concept of 2008.

2.1 Russia and the Commonwealth of Independent States

Relations with the former Soviet republics in the CIS are still a matter of the highest priority in Russian foreign policy. There are strong historical, economic and pragmatic reasons for this. Russia views the CIS area as its exclusive sphere of interest, one in which efforts by other outside forces to gain influence are only tolerated as long as they do not threaten vital Russian interests.

Russian successes

Lately, Russia has strengthened its influence in the CIS area and won back some of the initiative it lost in connection with the 'colour' revolutions in Georgia, Ukraine and Kyrgyzstan in 2003–2005. Russia is once again a force to be reckoned with. Through the war in Georgia in August 2008, Moscow demonstrated where it draws the line for NATO's expansion and US influence in the area. In January 2010, a Customs Union between Russia, Kazakhstan and Belarus entered into force. From 1 January 2012, the Customs Union developed into a Single Economic Space (SES), which can be seen as a first step in the process of establishing economic cooperation, modelled on the EU internal market.

From 2010, political changes within Ukraine and Kyrgyzstan led to a rebuilding of relations with Russia. Ukraine's attempt to join NATO was replaced by a policy of non-alignment coupled with the goal to increase cooperation with the Western alliance. The events of April 2010 in Kyrgyzstan, which brought down the country's president, Kurmanbek Bakiev, resulted in a more pro-Russian government, and this shift was confirmed when Almazbek Atambaiev was elected the new president in October 2011. Both Kyrgyzstan and Tajikistan have officially considered joining the Customs Union.

Local conflicts

Even if it cannot resolve local conflicts along its borders, Russia is intent on at least controlling them or preventing them from flaring up once more. This is one of its top priorities, and also helps explain why it has both military bases and peace-enforcement troops in certain countries and conflict zones in the CIS area. In recent years, Russia has increased and consolidated its military presence in this part of the world. Old military bases have been set up anew in South Ossetia and Abkhazia in the wake of the war in Georgia. Russia signed an agreement with Ukraine in 2010 on a 25-year extension after 2017 of the contract for the Russian Black Sea naval base in Sevastopol, giving Ukraine a discount on imports of Russian gas in exchange. New agreements extending the contracts for Russia's military bases with similar time frames were also signed with Armenia in 2010 and prepared to be signed with Tajikistan in 2011.[4]

The greatest potential for conflict in Russia's immediate vicinity lies in the Caucasus. In addition to what Moscow defines as terrorists and bandit groupings in the Russian North Caucasus, Georgia is perceived as an unpredictable actor.

Russia is demonstrating its military strength in the region, for instance by means of the operational-strategic exercise Kavkaz. Tension remains high on both sides of the Caucasus mountains, and as time passes and Georgia restores its armed forces to their former strength, mistrust between the two countries could deepen further.[5]

Of the 'frozen' conflicts in Russia's immediate vicinity, the one in Nagorno-Karabakh appears to be the one with the greatest risk to re-ignite and create problems for Moscow. The Armenian and Azerbaijani armed forces are much better equipped nowadays, and there is a danger that a new war over Nagorno-Karabakh would be even bloodier and more prolonged than the one that took place in 1992–94 and which ended in a fragile truce. Regional alliances might draw Russia, Turkey and Iran into the conflict, and important oil and gas pipelines in the region could be knocked out.[6]

A renewed conflict over Nagorno-Karabakh would leave Russia with a difficult choice. Through the charter of the Collective Security Treaty Organization (CSTO) and the bilateral agreement it signed in 2010, Russia has certain defence commitments vis-à-vis Armenia that would be difficult to renege on. At the same time, Azerbaijan is an important ally to Russia because of its extensive energy resources. Another external development that could jeopardise stability in South Caucasus is if the political and social upheavals in North Africa and the Middle East were to spread to countries with substantial influence in the region, such as Iran, Syria or – which seems less likely – Turkey. The possible fall of the al-Assad government in Syria could spark an influx of Armenian refugees from that country.[7]

Russia perceives the same risk in the case of certain Central Asian states where some of the authoritarian leaders have held power ever since the collapse of the Soviet Union. Moscow is deeply concerned about Turkmenistan's plans to export gas to the EU via the planned Trans-Caspian Pipeline (TCP) between Turkmenistan and Azerbaijan. Ashgabat is pursuing this project despite the fact that the legal status of the Caspian Sea has yet to be resolved. Both Russia and Iran have criticised this, but Turkmenistan enjoys the support of Azerbaijan. The fifth coastal state on the Caspian Sea, Kazakhstan, which has no stake in these gas exports, has adopted a neutral stance. Some Russian experts even claim that Russia could consider a military intervention in Turkmenistan to demonstrate – as in Georgia in 2008 – what can happen if a country in Russia's immediate vicinity defies its will.[8]

Afghanistan 2014

Russia is also deeply concerned about what will happen in Afghanistan following the withdrawal of the International Security Assistance Force (ISAF) in 2014. From a Russian viewpoint, there are two threats in particular. The first is the risk of instability in Central Asia which is likely to be the result of a return to power by the Taliban following the expected demise of the Karzai government. While the Taliban may not exert a direct influence outside Afghanistan's borders, there is a risk that any successes they have could inspire Islamic radicalism in Central Asia and in the northern Caucasus as well. The second threat perceived

in Moscow is associated with the drug trade. In recent years, Russia has shifted from being a transit country for drugs from Afghanistan to Europe and North America to being an important consumer market for drugs. Of the 100 000 people in the world who die from drug abuse each year, an estimated 30–40 000 come from Russia.[9]

To meet the challenges posed by the 'Arab Spring' and post-2014 Afghanistan, Russia is seeking to reform the CSTO. During the disturbances in southern Kyrgyzstan in June 2010, it became clear that Russia had been taken by surprise and that the CSTO lacked the requisite forces to send to the trouble spots. The Arab Spring has hastened the reform process still further. A first step is likely to involve exchanging the present requirement for consensus voting for majority votes in decision-making. Hitherto, the organisation's effectiveness has been limited by Uzbekistan's efforts to demonstrate its special position and to use its veto. Another proposal involves revising the organisation's attitudes towards NATO. The CSTO was originally set up as a counterweight to NATO in the post-Soviet field, but in the light of what may happen in Afghanistan in 2014 it is starting to look as though the CSTO and NATO may need one another more than ever in order to maintain calm in Central Asia.[10] On the one hand, Russia would be happy to see the US abandon its military bases in Central Asia, but on the other hand such a move would mean imposing a heavier burden on Russia and the CSTO for the maintenance of security in the region.

Russia's position in the CIS is still relatively strong, despite the Kremlin's often insensitive interference in these countries' internal affairs, as for instance in Ukraine during the Orange Revolution. In spite of the many years of Western economic and humanitarian aid provision to the CIS area, Russia is still the dominant power. Indeed, Russian political leaders are more popular there than elsewhere in the world. Often they are more popular than the domestic leaders themselves.[11] After the colour revolutions, Russia has built up a 'soft power' infrastructure comprising state institutions, organisations of ethnic Russians, the Russian Orthodox Church, state-sponsored networks and loyal Russian-language media.[12] In several CIS countries, in fact, there is a considerable degree of popular support for the various Russian integration initiatives.[13]

The Eurasian Union

In October 2011, then Prime Minister Putin launched a new integration project in the CIS area, the Eurasian Union (EAU). Putin's plan is to establish it in 2015, based on the Single Economic Space, established from 2012, which in turn is based on the Customs Union uniting Russia, Belarus and Kazakhstan.[14] The EAU may be seen as an economic counterpart to the CSTO military integration process in the CIS sphere.

Although Russia may harbour greater ambitions there are nevertheless limits to its influence among the CIS countries. Its successes have been due more to the lack of alternatives available to these countries than to Russia's own power of attraction. Despite stubborn efforts, applying both whip and carrot, Russia has failed to bring Ukraine into the Customs Union. Kiev continues to press for an association agreement with the European Union and still has EU membership as

its objective. Belarus's reluctance, meanwhile, continues to annoy Moscow, even if that country's ability to strike a balance between Russia and the EU declined considerably after the opposition was brutally put down in connection with the 2010 presidential elections. Despite a great deal of effort, Russia has not been able to do anything about the stalemate in the Nagorno-Karabakh conflict.[15] Finally, the fact that four years after the war in Georgia not one of its allies in the CSTO or the Shanghai Cooperation Organisation (SCO) has recognised South Ossetian or Abkhazian independence is clearly a major setback for Russia.

Central Asia and China

In Central Asia, Russia lacks the means to contest China's economic influence, which is largely growing at the expense of Russian influence. China is the engine of economic development in Central Asia and Russia is therefore more reactive in its behaviour. Yet Russia is aware that, while it is impossible to prevent the rapidly burgeoning Chinese economy from expanding in the region, Beijing cannot force Russia out of Central Asia entirely.[16] After having worked more or less behind the scenes for several years, China is now acquiring growing influence outside Central Asia as well, e.g. in the Caucasus, Ukraine and Western Europe. China is currently challenging Russia as the most important investor and trade partner on a broad front throughout the CIS area, landing huge contracts for infrastructure projects in places like Belarus and Ukraine.[17]

The CIS area will continue to be a high-priority sphere of Russian foreign policy during the coming ten-year period. It is in this area that the greatest potential for conflict is to be found in Russia's immediate vicinity, which means it is here that Russia is most likely to feel the need for military intervention.

2.2 Russia and the European Union

After the war in Georgia, Russia's relations with the EU reached a new low, but the problems had begun earlier. This was evident not least in the failure of the two parties to agree on an agreement to replace the Partnership and Cooperation Agreement (PCA) signed in 1997. The current PCA expired in 2007 but has been automatically renewed for a year at a time, since neither Russia nor the EU has terminated it. There is frustration over the lack of real substance in relations between the two parties, while at the same time there is no third country with which the EU has such a well-developed formal framework as it has with Russia. It is for instance the only third country with which the EU holds two summits a year. Despite the polite phrases exchanged at these meetings, Russia and the EU remain far apart in their perceptions of human rights and democratic development. The Georgia conflict is still causing friction since Russia has recognised South Ossetia and Abkhazia as independent states while the EU has chosen the opposite course. In other words, Russia and the EU cannot even agree on how many states Europe consists of.

Economic ties

For Russia, the EU remains a key partner in Europe. As a group, the 27 EU member states are Russia's leading trade partner and a crucial importer of Russian energy. In addition, the EU-27 is Russia's largest source of foreign direct investment.[18] While Russia sometimes complains about the impenetrable

nature of the EU as an organisation, it is impossible for Moscow to circumvent Brussels completely by focusing on ties with countries like France, Italy and Germany. The EU is too integrated an economic market for this to be possible in practice. At the security policy level, Russia has sometimes been more successful at cultivating relations with Berlin and Paris at the expense of the EU as a whole, but in the economic sphere the Union is too powerful a partner for Russia to neglect. Moreover, the EU has proved a strong advocate of Russian membership of the World Trade Organization (WTO), and the various dialogues under way in the economic sphere were important supports in pursuit of this goal.

During the Swedish presidency of the EU in 2009, a new initiative was presented in the form of a 'Partnership for Modernisation', and this was formalised at the Rostov summit in June 2010.[19] Once again, however, there was a risk that in terms of substance the initiative would fall below expectations. The challenge lay in getting the EU member states and their business and research communities interested enough to fill the modernisation partnership with practical content, in competition with for instance promising partnerships with countries in Asia or the US. Nor was it possible to present any concrete progress towards a replacement for the PCA at the EU–Russian summit in Nizhnii Novgorod in June 2011. An important prerequisite for a new agreement was Russian membership of the WTO.[20] A significant part of the PCA regulates economic relations, and many of these issues were resolved when Russia joined the WTO, since Russia and the EU member states were under the same regime.

Medvedev's European security agreement initiative

In the security policy sphere, there are relatively few successes to report. Russia did not get the hoped-for reaction from the EU to its proposal for a new security policy architecture in Europe, put forward by Medvedev in 2008. The EU's response was to refer the matter to the Organization for Security and Co-operation in Europe (OSCE), where it was channelled into the Corfu process during the OSCE's Greek presidency. The EU was opposed to separating hard security from issues relating to human rights and economic freedom.[21] Moscow insisted that hard security should be given priority, and presented the draft of a European security treaty (EST) in late 2009.[22] The aim of this initiative was to establish a legal basis that would give Russia a strong voice in European security policy, preferably including a possibility to reject any further expansion of NATO.[23] In 2011, it became increasingly clear that Russia saw little hope of carrying this process forward. Instead, it focused greater effort on asserting its position on a joint European missile defence.[24]

2.3 Russia, the Baltic Sea Region and the Arctic

Compared with the troubled southern border areas (primarily the Caucasus and Central Asia) and the struggle for influence in the former Soviet republics between Russia, China and the West, the Baltic Sea region is a fairly peaceful part of Russia's immediate vicinity. If things heat up in the region from time to time, this is usually because of a deterioration in relations between Russia and the US rather than of some kind of initiative on the part of the Nordic or Baltic states themselves. This happened for instance when Russia responded to George

W. Bush's missile defence plans by threatening to deploy Iskander missiles in the Kaliningrad region.[25]

The Baltic states

Russia's official relations with the Baltic states have improved during recent years. Moscow now tends to be more favourably disposed towards the Baltic governments and to be more cautious about openly supporting the Russian minorities in these countries. In 2010, the Latvian president was invited on an official visit to Moscow.[26] However, in the eyes of the Baltic states, Russia remains a security policy problem, not least because of increasing Russian economic influence there and the electoral successes of the pro-Russia party Harmony Centre in Latvia in 2011. Russia remains critical of the contingency planning initiated by NATO in the Baltic states following the war in Georgia, and also of the treatment of the Russian minorities in Latvia and Estonia.[27]

Poland

Russia's relations with Poland improved in 2010, not least in the wake of the plane crash in Smolensk in April 2010 that killed the Polish president, Lech Kaczynski, and a number of senior officials. Noteworthy among the confidence-building steps that followed the crash was Medvedev's attendance at the president's funeral and the fact that Russian TV screened Andrej Wajda's film 'Katyn', which is about how 20 000 Polish prisoners, mainly officers, were executed by the Russian security service, the People's Commissariat for Internal Affairs (Narodnyi Komissariat Vnutrennikh Del, NKVD), during World War II.

The Arctic

In contrast to the Baltic Sea region, the Arctic has the potential to become a new arena for the growing tension between Russian and Western economic and military interests. Russia has long displayed considerable interest in the Arctic, understandably enough, since it has an extensive stretch of coastline and important infrastructure there.[28] The presence of natural resources in the Arctic (including oil, gas and minerals) and the opening of new transport routes both mean that competition is becoming stiffer.

Russia's Foreign Policy Concept from July 2008 asserted the importance of the Arctic for Russia's national security policy, stating: 'In accordance with international law, Russia intends to establish the boundaries of its continental shelf, thus expanding opportunities for exploration and exploitation of its mineral resources.'[29] In March 2009, the Russian Federation published an Arctic Strategy to 2020, a document that emphasises the importance of the Arctic region for Russia's economic and social development. In particular, the Arctic is seen as a national strategic resource and a key area in the expansion of Russia's hydrocarbon reserves. The policy aim is to transform the Arctic into a strategic resource base and make Russia a leading power in the region by 2020. By cartographic, geological and hydrographical means, data are to be produced in support of Russia's territorial claims in the Arctic.[30] Research-related projects go hand in hand with Russia's increasingly confident expansion of military activities in the region since 2007, the purpose being to resolve any territorial conflicts in Russia's favour by means of a credible show of strength. The National Security Strategy from 2009 emphasises the importance of bolstering Russia's

military resources in the Arctic so as to 'guarantee military security in various military and political situations'.[31] It is worth noting, however, that the Arctic Strategy is presented under the heading 'Economic Security' on the website of the Russian Security Council.

Although on the surface it would appear that Russia is pursuing a militarisation process in the Arctic, Moscow actually has no incentive to use military force in a region where conflicts already exist. The US, for instance, has territorial claims on Canada. With all the other important powers in the Arctic – the US, Canada, Denmark and Norway – preoccupied with their own national interests, Moscow is in a position to manoeuvre, compromise and reach agreements with individual parties while at the same time achieving its own aims. In March 2010, for instance, it concluded a border agreement and an economic agreement with Norway in the Barents Sea, ending a 40-year-old border dispute. Similarly, Russia could very well reach agreement with Canada, which together with Russia has the longest territorial border in the region. The day Russia tries to use military force to achieve its aims, however, NATO's collective defence commitments would be activated.[32]

2.4 Russia, the US and NATO

Although the Cold War is over, and although the CIS area is formally ascribed greater priority in Moscow's foreign policy doctrines and concepts, the US is still Russia's principal opponent. The US is the country that Russia compares itself with in military and global policy terms, if not fully in economic terms. The relationship is an asymmetrical one, however, since Washington does not accord Moscow the same importance. Washington may be keen to maintain good, stable relations with Moscow, but primarily because it wants peace and calm on that front so that it can focus attention on the more pressing challenges it faces in Asia and the Middle East.

The criticism levelled at Russia by the Western powers over the war in Georgia was intense but did not last long. Relations, therefore, have improved since 2008. It also became apparent after the war that Russia was fairly isolated in the international arena and lacked support for its hard-line approach. Moreover, the full impact of the global finance crisis was felt in the autumn of 2008 and Russia was forced to rethink this approach. Washington, meanwhile, was reappraising its policy towards Moscow. In the end, the US was not willing to sacrifice its relations with Russia over Georgia. After Barack Obama took over the presidency in January 2009, the new US administration was able to tackle the problems with new energy and old deadlocks could be set aside.

The impact of the 'reset' policy

When the Obama administration launched the 'reset' policy towards Russia in February 2009, Moscow was initially sceptical. The first sign of a change of attitude came in June 2009 when Russia supported the UN resolution calling for sanctions against North Korea in response to Pyongyang's underground nuclear test. During the summit meeting held the following month, the US-Russia Presidential Bilateral Commission was set up, consisting of sixteen

working groups specialising in such fields as the safe use of civilian nuclear power, space, health, economic issues, energy, education and culture. Whether the commission, which is coordinated by the US secretary of defence and the Russian minister of defence, has made any progress on cooperation is too early to say. However, from a Russian viewpoint it has been a feather in Moscow's hat since no other country has such a forum for dialogue with the US. China rejected a proposal from Washington to establish a similar bilateral commission.[33]

The greatest success of the reset policy, especially from a Russian perspective, was the signing of the new strategic disarmament agreement START (the Strategic Arms Reduction Treaty) in Paris in April 2010. It was ratified in January 2011. This accord reduced the two countries' strategic arsenals by a third. For Russia's part, no other form of participation in global institutions or organisations, including the UN Security Council (UNSC), offers such prestige and such exceptional status as a bilateral disarmament agreement with the US, since the two powers sign it as equals.[34] From Washington's viewpoint, Russia's support for UN sanctions against Iran and Moscow's decision to tear up the agreement to equip Iran with S-300 ground-to-air missile systems were both a mark of success. The same applies in the case of closer Russian cooperation with the US on the use of ground and air corridors to Afghanistan.

Limitations of the reset policy

Despite clear progress in some areas, the reset policy has been hindered by the mutual distrust that still persists in both Russia and the US in the aftermath of the Cold War and became even stronger after the war in Georgia. Washington views Russia's authoritarian and corrupt political system with suspicion, and there is a fundamental values gap between the two countries that prevents them from moving closer. The US, for instance, criticised the sentence imposed on Mikhail Khodorkovskii in December 2010. There are also limitations to the reset policy on a practical level. The US is no longer actively pursuing NATO expansion in Russia's immediate vicinity, in part as a result of the war in Georgia. It has nevertheless declared on a number of occasions that it will not allow Moscow to treat this region as its exclusive sphere of influence. Washington frequently uses the term 'the occupied Georgian territories' to describe South Ossetia and Abkhazia. The US also continues to maintain a military presence in Georgia and Kyrgyzstan and to cultivate relations with Uzbekistan, Armenia and Kazakhstan so as to show that pursuing the reset policy does not mean according Russia any privileges in the CIS area.

In other words, the reset policy remains on shaky ground and has proved sensitive to strains in the bilateral relationship. For example, Washington imposed sanctions on sixty Russian representatives who were believed to have been involved in the case of the lawyer Sergei Magnitskii, who died in a Moscow prison in November 2009. This caused Moscow to respond by blacklisting official US representatives said to have been involved in the detention of two Russian citizens – a suspected international arms dealer and a convicted drug smuggler.[35] Ultimately, on the American side, the reset policy is closely associated with Obama, which means that its future after the US presidential elections in 2012 is uncertain. The relatively limited volume of economic exchange between

the US and Russia also means that the policy is not firmly entrenched in the two countries' business sectors.

The missile defence issue

The issue with the greatest potential for destroying the reset policy is the planned European missile defence system (see further Chapter 6 on Weapons of Mass Destruction). On 24 November 2011, just over a week before the parliamentary elections in Russia, Medvedev issued a strong statement to the effect that Russia would withdraw from the new START treaty if NATO went ahead with its plans for such a system. He also reiterated an earlier threat to deploy Iskander missiles in the Kaliningrad region.[36] Since Obama is facing re-election in 2012, there is some incentive at least on the American side to avoid a total collapse of the missile defence negotiations with Russia.

2.5 Russia and Asia

In Asia, Russia's relations have been focused primarily on China and to a lesser extent on India, Japan and the Korean Peninsula. Moscow's relations with Beijing have been developing favourably over the past few years, in political, economic and military terms. In 2010, China overtook Germany as Russia's leading trade partner.[37] Relations between Moscow and Beijing have been pragmatic in character and free of the ideological blocks that used to distinguish them. The two parties share largely the same outlook on the world, which of course is not a feature of Moscow's relations with the Western powers.

China

Both Russia and China aim to restrict American influence and to replace the unipolar world order established after the Cold War with a multipolar world order. Moscow and Beijing have a mutual respect for one another's great power ambitions and also share the same view both on non-interference in the internal affairs of states and on the need to prioritise the UN, where both possess vetoes in the Security Council. Both look upon humanitarian interventions as a Western excuse for bringing down regimes. Consequently, they share the same outlook on for instance Kosovo, Iran, North Korea and other troubled regions. In China's view, however, Russia violated this principle in recognising South Ossetia and Abkhazia as sovereign states. From Beijing's viewpoint, such recognition would send the wrong message to people striving for greater autonomy or independence from China, such as Tibet, Taiwan and Xinjiang.

Russia and China are partners in the SCO, which also includes Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan as members. The aim of the organisation is to combat the 'three evils' – extremism, separatism and terrorism. The SCO is a functional forum in which Russia and China can balance and coordinate their interests in Central Asia and in their immediate vicinity while at the same time keeping the US and other actors out of the region. However, there are many indications of a power struggle going on between Russia and China inside the SCO. Russia is trying to concentrate its efforts on the CSTO, on the customs union with Kazakhstan and Belarus and on other regional organisations where China is not a member, so as to avoid placing all its eggs in one basket. When Russia sought to combine SCO exercises with CSTO exercises, the idea was

rejected by the Chinese representatives on the grounds that the CSTO, which also includes countries without an Asia focus, was Moscow-dominated. Instead, China preferred to give SCO exercises more of an anti-terrorist profile.[38]

Even if cooperation within the SCO works relatively well, relations between Russia and China are not based on a partnership of equality. Rather, it is a zero-sum game in which both partners try to outmanoeuvre each other in the search for power and prestige.[39] Moscow, for example, is becoming increasingly concerned at China's growing influence in Central Asia. The SCO is now consolidated as a tool enabling China to pursue its economic agenda in Central Asia and also in Russia.

Russia's main concern vis-à-vis China is what may happen in the Russian Far East. Russia has failed to develop this region, which is rich in resources but has become dependent on federal subsidies. Twenty per cent of its population live below the poverty line. The region's own development projects have often stranded because of corruption, inefficiency and local political strife.[40] The population of the Russian Far East has shrunk by 25 per cent since the dissolution of the Soviet Union, and now comprises just 6 million. The two provinces on the Chinese side of the border have a joint population of 141 million. Population density on the Chinese side of the border is 62 times that on the Russian side.[41]

Russian representatives fear what they call 'Sinification' of the population on the Russian side due to the increasing number of ethnic Chinese moving into the area.[42] Chinese enterprises are buying up farmland in the Far East and Chinese farm workers are being encouraged to work there on a seasonal basis, often on land that the declining Russian population has abandoned.[43] As a result of this resettlement pattern, the Chinese are expected to make up the largest ethnic group after the Russians themselves in Russia as a whole around the year 2050. Inevitably, all this has led to Russian fears of a future withdrawal from the territory, unification of the entire Russian Far East under Chinese rule, or military intervention by China to protect 'oppressed' Chinese.[44] In 2011, conventional forces in the two military regions on the Chinese side – Shenyang and Beijing – outnumbered the entire contingent of conventional troops in the Russian Armed Forces.[45] Russia's sabre-rattling in the dispute with Japan over the Kurile Islands in the Pacific could also be interpreted as a signal to Beijing that Moscow intends to defend its territories in the Far East.[46]

India

For years, Russia's long-standing policy of forging closer links with China had a detrimental effect on its relations with India. Delhi and Moscow had enjoyed a strong relationship during the Soviet era, but impetus was lost after the collapse of the Soviet Union. The occasionally close ties that long existed between the two countries still make themselves felt, however, due to India being the leading importer of Russian arms. The two also share a desire to reduce the threats from Afghanistan, Pakistan and Islamist terrorism. They also share interests in the energy sector. In time, strong economic growth in India is expected to boost the low level of trade between the two countries.[47]

Japan

Russia's relations with Japan are impeded by the dispute over the Kurile Islands that has remained unsolved since World War II. The crisis became even more acute in November 2010, when Medvedev became the first Russian president ever to visit the island group, prompting a sharp Japanese protest. This dispute aside, there is considerable potential for a greater flow of trade between the two countries. The Japanese government rarely criticises the domestic policies of other states and could potentially offer a suitable alternative, or at least a complement, to China as an economic and political partner of Russia. Moreover, Russia may find Japan to be a natural partner in its modernisation project. But given both countries' lack of interest in ending the historical deadlock over the Kurile Islands, relations between Moscow and Tokyo may be expected to remain chilly.

North Korea

An unresolved conflict, albeit one that Russia is not involved in, is also impeding the development of relations on the Korean Peninsula. Together with the two Koreas, China, Japan and the US, Russia participates in the six-party talks set up to find a peaceful solution to the question of North Korea's nuclear arms programme. The most recent round of talks took place in 2008 and was broken off when the North Korean delegation walked out. For Russia, the Korea talks represent a chance to strengthen its positions in Asia both economically and politically. Moscow is seen by both Korean partners as a neutral force, in contrast to the other participants in the six-party talks.[48] A peaceful solution of the Korean conflict would give Russia every opportunity to develop trade – not least energy exports – and infrastructure in North-East Asia.

Over the coming ten-year period, Russia's relations in Asia will largely follow the same path as at present. Potentially, relations with India may be strengthened, and also perhaps those with the two Koreas. Japanese–Russian relations, however, will remain basically unchanged. Russia will continue to fear China's advances and growing interests while at the same paying official lip service to its partnership with Beijing. In the longer term, however, Moscow and Beijing's interests differ so widely that from a structural viewpoint future tension between them, probably extending beyond the immediate decade, appears inevitable.

2.6 Russia, North Africa and the Middle East

Russia's relations in the Middle East can be divided into those with Iran and those with the rest of the region. The former suffered a severe blow when Russia agreed to the imposition of sanctions against Tehran and stopped its exports of the S-300 ground-to-air missile system. With a view to facilitating a resumption of talks with the International Atomic Energy Agency (IAEA), the Russian Minister of Foreign Affairs, Sergei Lavrov, presented a plan in August 2011. It involved gradually easing the sanctions and entering into discussions with the IAEA on Iran's nuclear programme.[49] This plan received a cautious welcome from Tehran.[50] In September 2011, the first reactor in the Bushehr nuclear power plant, built with the help of Russian experts, went online. Under the bilateral agreement between Russia and Iran, Russia will continue to run the plant for the next two years and then gradually hand over responsibility to Iran.[51]

The Arab Spring

While Russia was not the only country to be caught napping by the 'Arab Spring' of 2011, it was notably late responding to events and its reactions were consequently defensive and reactive. When the protests and disturbances began – first in Tunisia and then in Egypt – the Russian reaction was initially confined to condemning the use of violence and affirming the principle of non-interference in the internal affairs of other states.[52] Russia showed no interest in the potential for democratisation in this process, viewing the Arab revolutions simply as a threat to stability in the region. Minister of Foreign Affairs Lavrov issued warnings about the presence of Al-Qaida activists among the Libyan rebels.[53] Russia could not exclude the possibility that the upheavals might spread across the region and potentially reach countries in its immediate vicinity, such as Azerbaijan or the countries of Central Asia.

Libya and UN Resolution 1973

Moscow's interest in events grew, however, when the disturbances spread to Libya in February 2011. Russia supported UN Security Council Resolution 1970 of 26 February 2011, which condemned the Gaddafi regime's deadly attacks on civilians and introduced international sanctions against it.[54] Later, Russia abstained from voting in the UN Security Council on 17 March 2011, which enabled the council to adopt Resolution 1973 on the use of all necessary measures to protect civilians in Libya – barring the occupation of Libyan territory – and the establishment of a no-fly zone.

By accepting this resolution, Russia was acting out of its usual character. Generally, Moscow tends to assert the principle of non-interference in the internal affairs of other states. But when it became clear that the Arab League was in favour of the no-fly zone, Russia's keenness to preserve good relations with individual Arab states outweighed other considerations. Russia's relations with France, one of the driving forces behind the adoption of the resolution and the establishment of a no-fly zone, were also a factor. Finally, Moscow's stance came to reflect that of its close economic partner, Germany, and of the other BRIC countries (Brazil, India and China). By abstaining from voting on Resolution 1973, Russia was declaring its reluctance to assume any military responsibility for the intervention while at the same time supporting the operation in principle and thus avoiding any unnecessary friction vis-à-vis the Arab world.[55]

This support was by no means without reservations. Both Konstantin Kosachev, Chairman of the Duma Committee on Foreign Affairs, and Sergei Lavrov criticised Resolution 1973 on the grounds that it deviated from the Arab League's original proposal. The strongest reaction came from Prime Minister Vladimir Putin, who likened the resolution to a 'call for a medieval crusade'.[56] Putin's statement drew a rebuke from President Medvedev, thus revealing something of a foreign policy split in the Russian leadership. Both leaders, however, criticised the way in which the no-fly zone came to be implemented, accusing the West of using more force than necessary and of failing to abide by the terms of Resolution 1973.[57]

Russia continued to level criticism throughout the NATO-led operation while also seeking to build up its position as a neutral mediator in the Middle East,

albeit without notable success. On the one hand, its neutral stance over the Libya conflict meant that Russian investors risked losing multi-million dollar contracts to enterprises from France, the United Kingdom and other countries engaged in the campaign.[58] On the other hand, the unrest in North Africa lay in Russia's economic interests in that it pushed up the price of oil.

Syria

In the case of the insurrection in Syria, Russia adopted a firmer stance than it did over Libya. In Syria, Russia has stronger interests with a naval supply and maintenance base in the Syrian port of Tartus and trading contracts worth almost USD 20 billion. Ever since the Soviet era, Syria has been a Russian ally in the Arab world. As a result, Russia has consistently opposed any kind of UN resolution aimed at removing the al-Assad regime by force. Russia's position in this is motivated by self-interest. As long as the Syrian opposition is relatively weak and the Syrian army shows no sign of splitting into factions, Russia believes the al-Assad regime has a good chance or remaining in power. Backing for military intervention in Syria is not as strong as it was in Libya's case, either within NATO or in the Arab world.[59] The al-Assad regime's close ties with Iran also make it difficult for Russia to dissociate itself from Damascus without upsetting Tehran. However, Russia's support for Assad has exposed it to criticism from the Syrian opposition as well as from a number of other countries in North Africa and the Middle East.

Russia's resistance to a UN resolution on Syria is also coloured by the experiences from the Libyan crisis, when Russia felt betrayed by the West. According to Russia's perception, the Libyan operation became wider than stipulated the original UN Security Council Resolution 1973 and Russia's voice was not taken into consideration despite the fact that Russia had been cooperative and abstained from vetoing the resolution in the UN Security Council. Another explanation for Russia's support for the Syrian regime may be its fear that an 'Arab Spring' would spread to Russia and its immediate neighbourhood.

Russia is still without a firm policy on developments in North Africa, acting instead in an ad hoc manner, depending on where crises develop and on where its own interests lie in the country concerned. Hitherto, the revolutions in North Africa have not been specifically anti-Western in character, but should American influence in the region decline Russia would seek to exploit this, although it can expect competition from both Turkey and China. Should matters develop in a more radical Islamist direction, however, Russia would instead be forced to align itself more closely with the West in the region, to forestall the spread of such radicalism to Russia and its immediate vicinity.[60]

2.7 Russian foreign policy in a ten-year perspective

Over the coming ten-year period, Russia is expected to pursue a foreign policy based on geopolitical considerations and economic pragmatism. The current political system in Russia ('Putinism') is deeply rooted in Russian society, which means the chief parameters of foreign policy are not likely to be modified within this time frame.[61] Moscow will continue to pursue its regional great-power

ambitions in the former Soviet territories and other parts of the world for the foreseeable future. Russia's attempt to achieve such a position with the aid of its relative economic strength cannot succeed, however, without some degree of cooperation with the West or with its rapidly-growing neighbour, China.

The geographical priorities of Russian foreign policy – the CIS area, the Western powers and Asia (primarily China) – will remain unchanged in the short term. As time passes, however, and China's influence grows to such an extent that it is increasingly perceived as a problem or even as a threat by Russia, Moscow will need to focus growing attention on Beijing. Interest in the Arctic is also expected to grow as competition over the energy resources found there increases.

Medvedev's modernisation project may be seen as an attempt to improve the quality of relations with the Western powers. There are limits to how closely Russia can integrate with the West, however, not only of a purely ideological nature but also in more practical terms. The Western powers are not prepared to grant Russia exclusive rights to the CIS area, nor to give it control of a sector in the European missile defence. As regards relations with the European Union, it is clear that Russia and the EU do not share the kinds of common values that underpin a stable partnership and that it is still lacking in practical substance.

While the reset policy with the US has made a certain amount of progress, particularly with regard to the new START treaty, several question marks remain. In some areas, Russian–American cooperation is working well, but these are still exceptions. Cooperation over Afghanistan in its present form has presumably reached the end of the line since the US and the ISAF have decided to leave the country in 2014. There is also a risk that the Republicans will kidnap the reset policy and use it as a stick with which to beat Obama in the US presidential campaign in 2012. For Washington, however, good relations with Moscow will remain important in the years ahead, not least in view of the need to continue discussing nuclear disarmament.

China, meanwhile, is increasingly emerging as a great power in the multipolar world order. Neither the Chinese nor the Russian leaders currently describe the other as a potential enemy, preferring to emphasise the positive aspects of their relationship. However, it is clear that the scope for conflict between the two countries will increase in the future, not least over the energy resources of Central Asia and over the matter of Chinese influence in the Russian Far East. As soon as China is deemed to pose an actual threat to Russia, Moscow will look around for allies and move closer to the US.

Apart from their handling of the Libya issue, there does not seem to be any disagreement between President Medvedev and Prime Minister Putin on the direction of Russian foreign policy. Medvedev's arrival did not mark any change in policy, and nor will Putin's return to the presidential post result in any fundamentally new policy direction. Putin's temperament and his tendency to use more aggressive rhetoric than Medvedev will be evident, however.

Nevertheless, in at least one area there is an important difference of degree between Putin and Medvedev as regards foreign policy priorities. It concerns the CIS area. Putin has always been more interested than Medvedev in pursuing Russian-led reintegration of the former Soviet republics. Putin's introduction of the Eurasian Union, therefore, should be seen as a sign of things to come in the next presidential period. Russia also appears to stand a better chance of integrating more closely with the former Soviet republics than it did during Putin's last presidential term. Russia has strengthened its position, and the customs union it has established with Belarus and Kazakhstan is lending its integration efforts additional impetus. Several CIS countries, particularly Ukraine, Kyrgyzstan and Belarus, have become weaker and are finding it increasingly difficult to withstand Russian pressure.

At the same time, Russia faces a number of difficulties in its endeavour to intensify cooperation with the former Soviet republics. The failure of previous attempts to tie CIS countries closer to Russia was partly due to unrealistic expectations of quick results on Moscow's part. For these countries, there is still a clear distinction between engaging in cooperation with Russia and forfeiting sovereignty. The failure of previous attempts to establish a single currency as part of the Russia–Belarus Union means that the prospect of another such emissions centre is viewed with apprehension by Moscow now that other countries are also involved. Russia's imminent membership of the WTO also raises questions about the viability of economic integration in the CIS area.

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3. Defence Economics

Susanne Oxenstierna and Bengt-Göran Bergstrand

The ongoing military reform has important implications for Russia's defence budget. To give the Armed Forces a 'new look' (*Novyi Oblik*) and increase military capability, modern armament and improved conditions to attract personnel will be needed. In the preliminary budget for 2012–2014 presented by the Ministry of Finance, the defence budget's share of gross domestic product (GDP) has risen from 2.9 per cent in 2011 to 3.9 per cent in 2014 (Annex Table A3-1). The increased budget is primarily explained by the ambitious State Armament Programme up to 2020, but there are also plans for raising pay and improving other benefits that raise personnel costs.

This chapter on defence economics covers the development of the Russian defence budget, analysis of estimated military expenditure in comparison with other countries, issues relating to the arms procurement system, and changes in the pay and benefit system in the Armed Forces. Since the 1990s, the defence sector has been handled in the Ministry of Finance's budgetary process in the same way as other budget items.[1] In this chapter, figures relating to the *defence budget* are taken from the Russian federal budget and represent official figures as submitted by the Russian Ministry of Finance. We also discuss Russia's *total military expenditure,* applying the definition used by SIPRI (the Stockholm International Peace Research Institute) when making comparable estimates of defence expenditure in different countries. The SIPRI definition makes it possible to compare Russian military spending with that of other countries.[2]

The aim of this chapter is to assess the impact of the military reform on military expenditure up to 2020. We begin by examining how the defence budget and total military expenditures have developed since 2000. Russia's military spending is compared with that of the US, the EU-27, China, India and the United Kingdom. These countries have been selected because they are frequently compared with Russia in economic and defence contexts, and because they possess nuclear arms (in the case of the EU-27, this applies to France and the UK). Then the problems associated with the Russian state armament programmes and the system of procurement of weapons and equipment are analysed. The reason for focusing more on armament expenditures than on personnel expenditures is that the former is planned to increase substantially over the period and has, consequently, generated much more discussion in the literature than personnel costs. Arms procurement is described from a purchaser perspective in this chapter, whereas the defence industry – which represents the supply side – is dealt with in Chapter 4. Based on the limited information available, a study is made of the pay structure and the new benefit system that the Ministry of Defence started to introduce in the Armed Forces as of 1 January 2012, which is an important part of the military reform. Finally, a forecast of Russian military expenditure up to 2020 is presented, based on different

assumptions about GDP growth and about the share of GDP to be allocated to defence.

3.1 The defence budget and total military expenditure

The defence budget

In 2011, the Russian defence budget (in the federal budget what is classified as 'national defence') totalled 1 532.8 billion (approximately USD 50–55 billion), corresponding to 2.9 per cent of GDP (Annex Table A3-1). Data on the defence budget and defence expenditure as a share of GDP are of interest, as they reflect how big a burden defence allocations are for the rest of the economy.[3] Changes in this share also give us an idea of whether the Ministry of Defence and the defence lobby have grown stronger or weaker in the budget process, in which public expenditure is decided. Defence expenditure as defined in the Russian defence budget lay, on average, at a level of 2.7 per cent of GDP between 2000 and 2008 (Figure 3-l). As the line 'Russia/Federal Budget' in Figure 3-1 shows, the defence budget share of GDP is expected to increase over the next two years and amount to 3.9 per cent in 2014.[4]

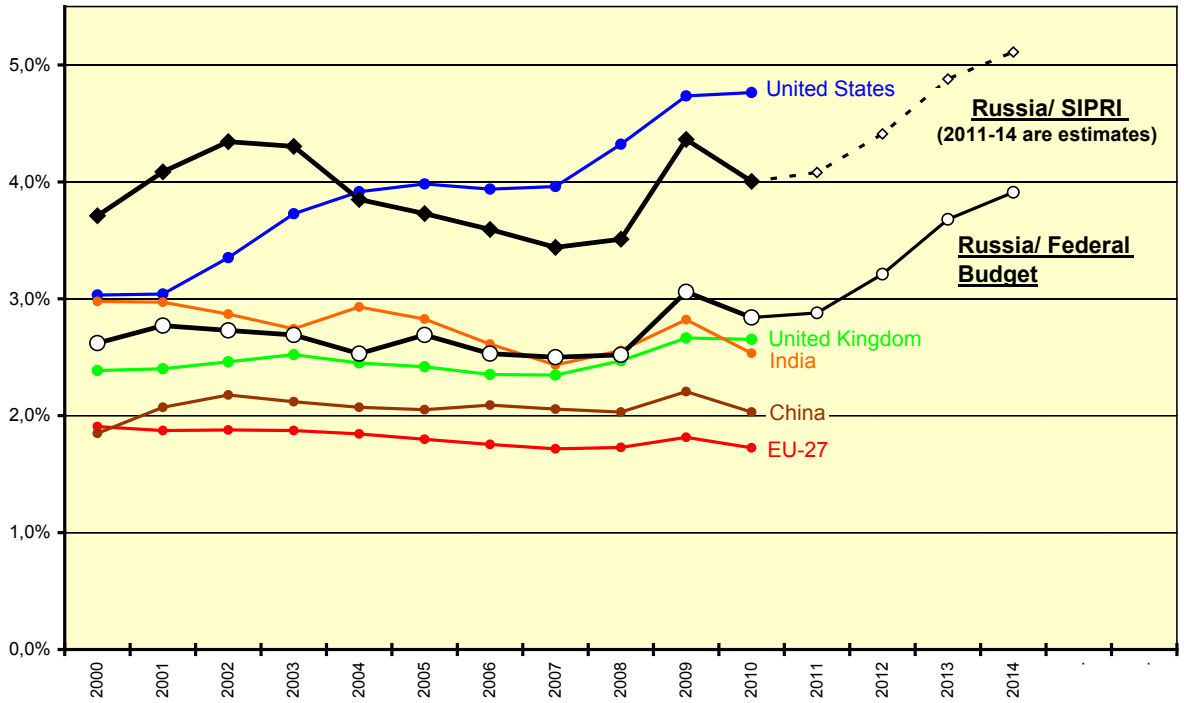
The main cause of the rise in military expenditure as a share of GDP is the ongoing military reform (discussed in greater detail in Chapter 5) and the fact that the state procurement of arms will increase. Arms procurement including research and development (R&D), which accounted for around 20 per cent of the defence budget in the early 2000s, was allocated almost 40 per cent of the defence budget in 2010. The plan is to increase this share to almost 60 per cent of the defence budget in 2013 (Table 3-1).

Military expenditure according to SIPRI's definition

Figure 3-1 also describes Russian defence spending based on SIPRI's estimates of military expenditure. The SIPRI definition includes expenditure for (a) the armed forces, including peacekeeping forces, (b) the defence ministries and other government agencies engaged in defence projects, (c) paramilitary forces, and (d) military space activities. SIPRI also includes the full costs of (e) personnel, including pensions and social services, (f) operations and maintenance, (g) arms procurement, (h) military R&D, and (i) military aid.[5] The line 'Russia/SIPRI' is comparable to the lines denoting military expenditure as a share of GDP in the US, the EU-27, China and India. The difference between the Russian defence budget ('Russia/Federal Budget') and estimated Russian military expenditure ('Russia/SIPRI') is that the following items are not included in the Russian budget figures but are included in SIPRI's figures:[6]

- costs of the Border Troops and Interior Ministry Troops
- certain costs for the Ministry for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters (MChS)
- certain costs for the security services
- subsidies for the closed cities
- military pensions.

Figure 3-1 Military expenditure in selected countries 2000–2010 and estimates for Russia 2011–2014; *per cent of GDP*.



Sources: SIPRI; Cooper, Julian (2011) Milex in the Russian Federal Budget 2010–2014, Working Paper, 12 August.

Notes: This figure is constructed from the FOI database, in which the decimal sign is defined with decimal comma ',' in accordance with the continental European practice. In the figure '1,0%' is equal to '1.0%' according to the English practice.

The trend of Russia's military expenditures according to SIPRI's definition is based on the assumption that the average difference between SIPRI and the Russian federal budget defence data of 1.2 per cent during 2000–2010 will be maintained up to 2014.

There are different national definitions of military spending and SIPRI recalculates the national expenditure to accord with the SIPRI definition, with the help of country specialists. In the case of Russia, SIPRI has been assisted by Professor Julian Cooper, a British expert on Russian affairs. In principle, Cooper has based his estimates of total military expenditure on Russian budget data.[7] Historically, SIPRI's estimates give defence shares of GDP that are about 1–1.5 percentage points above the official Russian figures, which means that estimated total military expenditure in the 2000s lay at a level of 3.5 and 4.3 per cent of GDP.[8]

Figure 3-1 shows that total Russian military expenditure as a share of GDP (according to the SIPRI estimates) of 4.1 per cent in 2011 is relatively high. With the exception of the US, which has a 4.8 per cent share, all the countries compared in the figure spend less on defence than Russia in terms of share of GDP. In the case of the EU-27, the share of military expenditure is under 2 per cent, in China around 2 per cent and in India and the UK close to 3 per cent. Thus, the comparison shows that the burden of total military spending on the Russian economy is about twice that of other countries, with the exception of the US. Figure 3-1 also shows that with an increase in the official defence budget

to 3.9 per cent of GDP, Russian total military expenditure may be expected to exceed 5 per cent of GDP and surpass the present US level in 2014.

Military expenditure in absolute terms

Between 2000 and 2008, the federal budget grew at par with the high rate of GDP growth, which averaged just under 7 per cent per annum. As a result, the 2008 defence budget was about the same size as the 1992 budget in absolute terms.[9] SIPRI estimates that Russian military expenditure in 2009 was roughly the same size as that of the UK, or approximately 7 per cent of the US defence budget (Figure 3-2). Although the EU only spends 2 per cent of its GDP on defence, absolute expenditure is five times that of Russia. In 2008, Russia's estimated military expenditure totalled USD 60 billion (Figure 3-2).

Military expenditure in both the UK and Russia declined slightly in connection with the economic crisis of 2009. In Russia's case, this was attributable to a decline of about 10 per cent in the revised budget compared with the original 2009 budget proposal. As can be seen in Figure 3-2, military spending in China was almost twice that of Russia in 2009, totalling approximately USD 100 billion.

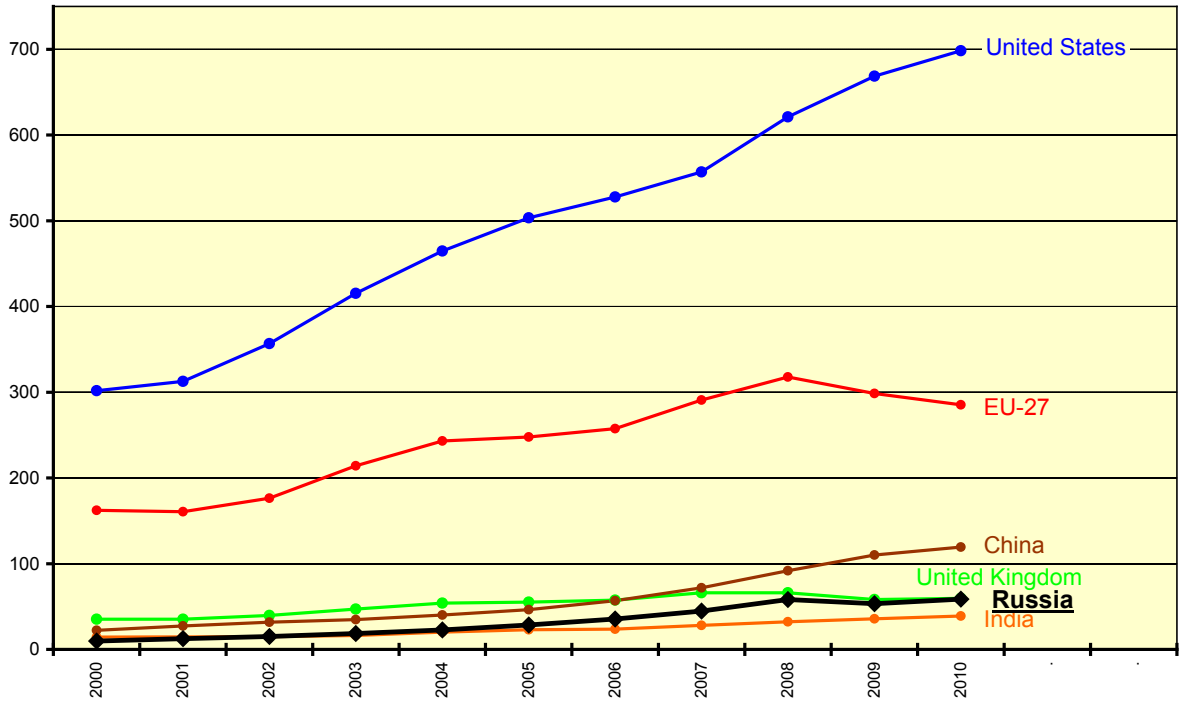
Consequently, in absolute numbers, Russian military expenditure is not very high in comparison with that of the EU countries, the US or China. However, Russia is still paying a relatively high price, in terms of military expenditure as a share of GDP, for maintaining its level of expenditure. For example, Russia needs to use about 1 per cent more of its GDP to maintain the same absolute level of military expenditure as the UK (Figures 3-1 and 3-2).

Composition of military expenditure

The composition of the Russian defence budget is not easily discerned, since its breakdown into separate items of expenditure only becomes known when the budget is submitted to the Duma. However, many budget items are classified in this version, and researchers try to estimate their size.[10] The Armed Forces is the largest item in the defence budget and amounted to 9 per cent of the federal budget in 2009 (2.3 per cent of GDP).[11] If total military expenditure, as estimated from Russian budget data, is used as a basis, the Armed Forces account for the bulk, or almost 50 per cent of total military expenditure. A further 20 per cent goes to the Interior Ministry Troops and other troops outside the Armed Forces. Nuclear weapons, which are a major priority, accounted for 9 per cent and pensions and social provision, such as housing, for 6 and 7 per cent, respectively, in 2009.[12]

Another source of information on the composition of Russian military expenditure is Russia's reporting to the United Nations. UN data for 2005–2008 show the relative importance of the various armed forces in terms of expenditure: the Ground Forces 33 per cent, the Navy 18 per cent, the Air Force including air defence 13 per cent and others (primarily the Strategic Missile Forces) 17 per cent, while central administration and support accounts for 19 per cent.[13] This reporting is incomplete, however, and difficult to compare with other data.

Figure 3-2 Military expenditure 2000–2010 in selected countries; *bn USD, nominal prices*



Source: SIPRI

Over the years, the total sum spent on defence has been both above and below the official Russian defence budget. In 2010, when the Russian defence budget totalled RUR 1 277 billion and SIPRI estimated military spending at RUR 1 782 billion, the UN figure was lower, at RUR 1 162 billion.[14] The UN statistics – which are based on Russia's own reporting to the international community – could be a rich source of detailed information on various items of military expenditure if these data could be made comparable with those resulting from the extrapolation of items in the Russian federal budget.[15] However, Russian specialists on military expenditures cannot understand how these data have been compiled or where the Ministry of Foreign Affairs gets these figures.[16]

3.2 State arms procurement

The purchasing of arms for the Armed Forces is governed by the State Armament Programme (Gosudarstvennaia programma vooruzheniia, GPV).[17] Russia has had GPVs since the late 1990s but they have seldom yielded the planned results due to insufficient financing in the 1990s and shortcomings and corruption in the procurement system in the 2000s.[18] The defence industry's inability to deliver the quality demanded by the Armed Forces is another serious aspect noted in recent years (see also Chapter 4).

The state armament programmes are a relatively new phenomenon in Soviet/Russian arms procurement. The first GPV was formally launched in 1985, shortly before the collapse of the Soviet Union, after twenty years of development work. Originally, these programmes were intended as part of a new planning

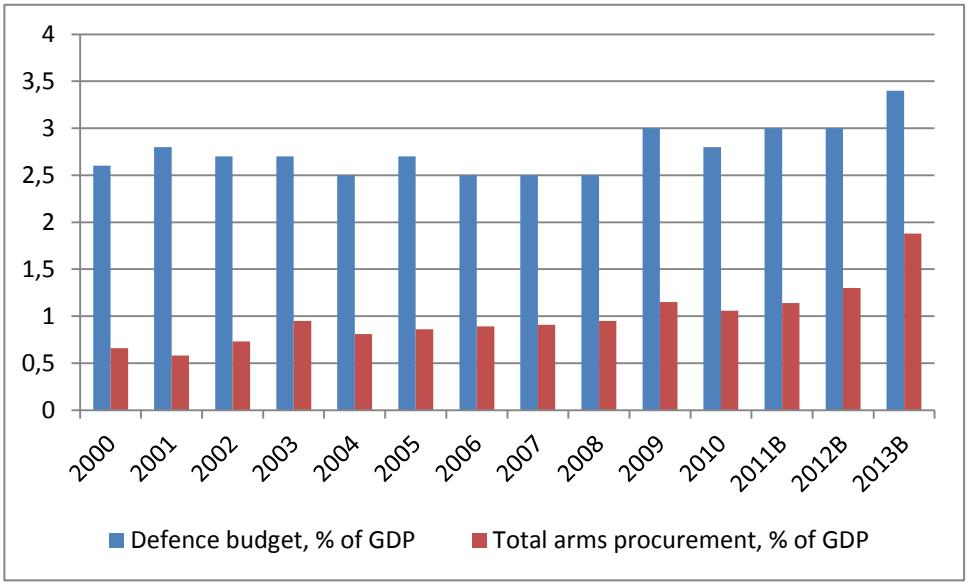
and budgetary system, as a Soviet response to US Defense Secretary Robert McNamara's Planning, Programming, and Budgeting System (PPBS) introduced in the United States in the late 1960s.[19] The Russian equivalent, known as the 'Zacharov-Keldysh Plan', was developed on orders from above but never functioned operationally as the PPBS did.[20] The state armament programmes have survived, however, despite difficulties with financing and deliveries.[21] The defence industry would like these programmes to continue since they give the industry the opportunity to negotiate major contracts with the state and thereby capture a large share of the budget and of Russia's GDP. At the same time, effective follow-up and control systems are lacking and it is not possible to establish what has been delivered and at what quality, and it has even been difficult to determine what was requested in the first place. During the period 2000–2010, arms procurement, as a share of Russian GDP, rose from 0.7 per cent to just over 1 per cent, but is expected to double to almost 2 per cent of GDP by 2013 (Figure 3-3). As state arms procurement is allocated further resources, effective control will become even more important if such purchasing is to have the desired effect on the capability of the Armed Forces.

The State Armament Programme for the period up to 2015 was adopted in 2006. It was designed to equip the Armed Forces with new arms and it stipulated that 45 per cent of all arms were to be new by 2015. Development of the armament programme up to 2020 began in 2008. This programme was based on the Ministry of Economic Development's economic strategy, 'Russia 2020'.[22] The war in Georgia in August 2008 underlined the importance of equipping the Armed Forces with better, more up-to-date arms. In February 2008, President Vladimir Putin announced that the programme would mean that 30 per cent of the Armed Forces' equipment would be new in 2015 and that the share of modern equipment would rise to 70 per cent in 2020. According to the Russian specialist on defence economics Vasily Zatsepin, 'new' armaments are defined as arms with less than ten years of service and 'modernised' arms should be understood as 'upgraded' arms, i.e. old models with new components and functions, not just repaired.[23] This assumes an arms renewal rate of 7–10 per cent per annum instead of the current 2 per cent.[24] In an interview in March 2011, then Deputy Minister of Defence Vladimir Popovkin said that in the Russian conventional forces only 10 per cent of armament is modern, to be compared with 30–50 per cent in other countries.[25] According to Minister of Defence Anatolii Serdiukov, the procurement budget for 2011–2020 will amount to RUR 20 trillion (approximately USD 670 billion).[26] However, Russia specialists are sceptical about the extent and pace of the modernisation of arms in the Armed Forces, referring to international practice – of a maximum 50 per cent renewal rate and, the fact that equipment when it is delivered has an expected life span of 25–30 years.[27]

The organisation of state arms procurement

The Ministry of Defence is in the process of reforming the state procurement system for weapons and equipment, which has been both corrupt and ineffective. According to Russia's chief military prosecutor, Sergei Fridinskii, 20 per cent of the defence budget disappears every year. Fake invoices, fraudulent dealings and bribes are commonplace, and some observers believe the losses caused by

Figure 3-3 Defence budget and state arms procurement 2000–2013; *per cent of GDP*



Sources: Cooper, Julian (2012) 'Military Procurement in Russia' in McDermott, Roger, et al. (eds) *The Russian Armed Forces in Transition: Economic, geopolitical and institutional uncertainties* (London, Routledge), p. 175; Oxenstierna, Susanne (2011) *Rysk ekonomi och försvarsekonomi 2010* [The Russian Economy and Defence Economics in 2010], FOI Memo 3500, February (Stockholm, FOI), Annex Table A2.

Note: FOI has a configuration of Excel where the decimal sign is defined with decimal comma ','. In the figure '1,0%' denotes '1.0%' according to the English standard.

such practices may be twice as large.[28] Major delays caused by friction in the procurement process, disagreement over prices and the defence industry's limited ability to supply military equipment of the standard required by the Ministry of Defence are more the rule than the exception. Then President Dmitrii Medvedev called attention to these problems and took the defence industry to task for its failure to deliver in 2011. [29] Minister of Defence Serdiukov has sought to calm the industry's fears following this criticism by assuring it that no closures or major purchases abroad are planned.[30] The Ministry of Defence, too, has been called to account for its failure to finalise orders in the first quarter of 2011. In July 2011, the ministry was still having trouble finalising contracts for that year.[31]

Since 2007, the Russian Military-Industrial Commission has had overall responsibility for the annual procurement process. This body has at its disposal Rosoboronzakas, a federal agency under the Ministry of Defence charged with monitoring arms procurement to ensure that there is no malpractice. Over time, Rosoboronzakas has increasingly come to function as an anti-corruption agency in the defence sector.

The agency responsible for the actual procurements is Rosoboronpostavka, which was set up in 2006. This is a civilian authority charged with administering all Ministry of Defence contracts as well as those of other ministries and services with armed troops at their disposal. Rosoboronpostavka has experienced all

sorts of start-up problems and in 2010 it controlled just 2 per cent of the total procurement volume. The principal reason is said to be that the agency's the first director, Viktor Cherkesov, was a political lightweight. The agency could not even obtain any premises of its own and was simply forgotten.[32] The agency has since been reorganised and is now under the control of the Ministry of Defence.[33] A new director has been appointed, Nadezhda Sinnikova, from the Russian tax authority.[34] In July 2008, Vladimir Popovkin was appointed deputy minister of defence with responsibility for arms procurement, a post he held until 29 April 2011 when he became head of the Federal Space Agency.[35]

Price controls

The inflation rate for military equipment is often higher than the average rate of inflation in a country where the national defence industry has a monopoly position vis-à-vis the government. In Russia's case, there is a lack of data on price trends for military equipment, but by using price trends in public expenditure Vasily Zatsepin has concluded that annual inflation in defence spending was 25 per cent rather than 15 per cent during the 2000s, which means that Russia's military capability is overestimated.[36] In addition, Russia has not followed the trend of increased international cooperation to share the R&D costs for new defence systems, and the monopolistic domestic defence industry has fallen behind, is inefficient and cannot deliver the advanced armaments in demand.

The pressure on prices from the defence industry together with the constant disagreements on prices led to that the Ministry of Defence established a special price department in 2011, in order to improve knowledge and transparency in relation to the price of military equipment. According to Serdiukov, disagreement over prices is one of the prime causes of delays in defence industry contracts.[37] In some cases, the defence industry has had a guaranteed level of profit of up to 25 per cent, and given soft budget constraints in the form of large subsidies and favourable credits, the tendency has been to let all peripheral costs spill over in prices.

The large ineffective defence enterprises are still burdened by their own social service provisions (day-care centres, hospitals etc.) and other high external costs (such as extremely long development times and unfinished projects).[38] The Ministry has tried to force these enterprises to phase out their social commitments and let them be taken over by local municipalities, but the municipalities are reluctant to shoulder these tasks. In October 2011, Serdiukov discussed the Ministry of Defence's 491 pre-schools with Medvedev, who sternly requested a list of the municipalities that were refusing to take them over, clearly intending to put pressure on the local authorities concerned.[39] For 2011, the Ministry is requiring the industry to reduce its average level of profit from 15 per cent to 5 per cent. Enterprises producing priority equipment, however, are to be allowed to raise their margins to 25 per cent.[40] Priority equipment refers to 200 products, including nuclear weapons, intercontinental ballistic missiles, cruise missiles and other advanced arms that are in high demand. A further change is a plan by the Ministry to boost pre-payments from 15–40 per cent to 80 per cent.[41] This means that the enterprises will have less financing problems during production, but also that subcontractors should be paid sooner.

Table 3-1 Procurement budget of the Ministry of Defence; *nominal prices bn RUR and USD*

	2010	2011	2012	2013
Defence budget, bn RUR	1 270	1 520	1 660	1 960
State arms procurement, bn RUR	487	574	726	1 160
State arms procurement, bn USD	16.3	19.2	24.3	38.8
State arms procurement, % of defence budget	*38.3*	*37.8*	*43.7*	*59.1*

Sources: RIA Novosti (2010) 'Russia Reveals Detailed Data on Defence Spending until 2013', *RIA Novosti*, 12 October, on the internet: http://en.rian.ru/military_news/20101012/160919044.html (retrieved 13 October 2010); Frolov, Andrei (2011) 'Ispolneniie gosudarstvennogo oboronnogo zakaza Rossii v 2010 godu' [Fullfilment of the Russian Government Defence Order in 2010], *Eksport Vooruzhenii*, No. 2, p. 43.

These changes suggest that the Ministry wants to use economic incentives to encourage the industry to produce goods more efficiently and increase its production of goods for which demand is greatest. Adjusting profit margins and advance payments and simultaneously requiring that payments to subcontractors should be made more rapidly marks an attempt to tackle two of the most common reasons for delays. But there is also a risk that disbursed funds will disappear into the black holes that exist in the industry.

The volume of arms procurement

Government arms procurement comes under the Official Secrets Act, and details of the annual value and composition of procurements belong to the classified section of the federal budget. The lack of transparency has led researchers to add together data from different sources and produce their own estimates.[42] Thanks to a statement by Viktor Zavarzin, head of the State Duma Defence Committee, data were made available in 2010 relating both to the 2010 defence budget and to the budget for 2011–2013 (Table 3-1). In July 2011, the Ministry of Finance published the amended budget for 2011 and 2012–2014 (Annex Table A3-1).

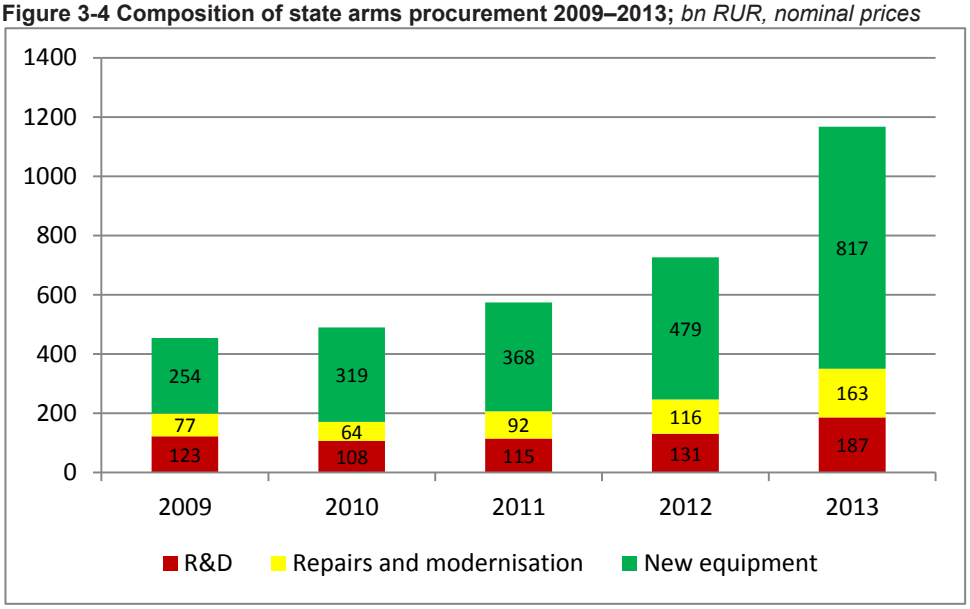
Table 3-1 describes the planned increase in the defence budget and in arms procurement in current prices for 2011–2013. Arms procurement will increase more rapidly than total military expenditure and thus more rapidly than GDP, which means it will account for a larger share of the defence budget, rising from 38 per cent in 2010 to almost 60 per cent in 2013. In 2010, arms procurement totalled the equivalent of USD 16 billion, which is 6 billion more than the record level of USD 10 billion arms exports the same year. Domestic arms orders have exceeded arms exports since 2005 (Figure 4-1 in Chapter 4, p. 68).[43]

There are some doubts as to whether military expenditure can be used more effectively unless the procurement process becomes more transparent. As long as the defence budget remains shrouded in secrecy, it is difficult even for government agencies and the Duma to monitor developments effectively. The media and the general public have little insight, since information about the defence budget is extremely limited.

The composition of arms procurement

On the basis of data presented in the press, the Russian think tank CAST (Centre for Analysis of Strategies and Technologies) has calculated how much of the defence budget is intended for new arms, and how much goes to repairs

Figure 3-4 Composition of state arms procurement 2009–2013; *bn RUR, nominal prices*



Source: Frolov, Andrei (2010) 'Ispolneniie gosudarstvennogo oboronnogo zakaza Rossii v 2009 godu' [Fulfillment of the Russian Government Defence Order in 2009], *Eksport Vooruzhenii*, No. 2, p.43.

and modernisation and how much to R&D (Figure 3-4). The plans to sharply increase the purchasing of new arms at the expense of R&D are in line with the military reform programme, but the question is whether the Ministry of Defence is capable of ordering and the defence industry is capable of producing so much new equipment in such a short time as planned, bearing in mind the evident shortcomings both in the procurement system and in the industry.

By using Cooper's research on state orders and deliveries in the state procurement process since 2007[44] and adding information from the CAST think tank, it has been possible to compile tables showing both the approximate content of orders and deliveries in 2007–2010 and what is planned up to 2013. Table 4-1 (p. 68) in Chapter 4 describes known state orders for military equipment and Table 4-4 (p. 79) discusses what has been delivered. The two tables describe the extent to which known orders and deliveries correspond. In addition, the tables show which products are deemed to be new arms, as opposed to repaired or modernised versions of older arms. It should be noted, however, that the state orders for the period 2007–2020 include more equipment for the Armed Forces than Table 4-1 reveals, and it should be emphasised that the table only depicts known state orders for major arms systems.

Foreign military equipment

In December 2010, Medvedev announced that Russia was to buy four French Mistral class amphibious assault ships.[45] The contract for the first two ships was signed in June 2011. The plan is to base the ships in Vladivostok and use them in the Pacific.[46] The purchase of these Mistral class warships lent weight to the statement by Deputy Minister for Defence Vladimir Popovkin in 2010 that the Ministry of Defence was prepared to buy a significant amount of arms abroad.[47] The joint venture with the Italian company Iveco on the purchase

and production of light multi-role vehicles (LMVs) is another example of the Ministry's willingness to choose foreign products in preference to domestic ones.[48] In early 2009, the Ministry also ordered unmanned aerial vehicles (UAVs) from Israel.[49] These purchases show that the Ministry of Defence is prepared to buy foreign military equipment, though this does not signify that in the coming years Russia will spend too much of its procurement budget on foreign purchases. Serdiukov has said the purchase of Mistral should be seen as evidence that Russia is a serious partner when engaging in long-term cooperation with Western actors.[50] According to Popovkin, the reason for purchasing the amphibious assault ships was that Russian shipbuilding industry needs access to the new technology that the Mistral deal provides and without which Russia would be unable to build new surface vessels of its own.[51] Consequently, the transfer of technology is important and possibly of greater importance than the equipment itself. According to Ministry of Defence sources, in the coming years, foreign purchasing will be on a smaller scale, will be conditioned on including technology transfer to Russia, and will comprise products that are not available on the domestic market, such as UAVs and sniper rifles.[52]

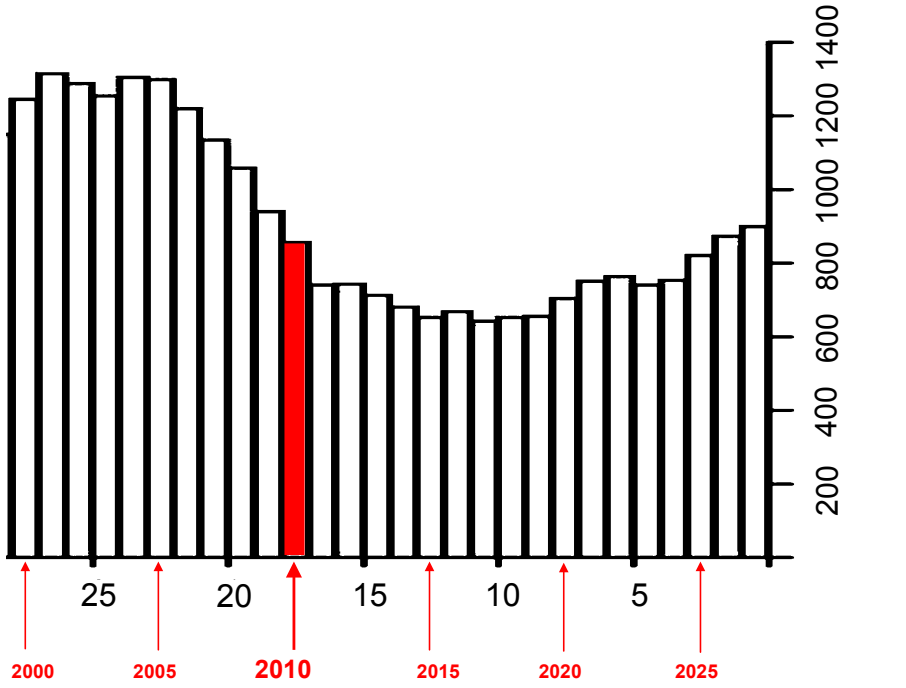
3.3 Personnel costs

Conscript cohorts

During the 1990s, there was a decline in the number of males born in Russia, and as a result the 'conscript cohorts' (18-year-old men) are relatively small in the 2010s. Figure 3-5 describes the decline in the number of male 18-year-olds – from 1.25 million in the early 2000s to around 650 000–700 000 in the 2010s. The number will increase slightly during the second half of the 2020s, returning to the 2010 level of 850 000, but conscript cohorts will still be substantially smaller than in the early 2000s. A significant number in each cohort are also exempted from military service for health reasons, and the current military reform programme forecasts a drop in the number of conscripts drafted into the Armed Forces from 700 000 to approximately 400 000 (Table 3-2). Accordingly, the number of contract servicemen will have to be increased to maintain the numerical strength of 1 million personnel. This will inevitably impact on personnel costs and pay and benefit systems.

The abolition of certain grounds for deferment of military service (such as university studies) has also been discussed, as have such alternatives as widening the eligible age group from 18–27 to 18–30 and no longer sharing conscripts with other ministries and services that have armed troops at their disposal.[53] Some military have even called for a return to the two-year period of service for conscripts. An experiment that did not yield any substantial results was to give nationals of the Commonwealth of Independent States the opportunity to do military service in Russia in return for citizenship.[54] The ethnic composition of the conscript cohorts is also said to have changed, since ethnic Russians have fewer children than other population groups.[55] However, the available data are not sufficient to describe in what way.

Figure 3-5 Cohorts of males 18 years of age 2000–2027; *thousand persons*



Source: Oxenstierna, Susanne and Bergstrand, Bengt-Göran (2012) 'Försvarsekonomi' [Defence Economics] in Vendil Pallin, Carolina (ed.) *Rysk militär förmåga i ett tioårsperspektiv – 2011* [Russian Military Capability in a Ten-Year Perspective – 2011], March, FOI-R--3404--SE (Stockholm, FOI), p. 160.

Note: The figure is constructed by B-G Bergstrand using the population pyramid in *Demograficheskii ezhegodnik Rossii* [Russian Demographic Yearbook] *(*2010) p. 50. This is the only source to one-year cohorts in the official demographic statistics. In the figure the number of males born one year is used to describe the 'conscript cohort' 18 years later. For example, the number of 18-year olds in 2020 consists of those born in 2002; the 18-year olds 2027 are those born in 2009 etc. The black figures on the X-axis (horizontal) denote the present age for the cohort and the red arrows the year the cohort will be 18 years old. The Y-axis (vertical) to the right gives the number of persons in thousands. This forecast includes all possible 18-year-old conscripts up to 2027 since they are already born.

Increase of pay and monetary benefits

In order to improve living conditions for Armed Forces personnel, their families, civilian staff and retired military employees, the Ministry of Defence adopted a strategy in 2008 for the social development of the Armed Forces (Strategiia sotsialnogo razvitiia Vooruzhennykh Sil RF).[56] This strategy led to a new Law on Military Pay and Benefits,[57] although not before it had prompted considerable debate, and many changes. Under the strategy, for instance, the average rate of pay and financial benefits was to correspond to 95 per cent of the average rate of pay in the economy as a whole, which many felt was too low. Pay must instead be above the average if the work is to be attractive. According to a survey by VTsIOM (the All-Russian Center for the Study of Public Opinion), prospective contract servicemen will only agree to serve if they are paid at a rate 20 per cent above the average.[58] In October 2011, the Duma adopted the Law on Military Pay and Benefits.[59]

Table 3-2 Estimated pay and monetary benefits according to the originally proposed ('new look') and revised ('newer look') changes in the personnel structure of the Armed Forces; *number of persons; RUR; and per cent*

Grade	Number of people	Number of people	Number of people	Salaries & benefits per person	Million RUR per year Total	Million RUR per year Total	Million RUR per year	%
	'New look'	'Newer look'	Difference	Per month	'New look'	'Newer look'	Difference	Difference
OFFICERS								
Total	**150 000**	**220 000**	**70 000**		**128 242**	**188 024**	**59 782**	33.6
General	780	1 139	359	180 000	1 685	2 460	775	0.4
Colonel	8 000	11 680	3 680	150 000	144 00	21 024	6 624	3.7
Lieutenant-colonel	16 220	23 795	7 575	120 000	23 357	34 264	10 907	6.1
Major	25 000	36 675	11 675	80 000	24 000	35 208	11 208	6.3
Captain	40 000	58 680	18 680	60 000	28 800	42 250	13 450	7.6
Lieutenant	60 000	88 031	28 031	50 000	36 000	52 819	16 819	9.5
CONTRACTED								
Total	**150 000**	**380 000**	**230 000**		**46 404**	**117 557**	**71 153**	40.0
Sergeant	15 000	38 000	23 000	34 600	6 228	15 778	9 550	5.4
Private	135 000	342 000	207 000	24 800	40 176	101 779	61 603	34.6
CONSCRIPTS								
Total	**700 000**	**400 000**	**-300 000**		**3 311**	**1 887**	**-1 424**	-0.8
Seargent-major	22 000	12 454	-9 546	6 050	160	90	-70	0.0
Senior seargent	40 000	22 643	-17 357	5 500	264	149	-115	-0.1
Seargent	50 000	28 304	-21 696	4 950	297	168	-129	-0.1
Junior seargent	88 000	49 815	-38 185	4 400	465	263	-202	-0.1
Lance-copral	220 000	124 538	-95 462	3 850	1 016	575	-441	-0.2
Private	280 000	162 246	-117 754	3 300	1 109	642	-467	-0.3
TOTAL	**1 000 000**	**1 000 000**	**0**		**177 957**	**307 468**	12 9511	72.8

Source: Trofimova, Yelena (2011) 'Nekotorye dostizheniia i problemy sotsialnogo razvitiia vooruzhennykh sil RF' [Some Improvements and Problems in the Social Development of the Armed Forces of the RF], *Ekonomiko-politicheskaia situatsiia v Rossii*, 2 February, on the Internet: http://www.iet.ru/ob-izdanii.html, p. 57.

The principal change to the proposals on how pay and other benefits are to be structured came on 2 February 2011, when the Ministry of Defence announced that in connection with the introduction of the new Russian Aerospace Defence Forces the number of officers would be increased by 70 000. Based on the data available in February 2011, researchers at the Gaidar Institute calculated what this would mean in terms of pay and monetary benefits, as well as in terms of total cost of the social package (Table 3-2).

Table 3-2 is based on the assumption that the numerical strength will remain the same, i.e. that the Armed Forces will be 1 million strong. A further assumption is that out of a conscript cohort of less than 700 000 no more than 400 000 can be inducted for military service.[60] In column 3 in Table 3-2,the number of conscripts is reduced accordingly, and the number of contract servicemen increased. Pay and benefit levels along with pay differential scales and certain types of benefits have been published to some extent in the press, and are probably known to these researchers through other sources.[61] Table 3-2 shows the costs of pay and financial benefits rising by 73 per cent due to the necessary increase in the number of officers and contract servicemen if the numerical strength should remain, since conscripts are much cheaper.

The new law on military pay and monetary benefits

The draft law of 1 July 2011 increased pay and benefits by a factor of 2.5–3.[62] It provided for a simpler remuneration system than the old one, which had a lower rate of basic pay and more than 100 types of additional payments (bonuses, increments and other extras). There are only nine types of such extras in the new system.[63] Basic pay (*oklad*) according to military rank is decided by the government. Basic pay is to be indexed for inflation in accordance with the budget law for the coming years, and the government decides the level. Monthly additional payments are disbursed according to years of service (10–40 per cent), academic qualifications (5–30 per cent), security classification (up to 65 per cent), special conditions (up to 100 per cent), hazardous duties (up to 100 per cent) and performance of special merit (up to 100 per cent). There are also premiums for special operations that amount to 1–3 times of the basic pay, and special final salaries that are paid out when personnel end their employment.[64] In addition, military pensions are to increase by 50–70 per cent. The basic guarantee pension in 2010 was just RUR 8 000 (USD 270) and will be raised by 20–40 per cent to RUR 15 000 (USD 500) in 2012.[65] At the same time as these changes are introduced, 40 000 World War II veterans have also been promised better living conditions.[66]

The new law was applied from 1 January 2012 in the case of the Armed Forces and Interior Ministry Troops. In the case of other ministries and services with armed troops, the law will apply from January 2013.

The pay and benefit reform is estimated to cost RUR 444 billion, of which only RUR 61.3 billion will be in the form of new funding. To cover the remaining cost (86 per cent), the Armed Forces are expected to reduce spending and streamline their activities.[67] Table 3-3 describes the estimated total sums for pay and benefits on the basis of the new rules and the number of people in the various ranks of the Armed Forces. At best, this gives us an approximate idea of the magnitude of the costs involved.

3.4 Forecasts of military expenditure up to 2020

Assuming that the security policy situation remains unchanged, the most important factors determining the size of Russia's military expenditure are GDP growth and how well the Ministry of Defence and the defence lobby are able to negotiate in relation to other ministries and budget chapters in the federal budget process.

Table 3-3 Total pay and monetary benefits in the Armed Forces 2011–2016; *million RUR; per cent*

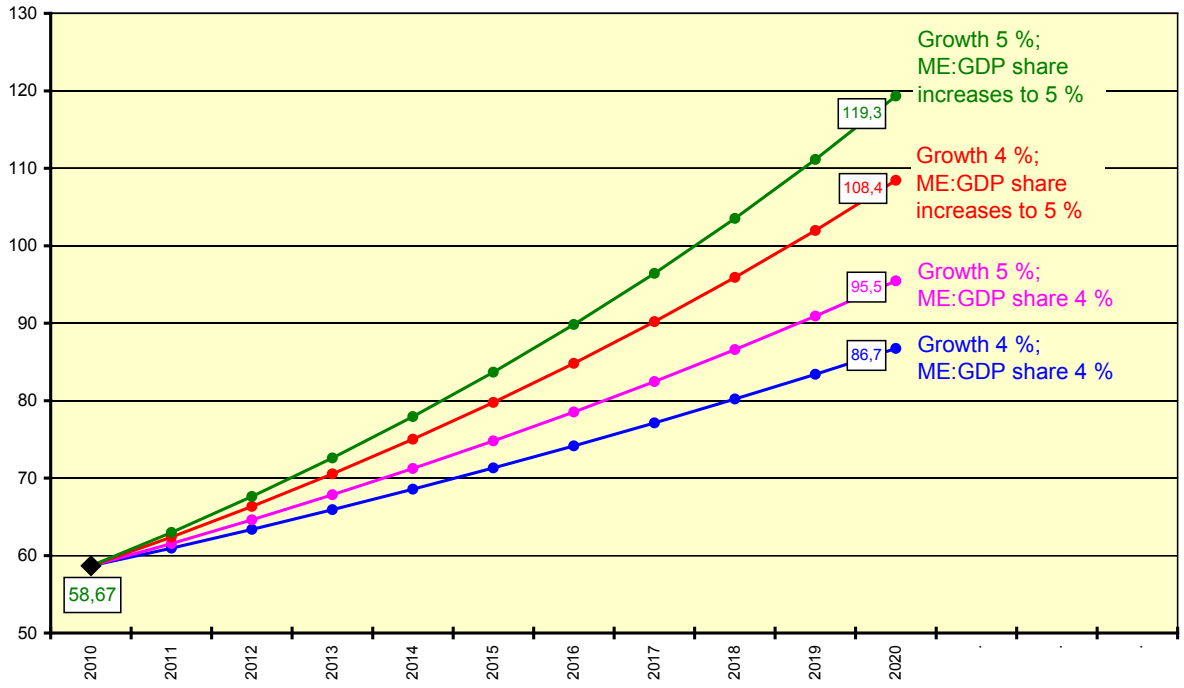
	2011*	2012	2013	2014	2015	2016
Salaries & benefits, million RUR*	253 351	273 117	308 182	343 344	377 865	414 513
Salaries & benefits as share of the defence budget, %**	*17*	*15–16*	*13–16*	*12*	NA	NA

Sources: Oxenstierna, Susanne and Bergstrand, Bengt-Göran (2012) 'Försvarsekonomi' [Defence Economics] in Vendil Pallin, Carolina (ed.) *Rysk militär förmåga i ett tioårsperspektiv – 2011* [Russian Military Capability in a Ten-Year Perspective – 2011], March, FOI-R--3404--SE (Stockholm, FOI), p. 161; Privetkin, Andrei and Trofimova, Yelena (2011) 'O fonde denezhnogo dovolstviia voennosluzhashchikh RF' [The Fund for Military Pay and Monetary Benefits of the Armed Forces RF], *Ekonomiko-politicheskaia situatsiia v Rossii*, Gaidar Institute, 7 July, on the Internet http://www.iet.ru, pp. 57–8.

Notes: * Values for pay and benefits are those given in the federal budget as cited by Privetkin and Trofimova (2011) pp. 57–58 .

** Own calculations. Values for the defence budget are from Table 3-1 and Table A3-1 in this publication.

Figure 3-6 Alternative forecasts of Russia's military expenditure (ME) up to 2020 based on different assumptions of ME's share in GDP and different GDP growth rates; *bn USD.*



Source: Oxenstierna, Susanne and Bergstrand, Bengt-Göran (2012) 'Försvarsekonomi' [Defence Economics] in Vendil Pallin, Carolina (ed.) *Rysk militär förmåga i ett tioårsperspektiv – 2011* [Russian Military Capability in a Ten-Year Perspective – 2011], March, FOI-R--3404--SE (Stockholm, FOI), p. 164. Source table in Annex table A3-2, this publication.

During the 2000s, the defence budget was kept at a low, stable percentage of GDP, but GDP then increased dramatically and with it defence spending, without increasing the defence burden on the economy. A lower rate of growth is expected in the 2010s at a time when the government is also planning to increase the defence budget's share of GDP. This, at least, is the plan up to 2014. In the forecasts of military expenditure up to 2020 presented in this chapter, four scenarios have been developed that illustrate the effect of higher and lower GDP growth and of a higher and lower share of GDP for military expenditure (Figure 3-6).

In Figure 3-6, the lines represent trends in military expenditure based on different assumptions. The lowest line, 'Growth 4% - Share 4%', denotes that GDP grows by 4 per cent and that total military expenditure amounts to 4 per cent of GDP. The starting point is 2010 when Russian military expenditure totalled USD 59 billion, or 4 per cent of the country's GDP (of USD 1 465 billion). Given an average growth rate of 4 per cent and a fixed share of GDP, military expenditure would increase by almost 50 per cent during the period to 2020, to USD 87 billion (see Annex Table A3-2, p. 63, for exact figures).

The second line from the bottom, 'Growth 5% - Share 4%', assumes a slightly faster rate of GDP growth, 5 per cent, but an unchanged 4 per cent share of GDP for military expenditure. In this scenario, military spending increases by just over 60 per cent, to USD 95 billion in 2020. The line Growth 4% - Share 5%', assumes that the GDP share gradually increases from its present level of 4 per cent to 5 per cent by the year 2020. In these two cases, Russian military expenditures would increase to USD 108 and 119 billion respectively, or by 85 per cent and 100 per cent (see Annex Table A3-2 for exact figures).

This simulation of future military expenditure shows particularly how sensitive the federal budget items are to changes in the GDP growth rate, but also illustrates the significance of bargaining strength in the budget process. Assume for instance that the government is counting on an average growth rate of 5 per cent during the 2010s, but that the rate instead turns out to be 4 per cent. Military expenditure would then be lower than anticipated, and the Ministry of Defence and the defence lobby could be expected to do all in their power to obtain a larger slice of the smaller cake.

3.5 The economics of the defence sector in a ten-year perspective

Everything points to an increase in Russian military spending over the next decade. According to the preliminary federal budget for 2012–2014, the defence budget (the chapter on 'national defence' in the federal budget) will rise from 3.2 per cent to 3.9 per cent of GDP. Applying the broader definition used by SIPRI, this would correspond to total military expenditure of between 4 and just over 5 per cent of GDP. The reasons for this increase are the military reform and the 2020 State Armament Programme, under which the goal is to equip the Armed Forces with 30 per cent of new arms by 2015 and 70 per cent by 2020. Research and development have been greatly reduced, and other areas of defence activity may also suffer, including maintenance and mobilisation capacity, which were both cut back during the crisis of 2009. The new law on military pay and monetary benefits may increase military expenditure further. The facts that conscript cohorts are so small in the 2010s and that the Armed Forces are therefore obliged to increase the proportion of contract servicemen in order to maintain numerical strength will increase costs.

The functioning of the Ministry of Defence organisation for state arms procurement is crucial for the achievement of the State Armament Programme. The procurement system has been subject to a series of reforms but corruption has survived. About 20 per cent of the funds are said to disappear in the course of the procurement process. Russia's arms procurement is shrouded in secrecy and, given that not even the public supervisory bodies have sufficient insight into the process, there are doubts as to whether it can be made more efficient. Transparency, which is a key tool for combating inefficiency and corruption in any public administration, is still in short supply in Russia.

Minister of Defence Serdiukov is making strenuous efforts to put the procurement system in order and has seen to it that the responsible body, Rosoboronpostavka, is given a new director and new status. The Ministry of Defence is also trying to acquire a closer insight into prices so as to be able to put pressure on the defence industry. The defence industry has exploited its monopoly position to inflate prices by including its social sector, all kinds of development work, and deficits that have arisen in other ways. The defence industry has been urged to hand over its social service responsibilities to local municipalities, but the latter are often reluctant to take them on without additional funding; meanwhile, Serdiukov has brought pressure to bear on the defence industry by adjusting profit margins. As long as the defence industry has soft budget constraints and is not exposed to real competition, however, it is difficult to see how it can be persuaded to improve its performance.

In June 2011, Russia signed the contract for four French Mistral class amphibian assault ships. As noted earlier, Russia is also collaborating with Italy on LMVs and with Israel on UAVs. The Ministry of Defence has thereby demonstrated its readiness to turn to foreign competitors if the domestic industry is unable to deliver what the Armed Forces need. The Ministry, however, has not announced any plans to make further major purchases of foreign military equipment on any great scale during the period up to 2020, although Russia has understood the importance of international cooperation for technology transfers and that arms purchases from abroad may represent a short cut in this connection. Nonetheless, the planned improvements in the armament situation will encounter major challenges since the procurement system is flawed and only parts of the Russian defence industry are capable of delivering modern arms.

As part of the process of modernising the Armed Forces, in summer 2011 the government presented a draft law on pay and benefits. The new law has been adopted and is being implemented since January 2012. The law will probably improve the monetary remuneration of military personnel, but it is unclear whether it will suffice to make a military career attractive. The Armed Forces will be increasingly dependent on contract servicemen since the conscript cohorts are small. If the military is to be able to compete successfully with the civilian labour market, it will have to offer good pay and benefits. Pledges of pay increases have already been made for 2012 and 2013, but the new law in its present form is not fully financed, at least not in the version of the three-year budget in place, and the assessment is that it will be difficult to live up to

the aims of this legislation. It is also an open question whether the Ministry of Defence is prepared to absorb the considerable costs that the shift to a larger proportion of contract servicemen will entail. If matters do indeed move in this direction and Russia continues to insist on a million-strong defence force, the country's military expenditure may be expected to increase further throughout the 2010s.

Endnotes

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Annex Chapter 3

Annex Table A3-1 Federal budget 2011–2014*; bn RUR and per cent*

Billion RUR	2011	2012	2013	2014
Total federal budget	11 022.5	12 198.3	13 431.9	14 293.9
Defence budget	1 532.8	1 847.4	2 334.3	2 750.8
GDP	53 385.5	57 447.6	63 519.6	70 252.8
Per cent of GDP				
Total	20.65	21.23	21.15	20.35
Preliminary spending	0.00	0.00	0.53	1.02
Total without preliminary spending	20.65	21.23	20.62	19.33
Government administration	1.63	1.38	1.26	1.12
Defence	2.87	3.22	3.67	3.92
Legal bodies and security	2.30	2.94	3.00	2.84
Subsidies to the economy	3.44	3.07	2.65	2.35
Residence construction and maintenance	0.44	0.17	0.14	0.09
Environment	0.03	0.03	0.03	0.03
Education	1.03	0.97	0.82	0.67
Culture	0.16	0.14	0.12	0.11
Health	0.87	0.87	0.71	0.63
Social policy	5.91	6.61	6.46	5.88
Sport	0.08	0.07	0.05	0.03
Media	0.12	0.11	0.09	0.07
Debt service	0.66	0.76	0.85	0.91
Inter-regional redistribution	1.11	0.89	0.77	0.67
Surplus/Deficit	-1.35	-2.73	2.75	-2.35

Source: Oxenstierna, Susanne and Bergstrand, Bengt-Göran (2012) 'Förvsvarsekonomi' [Defence Economics], in Vendil Pallin, Carolina (ed.) *Rysk militär förmåga i ett tioårsperspektiv – 2011* [Russian Military Capability in a Ten-Year Perspective – 2011], March, FOI-R--3404--SE (Stockholm, FOI), p. 318 based on Ministry of Finance RF (2011) *Osnovnye napraveliniia byudzhetnoi politiki na 2012 godu i planovoi period 2013 i 2014 godov* [Basic Directions of the Budget Policy in 2012 and for the Planning Period 2013 and 2014], on the internet www.minfin.ru/ru/index.php?pg56=4 (retrieved 17 January 2012).

Annex Table A3-2 Alternative forecasts of Russia's military expenditure 2010–2020

	(I)			(II)			(III)			(IV)		
	Military Exp.	GDP / growth 4 %	ME:GDP / stable 4 %	Military Exp.	GDP / growth 5 %	ME:GDP / stable 4 %	Military Exp.	GDP / growth 4 %	ME:GDP / incr. to 5 %	Military Exp.	GDP / growth 5 %	ME:GDP / incr. to 5 %
2010	**58,67**	**1 465,08**	**4,0%**	**58,67**	**1 465,08**	**4,0%**	**58,67**	**1 465,08**	**4,00%**	**58,67**	**1 465,08**	**4,00%**
2011	60,95	1 523,68	4,0%	61,53	1 538,33	4,0%	62,39	1 523,68	4,09%	62,99	1 538,33	4,09%
2012	63,39	1 584,63	4,0%	64,61	1 615,25	4,0%	66,34	1 584,63	4,19%	67,62	1 615,25	4,19%
2013	65,92	1 648,01	4,0%	67,84	1 696,01	4,0%	70,54	1 648,01	4,28%	72,60	1 696,01	4,28%
2014	68,56	1 713,94	4,0%	71,23	1 780,81	4,0%	75,01	1 713,94	4,38%	77,94	1 780,81	4,38%
2015	71,30	1 782,49	4,0%	74,79	1 869,85	4,0%	79,76	1 782,49	4,47%	83,67	1 869,85	4,47%
2016	74,15	1 853,79	4,0%	78,53	1 963,35	4,0%	84,81	1 853,79	4,58%	89,83	1 963,35	4,58%
2017	77,12	1 927,94	4,0%	82,46	2 061,51	4,0%	90,19	1 927,94	4,68%	96,44	2 061,51	4,68%
2018	80,20	2 005,06	4,0%	86,58	2 164,59	4,0%	95,90	2 005,06	4,78%	103,53	2 164,59	4,78%
2019	83,41	2 085,26	4,0%	90,91	2 272,82	4,0%	101,98	2 085,26	4,89%	111,15	2 272,82	4,89%
2020	86,75	2 168,67	4,0%	95,46	2 386,46	4,0%	108,44	2 168,67	5,00%	119,33	2 386,46	5,00%
Increase 2010-20	*47,9%*			*62,7%*			*84,8%*			*103,4%*		

Source: Own calculations based on assumptions presented in the text and the FOI database.

Note: This table is calculated from the FOI database, in which the decimal sign is defined with decimal comma ',' in accordance with the continental European practice. In the table '1 465,08' denotes '1,465.08' according to the English practice, and '47,9%' is equal to '47.9%'.

4. The Defence Industry

Fredrik Westerlund[i]

Historically, the defence industry has played an important role in Russian society. It has been argued that the Soviet Union did not *have* a military-industrial complex; rather it *was* one.[1] By the 2000s, however, it was becoming increasingly misleading to refer to a Russian military-industrial complex in terms of a defence industry, armed forces and defence industry ministries operating as a single, integrated entity. Signs of deep dysfunctionality were increasingly apparent, and by 2010 the long-standing rifts between the defence leadership and the industry, as well as within the industry, were out in the open. The sector was no longer the state's primary focus; it had become a dependent – as opposed to a governing – variable vis-à-vis other policy areas.

The defence industry nevertheless continues to play an important role, particularly in defence policy, in its capacity as developer and manufacturer of defence materiel. It also plays a crucial role in the Russian economy. Government defence orders, which accounted for just over 1 per cent of GDP in 2010, were projected to rise to 1.88 per cent in 2013.[2] To this must be added a significant volume of civillian products. The defence industry employed approximately 1.5 million people in 2009,[3] almost 1.5 per cent of the labour force. This gives the industry a role in domestic policy as well. To the population, it represents employment and social welfare, particularly in cities and regions dependent on defence industry contractors. Furthermore, successful sectors such as the space and aircraft industries are a source of national pride. These sectors also permit defence industry cooperation with other countries and enhance Russia's international standing. The defence industry thus also has a role to play in foreign policy, particularly with regard to forging closer ties between Russia and other member states the Commonwealth of Independent States (CIS).

It is therefore of interest to assess the future development in the Russian defence industry and the consequences for the country as a whole. The purpose of the present chapter is to perform such an assessment for the period leading up to 2020. The principal question to be addressed here is the nature and extent of the defence industry's contribution to Russia's military capability. The focus is on the industry's ability to sustain the drive to modernise the Armed Forces by supplying them with advanced materiel systems. A second question is how the defence industry in general may play a role in underpinning Russia's great power ambitions between now and 2020, for example, by generating export revenues and gaining leverage over importing countries.

To answer these questions, developments in a number of areas are examined, with the emphasis on the period 2008–2010. The chapter will include a discussion of political control of the Russian defence industry, its structure, personnel,

[i] With contributions by Bengt-Göran Bergstrand, who drew the figures based on data from SIPRI, and Susanne Oxenstierna, who assembled defence materiel production data for Table 4-4 and Figure 4-1.

production materiel and defence materiel deliveries, in that order. The specific areas addressed with regard to defence materiel deliveries are new production for the Armed Forces in 2007–2010, and the outlook for 2020, where the focus is on modernisation.

This is followed by a section on the Russian arms trade. In February 2010, Russian Prime Minister Vladimir Putin declared that the export of Russian arms and equipment was important to Russia's economic and foreign policy objectives.[4] Both the import and the export of arms also affect the defence industry's ability to modernise. The chapter concludes with an overall assessment of the defence industry's ability to underpin Russia's military capability and great power ambitions in the period leading up to 2020.

The present chapter deals only with the defence industry, as opposed to the defence-industrial complex (*oboronno-promyshlennyi kompleks*, OPK) as a whole. In Russian discourse, OPK sometimes refers merely to the defence industry and sometimes includes the government institutions that control and support the industry. The present and previous reports on Russia's military capability adhere to the latter approach. The supply side of the OPK, i.e. the defence industry, is dealt with here, while the client side is discussed in Chapter 3, Defence Economics. Products manufactured by the defence industry for the civilian market are not addressed in this chapter.[ii]

4.1 Political control of the defence industry

Since 2008, Russia's political leaders have intensified their efforts to steer the development of the country's defence industry. In addition to continued efforts to concentrate the defence industry in state-owned holding companies, a process begun in 2006–2007 (see Chapter 4, Section 4.2), the government has also sought to stimulate change from outside.

The Ministry of Defence is moving the process forward

The Ministry of Defence, with the backing of the president and prime minister, has been proactive in this process, using a carrot and stick approach. As discussed in the previous chapter, the defence industry has been sharply criticised for price rises, poor quality and unpunctual delivery as well as widespread corruption. The Ministry of Defence has also, and for the first time, placed orders for large materiel systems with foreign defence industries. Meanwhile, a substantial increase in domestic orders is being planned. Moreover, companies' profit margins on priority materiel are expected to increase (see Chapter 3, Section 3.2, p. 47). Domestic defence orders since 2007 have exceeded arms export contracts by 50 per cent (see Figure 4-1). With the 2020 State Armament Programme, government orders will become an even more important source of income for the Russian defence industry and thus a potentially stronger defence policy instrument.

[ii] The chapter relies to a great degree on Russian sources, mainly primary sources such as official Russian documents as well as publications of the Russian Centre for Analysis of Strategies and Technologies (CAST) and Russian newspapers. Non-Russian secondary sources, not least SIPRI data, have been used for international comparisons.

Supplying combat units with up-to-date materiel is an important part of the ongoing reform of the Armed Forces. Acquisition of newly manufactured arms and equipment is given priority in the 2020 State Armament Programme. This is a steering signal for the defence industry. Eighty per cent of the total budget will be spent on arms procurement, while only 10 per cent has been set aside for research and development (R&D) and the repair and upgrading of older materiel respectively. The Russian government intends to supply the Armed Forces with 70 per cent 'modern' (*sovremennye*) weapons by 2020 and increase materiel acquisition from 38 per cent of the defence budget in 2010 to 59 per cent by 2013 (see Chapter 3, Section 3.2 and Table 3-1).

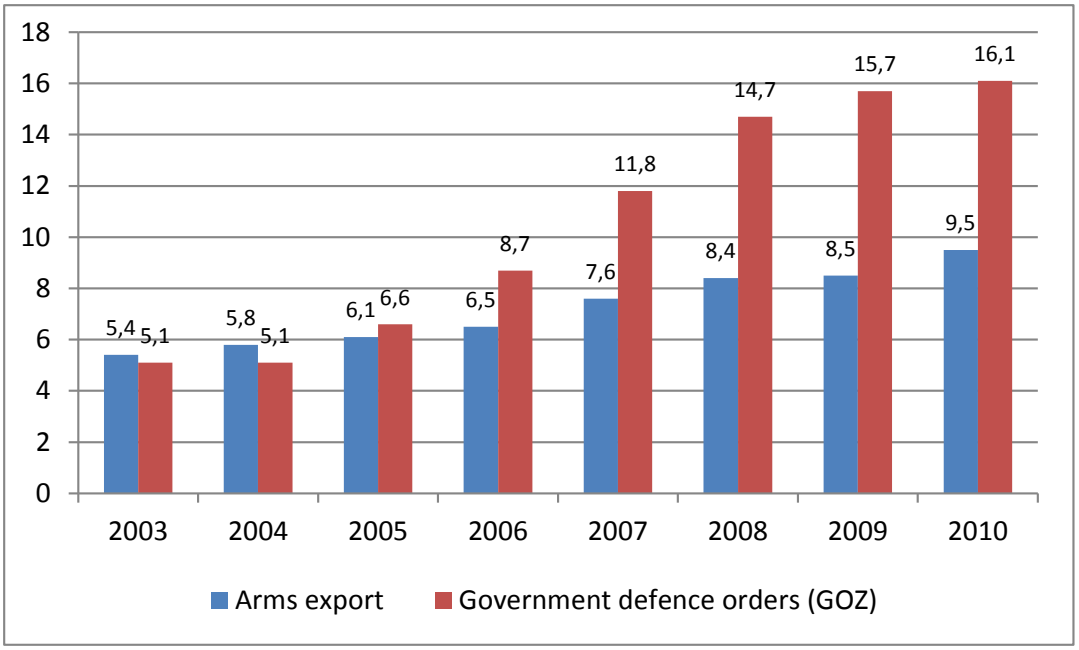
Long-term state defence orders give the Russian defence industry an indication of what technologies and product lines the government considers necessary to develop and maintain. However, the signals sent by the 2005 and 2010 state armament programmes were of limited value in this respect, as the programmes were under-financed and folded after only a few years. The 2015 State Armament Programme, which was better financed, focused on completing the development of new systems for the period leading up to 2011, thereby facilitating large-scale arms production.[5] The 2020 State Armament Programme pursues this logic and the government has sharply boosted funding for the programme as well as the volume of government defence orders for 2011–2013, as noted in Chapter 3. As in the West, the government is steering the defence industry towards smaller production runs of more advanced materiel.

Priority given to strategic systems, air combat and combat vessels

Towards what specific areas of technology is the government steering the defence industry? As with the 2015 State Armament Programme, priority has been given to strategic systems such as the nuclear triad, early-warning systems and missile defence. This programme was criticised for not giving sufficient attention to precision weapons and command and control systems. Satellite-guided weapons systems and automated command and control systems are said to be two of highest-priority areas in the latest State Armament Programme. However, specific details of orders for these systems have not been openly reported.[6] As shown in Table 4-1, the defence industry is expected to develop and manufacture new aircraft, helicopter and air defence systems as well as surface combat vessels and submarines. The automotive industry is expected to maintain its production capability. The missile industry is expected to expand its capacity to produce the Iskander-M short-range ballistic missile system.

However, the known components of the 2020 State Armament Programme offer the heavy vehicle industry little guidance. The previous programme included the upgrading and new production of a total of 1 400 tanks, and over 4 000 tracked and 3 000 wheeled armoured vehicles.[7] Nothing is known in the 2020 State Armament Programme about the upgrading or new production of combat vehicles, apart from the purchase of Italian Iveco light multi-role vehicles (LMVs). Included in the programme, however, is the development of a new common platform for future heavy combat vehicles. It is unclear whether this is an intentional signal from the government that current production lines for heavier combat vehicles should not be retained.

Figure 4-1 Russian arms exports and government defence orders (GOZ) 2003–2010, *bn USD*



Source: Frolov, Andrei (2010) 'Gosudarsvennyi oboronnyi zakaz Rossii: tendentsii poslednikh let' [Russia's Government Defence Orders: Tendencies of recent years], *Eksport Vooruzhenii*, Special Volume 2010, p. 10. The figure was assembled by Susanne Oxenstierna.

Note: FOI has a configuration of Excel where the decimal fraction is shown with the decimal comma – ','.

Table 4-1 Ministry of Defence materiel orders for the Armed Forces

Procurement for the Russian Armed Forces in the annual government defence orders (GOZ) for the years 2007–2010 and in the 2020 State Armament Programme (public figures for major weapon systems)

	2007	2008	2009	2010	2011–2020*
STRATEGIC MISSILE AND SPACE SYSTEMS					
Intercontinental ballistic missiles Topol-M/Yars (RS-24)	5	?	10	10-12	up to 150
New (liquid fuel) missile					Design and development
Submarine-launched ballistic missiles Sineva	12	?	4	ca. 16	ca. 40
Bulava (R-30)					150
Early-warning radar systems Voronezh-DM					2
Missile defence systems (new, future)					Design and development
Booster rockets (Soyuz-2-1V, Angara, Rus)	4	7	7	11	Development + ?
Satellites	4	7	6		6 + GLONASS
GLONASS-M/GLONASS-K (positioning)					?
Early-warning satellite					1
Gonets-M (communication)					5
AIRCRAFT AND AIR DEFENCE SYSTEMS					
Strategic bombers Tu-160	1	1			
New strategic bomber system (PAK-DA)					Design and development

Table 4-1 continued		2007	2008	2009	2010	2011-2020*
Attack aircraft	Su-34	5	5	2	6	up to 100
Multi-role aircraft	T-50 (PAK-FA)					Development + 70
Fighter aircraft	Su-35S					96
	MiG-35S					48
	Su-27SM3					12
	MiG-31					?
	Su-33 (aircraft carrier based)					ca. 10
	MiG-29K (aircraft carrier based)					26
Close air support aircraft	Su-25UBM					16
Trainer aircraft	Yak-130	4	4	?	9	up to 120
Heavy cargo aircraft	An-124					20 + 20
Cargo aircraft	An-70					60
	Il-476					50
	Tu-214					ca. 10
	An-140 (light cargo aircraft)					9
	L-410 (light cargo aircraft)					4
Airborne early-warning aircraft	A-100					Development
Attack helicopters	Mi-28N	5	?	?	12	250
	Ka-50/52	4	?	?	3	120 (Ka-52)
	Ka-52/Ka-226 (naval)					30
Transport/attack helicopters	Mi-35M					22
	Mi-26 (heavy transport)					22
	Ka-27M (naval)					70
Air defence systems	S-400	1	?	?	5	52 battalions
	S-500					Development + 10 battalions
	Pantsir					?
NAVAL SYSTEMS						
Strategic submarines	Borei class (Project 955)			1?	2	6
	Delta IV (Project 667BDRM)					1
Nuclear-powered submarines	Project 885/885M					6
	Project 949A (cruise missile launching)					2
Diesel-electric submarines		1	2?	1	1	5
Aircraft carriers	*Adm. Kuznetsov* (Project 11435)					1
	New aircraft carrier (nuclear powered)					Design and development

Table 4-1 continued		2007	2008	2009	2010	2011–2020*
Missile cruisers	Project 1164					ca. 1
	Project 11442 (nuclear powered)					1–2
Amphibious assault ship	Mistral class (France)					2–4
Frigates	Project 22350					6
	Project 11356M					6
	Project 11661K					1
	New frigate class					Development + 2
Corvettes					1	
	Project 20380					12
	New corvette class					Development + 23
Anti-ship missiles	(new)					Design and development
COMBAT VEHICLES AND GROUND MISSILE SYSTEMS						
Tanks	T-90	31	62	62	63	
Armoured vehicles, wheeled	BTR-80	?	?	?	120	
Armoured vehicles, tracked	BMP	?	30	?	60	
Heavy combat vehicles (tanks, armoured vehicles)						Development of a new universal heavy combat vehicle platform
Light combat vehicles	Iveco LMV M65 (Italy)					3,000
Lorries						ca. 50,000
Ground missile systems	Iskander-M					10 brigades (120 systems)

Note: *Non-coloured = newly produced systems; magenta = renovation/modernisation; yellow = research and development (R&D); ? = number unknown.

Source: The table is based on Cooper, Julian (2011) 'Military Procurement in Russia' in McDermott, Roger et al. (eds) *The Russian Armed Forces in Transition: Economic, geopolitical and institutional uncertainties* (London, Routledge), Table 9-5, p. 183; and Frolov, Andrei (2011) 'Russian Military Spending in 2011–2020', *Moscow Defence Brief*, No. 1 (Moscow, CAST), Table 3, pp. 15–6.

New, strengthened support programmes

In addition to its State Armament Programmes, the political leadership has produced a number of strategic documents aimed at promoting the development of the defence industry. In spring 2010, President Dmitrii Medvedev promulgated an overall plan entitled *Fundamental Principles of Russia's Policy concerning the Development of the OPK in the Period up to 2020, and in a Long-Term Perspective*. The Ministry of Trade and Industry, in cooperation with the Ministry of Defence, the Security Council, relevant authorities and state-owned enterprises, has drawn up a plan containing objectives, strategies and tasks for the development of the defence-industrial complex as a whole. The plan focuses initially on developing the production base for radio-electronic components as these are essential for virtually all modern weapons and command systems.[8] This has been a recurring theme: a strategy for the development of the Russian

electronics industry up to 2025 was launched in 2007. The strategy, which predicted an investment of up to RUR 50 billion between 2007 and 2011, was accompanied by two Federal Target Programmes. However, neither the targets nor the financing were sufficient to compensate for the head start already gained by leading countries in the field.[9] The new plan suggests that the previous ones have not been regarded as wholly successful.

Implementation of State Armament Programmes has also been supported by other specially adapted Federal Target Programmes. When the development plan for the period up to 2020 was launched, Deputy Prime Minister Sergei Ivanov announced that a new version of the Federal Target Programme for the development of the defence-industrial complex was in the process of being drafted. In 2010, the Ministry of Industry and Trade estimated that RUR 329.3 billion (approx. USD 10 billion) would need to be invested in the period up to 2013 alone. It was estimated that over 1 000 new technologies would have to be developed or implemented in order to manufacture the 1 300 different types of materiel specified in the 2020 State Armament Programme.[10]

In addition, Ivanov announced the introduction of a new Federal Target Programme for the reform of the defence industry. The programme would entail an investment of RUR 100 billion (approx. USD 3.3 billion) per year up to 2020. It too would be aimed at supporting the implementation of the 2020 State Armament Programme.[11] Neither of these two target programmes had been made public in 2011. It should be noted here that under this programme as much as RUR 3 000 billion (approx. USD 100 billion) has already been earmarked for pre-production, over and above the RUR 19 000 billion (approx. USD 630 billion) projected for the procurement of defence materiel.[12] To achieve the desired effect, these funds will probably be allocated early in the implementation stage of the State Armament Programme. The defence industry may receive a total of RUR 1 500–2 500 billion (approx. USD 50–80 billion) in the period leading up to 2013 to develop its production capacity.

Political control of the defence industry is not only exercised through programmes, plans and other documents. Personal influence brought to bear on key figures in the defence sector can play an important role in this connection. The cast of characters has changed little since 2008.[13] The biggest change has been the growing influence of Minister of Defence Anatolii Serdiukov on the development of the defence industry. By increasingly putting the needs of the Armed Forces in terms of materiel acquisition before the production capacity of the defence industry, Serdiukov has encouraged change within the industry. Acquisition by the Ministry of Defence of foreign weapons systems has involved new forms of cooperation between Russian and foreign defence industries (Israeli, Italian and French), in addition to cooperation with India. As mentioned above, Serdiukov and representatives of the Ministry of Defence are also pressing for a transition towards the production of more advanced materiel in smaller volumes.

Conflicting messages

Other leading figures in the Russian power elite have sought to maintain the present breadth of production in the defence industry. A number of these have become personally involved on the boards of the biggest companies. Sergei Ivanov has been chairman of the Board of the state-owned holding company Obedinennaia Aviastroitelnaia Korporatsiia (OAK) since its inception. Igor Sechin of the United Shipbuilding Group (Obedinennaia Sudostroitelnaia Korporatsiia – OSK), Sergei Chemezov (Rostekhnologiia) and Viktor Ivanov (Almaz-Antei) have held corresponding appointments. The emergence of these holding companies (see the following section) has also played a part in the political control of the Russian defence industry. However, it is not entirely certain that this development has been moving in the same direction as the most recent State Armament Programmes.

There are also contradictory elements in the plethora of strategic documents. The development of new technology and advanced weapons systems and the importance of international defence industry cooperation are mentioned in the 2010 Russian Military Doctrine. At the same time, emphasis is placed on self-sufficiency in terms of arms and defence equipment production and with respect to government control of strategic companies. The need to maintain a mobilisation capability within the Russian defence industry is also emphasised.[14] The defence industry is not governed directly by the Military Doctrine, but by a law from the Soviet era which requires defence industry companies to maintain a mobilisation capability. The law was still in force in the spring of 2011.[15] It is difficult to reconcile the mobilisation capability requirement and government control with the development of high-technology weapons systems and international defence industry cooperation. Contradictions of this kind make it more difficult to gain a clear picture of the nature and extent of political control.

In the autumn of 2011, information emerged concerning an ongoing review of the defence industry under the leadership of Dmitrii Rogozin, formally Russia's ambassador to NATO at the time. At President Medvedev's direction, the Military-Industrial Commission of the Russian Federation has drawn up a proposal for the restructuring of the defence industry. The proposal was presented orally to the president in November 2011.[16] Judging from information disseminated in the media, it represented an attempt to enhance control of the defence industry by specifying more clearly which companies were to manufacture which products. It is doubtful if further central control of the Russian defence industry will lead to an appreciable improvement in production capacity.

Table 4-2 The top five country shares of arms sales for (the SIPRI Top 100 arms-producing companies) in 2009

Country	Number of companies	Arms sales (bn USD)	Share of total Top 100 arms sales (%)
United States	46	246.5	61.5
United Kingdom	11	50.3	12.5
France	6	23.0	5.7
Italy	4	15.5	3.9
Russia	6	9.2	2.3

Source: SIPRI (2011) *SIPRI Yearbook 2011: Armaments, disarmament and international security* (Oxford, Oxford University Press for SIPRI), Table 5A.2.
Note: The table does not include the transnational arms-producing company EADS, which had total arms sales of USD 15.9 billion in 2009, equalling a 4 per cent share of total Top 100 arms sales. Chinese companies were not included in the original table due to a lack of comparable and sufficiently accurate data.

4.2 Structure of the defence industry

The Russian defence industry still comprises a large number of companies and, as mentioned previously, employs approximately 1.5 million people.[iii] It ranks among the five largest in the world, although well behind the US defence industry in terms of arms sales by the largest companies (see Table 4-2). Its general structure has remained largely unchanged since the establishment of state-owned industry-specific holding companies in 2006–2008.[17]

Government dominance

In 2010, no significant reduction was observed in the number of companies in the Russian defence industry as a result of their incorporation into holding companies. Deputy Prime Minister Sergei Ivanov claimed in March 2010 that according to the official register the defence industry comprised 1 729 companies.[18] In other words, plans drawn up in the early 2000s to concentrate the defence industry into approximately 530 companies were never implemented.[19] Research institutes and design and construction bureaux work in close collaboration with sub-manufacturers and major industrial enterprises. Many of these firms are small or medium-sized and a large number are subsidiaries of the holding companies. A number of them were badly hit by the effects of the global financial crisis and in 2009 the Russian government allocated USD 1.5 billion in crisis aid to the defence industry.[20]

The state-owned holding company Russian Technologies (Rostekhnologiia) has been the dominant group in the defence industry since its establishment in 2007. Among other companies, the group includes Rosoboroneksport, which has sole rights to new contracts for arms exports. Rostekhnologiia has been headed by Sergei Chemezov since its inception. Its official mission is to promote the design, production and export of high-tech industrial products and to

[iii] The figures regarding employees vary in different sources depending on the definition of defence industry employees. The figures differ depending on whether they include the people working directly with arms and equipment production, the people employed by companies that produce arms and defence equipment, or all employees of companies that are part of – or owned by companies belonging to – the defence industry. Some estimates set the number of defence industry employees at 2.5 million people.

stimulate investment in Russian industry, including the defence industry.[21] In 2009, Rostekhnologiia had 440 subsidiaries, 278 of which were on the list of Russian strategic companies and twenty of which were vital to employment in their respective 'company towns' (*monogrady*).[22]

The next-largest group of companies in 2010 in terms of turnover was the holding company Oboronprom, which, among other subsidiaries, owns the industry-specific holding companies Vertolety Rossii (helicopter manufacturing) and Obedinennaia Dvigatelstroitelnaia Korporatsiia (ODK) (engine manufacturing). Apart from the giant Rostekhnologiia and Oboronprom, the defence industry companies that generated the largest sales revenues in 2010 were the industry-specific holding companies (see Table 4-3). Heading the list was the air defence systems manufacturer Almaz-Antei, followed by seven other industry-specific holding companies. All the above companies were state-owned. Among the ten next, whose sales revenues ranged from RUR 4 to RUR 14 billion (approx. USD 133–467 million), six were mainly privately owned.[23]

Small companies by international standards

However, the Russian companies are small by international standards. Only six of the ten largest Russian defence industry companies made it onto the Stockholm International Peace Research Institute (SIPRI)'s list of the world's Top 100 defence industry companies in 2009. Of these, only Almaz-Antei (in 23rd place) and the aircraft manufacturer OAK (29th) were in the top fifty. The other four companies were the tactical missile systems manufacturer Takticheskoe Raketnoe Vooruzhenie (TRV) (67th), Vertolety Rossii (73rd), the combat vehicles manufacturer Uralvagonzavod (76th), and ODK (90th). In 2009, arms sales by defence industry companies in Western Europe such as Finmeccanica, EADS and Thales were twice as large as those of Almaz-Antei. The disparity in terms of total sales was even greater. Sales figures for BAE Systems and the largest US companies were larger by an order of ten or more than those for Almaz-Antei in 2009.[24] These companies are considerably better equipped, both financially and organisationally, to develop new technologies. They can buy components and technologies from one another and are experienced in running major systems integration projects. The companies are also under pressure from their shareholders to reduce costs and boost sales.[25]

The Russian defence industry came increasingly under the domination of state-owned companies in the second half of the 2000s as a result of the establishment of the state-owned holding companies. According to the Russian Centre for Analysis of Strategies and Technologies (CAST), state-owned companies' share of the twenty largest defence companies' total sales revenues rose from just under 66 per cent in 2006 to 91.5 per cent in 2010.[26] In the industry as a whole, some 40 per cent of the companies were state-owned, an equal number were mainly privately owned and the state was a major shareholder (with more than 25 per cent of the votes) in the remaining 20 per cent.[27] The Russian government has attempted to sell shareholdings in state-owned holding companies to private actors, with mixed results.[28] The aim, however, was not primarily to reduce government influence but to free up capital.

Table 4-3 Ranking of Russian defence industry companies (by sales revenues) in 2010

Company	Sales revenues (mn RUR)	Share of exports (%)	Share of civilian product revenues (%)	Number of employees
Almaz-Antei (air defence)	134 669	48.0	11.0	88 698
OAK (aircraft)	128 200	65.0	18.4	95 900
ODK (engines)	85 172	23.9	55.6	69 581
Vertolety Rossii (helicopters)	81 300	49.0	28.7	38 486
OSK (navy vessels)	71 630	30.0	30.0	71 284
Uralvagonzavod (armoured vehicles and artillery)	55 091	40.0	60.0	27 627
TRV (tactical missiles)	34 017	50.0	10.0	23 323*
Saliut (jet engines)	21 900	20.0	5.0	12 214*
Priborostroieniia (guided weapons and ammunition)	19 124	91.5	0.2	7 304
Sozvezdie (command, control and communications)	16 700	9.0	4.0	5 995

* The number of employees in 2009, figures lacking for 2010.
Source: CAST (2011) 'Renking predpriiatii oboronno-promyshlennogo kompleksa Rossii v 2010 godu' [Ranking of Companies in Russia's Defence-Industrial Complex in 2010]', *Eksport Vooruzheni*, No. 3, Table 1 and p. 36.
Note: Companies that produce defence materiel strictly related to nuclear weapons and space-related systems have been excluded. The same goes for companies with a share of civilian product revenues exceeding 80 per cent of total sales revenues, e.g. the automotive companies KamAz and Gaz. The giant state-owned holding companies Rostekhnologiia and Oboronprom have also been left out.

Corruption an obstacle

It should be emphasised that government institutions have limited insight into the holding companies. The US researcher Stephen Blank at the Strategic Studies Institute has argued that holding companies exist to transfer state property to the country's elite and to facilitate money laundering. According to Blank, the companies are not governed primarily by business considerations; their actions serve to advance the influence and interests of politically appointed company managers.[29] Corruption has been part of the organisational culture for decades and is an obstacle to the development of both the industry as a whole and individual companies. The immense sums of money in circulation and very limited transparency leave the sector open to abuses and irregularities. The low level of transparency is partly explained by defence secrecy needs. However, it is also due to reluctance on the part of the political leadership to encourage independent scrutiny or even parliamentary access to information. A number of corruption scandals in the defence sector have been exposed in recent years. One area which has been singled out is the acquisition of arms and equipment and, in particular, the procurement of R&D.[30]

The fact that the defence industry is required by the government to maintain a mobilisation capability further diverts resources away from modernisation and drives up production costs. In many cases, meeting mobilisation needs still obliges companies to set aside resources in order to maintain superfluous production capacity and hold a large raw materials inventory.[31] The resulting costs are substantial. In September 2009, a Russian industry representative stated that his company alone had received RUR 7–8 million in government support, although the cost to the company of maintaining a mobilisation capability was estimated at RUR 600 million (approx. USD 20 million) per year.[32]

Slowly growing foreign cooperation

Cooperation with foreign defence industries is an important and growing element of the Russian defence industry. Foreign cooperation has proved extremely important for some companies, such as the aircraft manufacturer Sukhoi. Despite growing foreign investment, manufacturing under licence and joint ventures in 2005–2010, the inflow of expertise, capital and technologies was limited for the Russian defence industry as a whole. Foreign investment was still very limited owing to restrictive regulations on foreign ownership of Russian defence industry companies and the generally poor investment climate in Russia. These factors have hampered modernisation and development of the defence industry. The tendency to acquire arms and equipment from abroad for the Armed Forced could help break this trend over time by encouraging more cooperative ventures and, in practice, increasing exposure to competition.

4.3 Personnel and production materiel

The serious problems of lack of access to both skilled personnel and modern production equipment remain. Very little seems to have happened in these areas across the industry as a whole, despite the launching of the targeted government plans and programmes described in FOI's 2008 assessment.[33]

Many employees but skills and expertise in short supply

The main problems with regard to personnel supply remain the ageing labour force and lack of specialised skills at all levels within the companies. New recruitment of qualified skilled workers since the mass departure of personnel in the 1990s has been weak and poses a serious problem for many companies in the defence industry. The combination of non-competitive wages and a declining recruitment base – particularly as many defence industry companies are located in regions which are being steadily depopulated – present the main challenge. The shortage of highly qualified labour has in many cases led to delays in fulfilling domestic and foreign orders.

Despite this, many defence industry companies have large numbers of employees. This is a remnant of the Soviet legacy. Russian companies have long been characterised by insourcing, i.e. assuming financial responsibility for most of the links in the production chain, as well as for social services such as child day-care centres and hospitals for employees. SIPRI's lists of the world's 100 largest defence industry companies in 2007–2009 attest to the relatively large number of people employed by Russian companies. The holding company Vertolety Rossii (helicopters), the combat vehicle manufacturer Uralvagonzavod, and

TRV, which manufactures tactical missiles, had between twice and four times as many employees as Western companies with comparable sales revenues. The holding company Almaz-Antei (air defence systems), OAK (aircraft) and ODK (engines) employed even more personnel.[iv] In 2009, Almaz-Antei and OAK each had over 90 000 employees and a total sales volume of USD 3.5 billion. Most Western companies with sales revenues of between USD 3 and 6 billion had 10–20 000 employees in 2008 and 2009.[34]

The large number of unqualified personnel employed by Russian companies is in no sense a competitive advantage. On the contrary, it acts as a brake on efforts to make the transition to modern production methods. On the other hand, maximising the number of employees may be a rational approach in an interest-based economic system since it ensures access to subsidies.[35]

The average age of workers in the defence industry remains high. Sergei Chemezov, chief executive of the state-owned holding company Rostekhnologiia, estimated in mid-2009 that the average age of employees in the defence industry was over fifty.[36] Others put the average age at over fifty-five.[37] There has thus been no appreciable improvement in the situation, despite the government action plan aimed at enhancing defence industry access to skilled personnel in 2007–2010. The average age of researchers in the industry is no exception to the general trend.[38] This undermines product development and places companies' long-term survival at risk.

A number of defence industry companies, including Rostekhnologiia and the aircraft manufacturers Sukhoi and MiG, have sought to solve these problems through cooperation with Russian universities. Thus, companies fund university places through grants, and studies alternate with work placements at the company concerned.[39] However, the majority of the defence industry companies probably lack the necessary resources for such measures. On the whole, the serious problems of personnel supply in the defence industry do not appear to have been solved.

Ageing production plant

The Russian defence industry's outdated production plant poses major challenges for the sector. The condition of plant and machinery still places qualitative and quantitative limits on production and the need for investment is acute. In December 2009, Prime Minister Putin acknowledged that modernisation of production arms and equipment was essential to the strengthening of Russia's defence capability. He pointed out that it was not possible to produce modern arms with equipment dating from the 1950s. At the time, it was revealed that 74 per cent of the existing stock of machinery was worn out.[40] The last extensive upgrade of production plant was undertaken in the first half of the 1980s. The strategies and target programmes launched in 2006–2008 with the aim of improving equipment levels in the Russian defence industry do not appear to have improved the situation to any appreciable extent.[41]

[iv] Indian companies also had a high number of employees, and Chinese arms-production companies – which can be assumed also to have a higher number of employees – were not included in the Top 100 list.

Only a small number of defence industry companies had access to modern, well-functioning production plant in 2010. It has been suggested that modernisation is not going ahead partly due to hindrances caused by government budget management. Thus, while budget appropriations seldom reach companies before the end of the third quarter of the financial year, the rules stipulate that they must be expended by the end of the year. This makes it difficult for companies that have no financial resources of their own to procure advanced equipment, as delivery times are frequently longer than a few months. Another reason given is that procurement legislation has forced state-owned companies to choose the cheapest machinery, without regard to quality, guarantees or life-cycle cost.[42] Although a few companies earning export revenue have been able to renew their machinery stock unaided, the bulk of defence industry companies are dependent on government funding. However, the government requirement that companies also contribute to the cost of modernisation poses problems for many less profitable enterprises.

The protracted problems of ageing personnel and production plant are mainly attributable to the size of the defence industry. Owing to the large number of companies and employees, even extensive government support is spread too thinly. Although the situation varies widely across individual industries and companies, it is serious for the defence industry as a whole. It remains to be seen whether the support programmes mentioned above (see Chapter 4, Section 4.1) involving RUR thousands of billions will make a difference, or whether pervasive corruption will once again vitiate the effect of the programmes.

4.4 Defence deliveries to the Armed Forces

How does the Russian defence industry's new production match up with government defence orders (Gosudarstvennyi oboronnyi zakaz, GOZ) for the period 2007–2010? Will the industry be capable of meeting the objectives of the 2020 State Armament Programme? Presented below is a general assessment in four areas: strategic missile and space systems; aircraft and air defence systems; naval systems; and combat vehicle and tactical ground missile systems. As detailed data have not been available, production and government orders for command and control systems and precision weapons are not included here. Thirty-four airborne cruise missiles were delivered in 2010, but very little else has occurred so far as is known from publicly available information.

The production capacity of the Russian defence industry as a whole rose between 2007 and 2010. The 2015 State Armament Programme was fulfilled relatively well, though not in all areas. Of the RUR 4 000 billion (approx. USD 133 billion) allocated for the Armed Forces up to 2015, defence materiel worth a total of RUR 1 600 billion (approx. USD 53 billion) was delivered under the annual government defence orders for the years 2007–2010.[43] The extent of the known components of the government order for newly-produced defence materiel in 2007–2010 and of the 2020 State Armament Programme is shown in Table 4-1. More detailed data on known deliveries by the Russian defence industry in 2007–2010 as part of the 2015 State Armament Programme are set out in Table 4-4. Unless otherwise stated, the data presented in this section are taken from these two tables.

Table 4-4 Deliveries to the Armed Forces 2007–2010
Russian defence industry deliveries to the Ministry of Defence of materiel for the Armed Forces in accordance with the annual government defence orders (GOZ) 2007–2010 (selected weapon systems)*

	2007	2008	2009	2010	TOTAL
STRATEGIC MISSILE AND SPACE SYSTEMS					
Intercontinental ballistic missiles					**32–3**
Topol-M	7	11	6	2–3	
Yars (RS-24)			3	3	
Submarine-launched ballistic missiles	ca. 10	ca. 6	ca. 6		**ca. 38**
Sineva				16	
Bulava				3–5	
Booster rockets (number launched)	7	7	7	9	**30**
Satellites (number launched)	4	13	11	16[1]	**44**
AIRCRAFT AND AIR DEFENCE SYSTEMS					
Strategic bombers					**1 + 4 + ca. 12**
Tu-160		1	2	2	
Tu-95MS		6	ca. 6		
Long-range bombers Tu-22M3	1				**1**
Attack aircraft					**9 + 20**
Su-34	2	1	2	4	
Su-24M2	6	12	2		
Close air support aircraft Su-25SM	6	8	12	12	**38**
Fighter aircraft					**42 + >28**
Su-27SM/SM3	8	8	8	4	
MiG-29SMT/UBT			31	3	
Su-30M2				4	
MiG-31BM		2	2	?	
Anti-submarine warfare aircraft Tu-142/M/M3	1	?	?	?	**1 + ?**
Trainer aircraft Yak-130	?	?	?	4	**>4**
Special aircraft Il-20, Il-22	2	2			**4**
Airborne early-warning aircraft A-50U				2	**2**
Passenger aircraft					**>3 + 1**
Il-62M				1	
Tu-154B2/M	?	1	1	1	
Heavy cargo aircraft An-124				1	**1**
Attack helicopters					**41 + 14**
Mi-28N		4	10	15	
Ka-50		1	2		
Ka-52/A		2	3	4	
Mi-24			14		
Transport/attack helicopters					**ca. 30 + >53**
Mi-8/MTB/AMTSh		?	ca. 16	14	
Mi-8 (renovated)			20	>26	
Mi-26T (heavy transport)			1		
Ka-27 (marine helicopter)				4	
Mi-2				2	
Airborne early-warning helicopters Ka-252RLD			1		**1**
Trainer helicopters Ansat-U			6	4	**10**
Unmanned aerial vehicles (UAVs)[2]	?				**>48**
Pchela-1K (tactical/operational)			10		
Tipchak (tactical)		6	6	6	

	2007	2008	2009	2010	TOTAL
ZALA 421-08, Strekoza (man portable)		20			
Air defence systems					**4 battalions + 15**
S-400 (battalions)	1		1	2	
Pantsir-S1		1	4	10	
Air surveillance radar systems		170		16	**186**
Air defence commanc and control systems		75			**75**
Air-launched cruise missiles				34	**34**
NAVAL SYSTEMS					
Strategic submarines Delta IV (Project 667BDRM)	1	1		1	**3**
Nuclear-powered submarines					**4**
Project 949A		1			
Project 971		1			
Project 945A		1			
Project 671RTM(K)		1			
Diesel-electric submarines					**2 + 3**
Kilo class (Project 877)			1	1	
Sarov class (Project 20120)		1		1	
Sankt Peterburg (Project 677)				1	
Aircraft carriers *Adm. Kuznetsov* (Project 11435)		1			**1**
Missile cruisers					**2**
Variag (Project 11641)		1			
Pietr Velikii (Project 11442)		1			
Destroyers Sovremennyi class (Project 956)			1	1	**2**
Frigates Neustrashimyi class (Project 11540)			1		**1**
Corvettes Steregushchii class (Project 20380)		1			**1**
Amphibious vessels					**5 + 3**
Akula class (Project 1176)		1	1		
Serna class (Project 11770)		2		1	
Ropucha I class (Project 775)			1	3	
Mine warfare vessels					**1 + 4**
Project 1265/12650	2			1	
Vitse-admiral Zakharin (Project 02668)			1		
Project 266M				1	
Cargo vessels Project 20180				1	**1**
Support vessels (New productions)		2	4	5	**11 + 2**
(Renovated)			1	1	
Deep diving craft (New productions)	1	1	1		**3 + 1 + 1**
(Renovated/modernized)		1		1	
Naval missile systems					**ca. 50**
3M82 Moskit	ca. 12	ca. 12	ca. 12	ca. 12	
K300 Bastion (new costal missile system)			2		
COMBAT VEHICLES, ARTILLERY AND GROUND MISSILE SYSTEMS					
Tanks					**217 + ca. 300**
T-90A	31	62	63	61	
T-72BA	31	31	ca. 40	198	
Armoured vehicles (BTR-80/82, BMP-3, Dozor, Vystrel, *et cetera*)			306[3]	400	**ca. 1 185 + 265**
Wheeled BTR-80	90	155			*365 + 115*
BTR-70	60	55			

	2007	2008	2009	2010	TOTAL
Tigr/Tigr-M	ca. 30	ca. 30	ca. 30	ca. 30	
Tracked BMP-3	31	41			*114 + 150*
BMD-2/4 (for the VDV)	10	30	150		
BMO-T			2		
Self-propelled artillery systems					**ca. 22**
Sprut-SD		ca. 6	ca. 6		
Nona-SVK			10		
Artillery and mortar systems (new/renov./mod.)	300	152		?	**>593**
(New production)			20		
(Renovated/modernised)			121		
Lorries and automobiles	4 000 + 3 000	1 500	ca. 4 000		**ca. 17 000 + 3 000**
Trucks		3 000		6 500	
Ground missile systems 9K720 Iskander-M	1 battalion[4]				**>1 brigade[5]**
(launchers)		4	3	5	
(missiles)			13		

Explanation: * Non-coloured = newly produced systems; green = modernized; yellow = renovated; ? = number unknown.
Source: The table is based on Frolov, Andrei (2011) 'Ispolneniie gosudarstvennogo oboronnogo zakaza Rossii v 2010 godu' [Accomplishment of the Russian Government Defence Order in 2010], *Eksport Vooruzhenii*, No. 2, pp. 49–51. The table was compiled by Susanne Oxenstierna and edited by Fredrik Westerlund.
Note: The defence materiel deliveries in the years 2007–2010 include additional materiel for the Armed Forces. The table only accounts for publicly known deliveries of major systems.

[1] Three of the satellites were destroyed due to the failure of a launch.
[2] In addition, a total of 12 Israeli-made Searcher Mk.2 and Bird Eye-400 were delivered in 2010.
[3] There are conflicting numbers regarding the deliveries of armoured vehicles in 2009. Possibly up to 357 vehicles were delivered.
[4] A ground missile battalion consists of probably four launchers, a command and control vehicle as well as additional vehicles (all in all 12 vehicles).
[5] A ground missile brigade is made up of two or possibly three ground missile battalions, with a total of 12 launchers.

Strategic missile and space systems

Deliveries of approximately seventy strategic ballistic missiles have largely kept pace with orders. The production of forty Sineva-type submarine-launched missiles under the 2020 State Armament Programme is unlikely to pose problems. However, there are clear question marks surrounding the Bulava missile and the new intercontinental ballistic missile the RS-24 (Yars). Development of the Bulava is not complete and only three RS-24s per year were delivered in 2009–2010. There is considerable uncertainty as to whether the manufacturer, Votkinskii Zavod, can boost its production capacity and complete production of 150 missiles of each type by 2020.

The number of rocket launchers fired tallies with known orders. In the case of satellites, twice as many as the number ordered have now been placed in orbit. In 2010, however, military satellite production lagged behind government orders. Of 11 satellites ordered only eight were delivered, or possibly only six.[44] Orders for launches are not expected to pose any problems in the period leading up to 2020. The same applies to the delivery of two Voronezh-DM-type early-warning radar systems.

Aircraft and air defence systems

Deliveries of newly manufactured combat aircraft to the Russian Armed Forces rose in 2007–2010, without including the 34 MiG-29SMT-type combat aircraft that went to the Armed Forces after Algeria had cancelled a contract on quality grounds. However, new production of strategic bombers, heavy strike aircraft and training aircraft only filled half the orders received.

The aircraft manufacturer Sukhoi (a subsidiary of OAK) is contracted to deliver close to 300 new combat aircraft by 2020, seventy of which are the as yet not fully developed fifth-generation T-50 (PAK-FA) aircraft, and 100 of which are the newly-developed Su-34 heavy strike aircraft. While Sukhoi has extensive capability with regard to the Su-30 combat aircraft, the question is whether its production lines can be reconfigured to turn out more advanced systems while maintaining present volumes. It is also unclear whether the aircraft manufacturer Sokol will be able to expand production of the problem-plagued Yak-130 training aircraft sufficiently to achieve delivery of 120 planes by 2020.

Deliveries of upgraded combat aircraft such as fighter-bomber aircraft, the Su-25SM close air support aircraft, and the Su-27SM and MiG-31BM fighter planes have increased compared to pre-2007 levels. However, the number of newly manufactured, upgraded combat aircraft is low in relation to the total number of combat aircraft in the Armed Forces. Deliveries have been significant only in terms of the number of strategic bombers. Twelve Tu-95MS and four Tu-160 aircraft, i.e. a fifth and a quarter of the total number respectively, were renovated or upgraded between 2007 and 2010.[45]

As regards military transport aircraft, the Russian aviation industry has been dependent on other countries since the dissolution of the Soviet Union. It is doubtful if Iliushin, the Russian transport aircraft manufacturer, will be able to manufacture the fifty newly-developed Il-476s (an upgraded version of the Il-76) to be ordered in the period up to 2020. It should be mentioned here that the Ministry of Defence also plans to purchase ninety new transport aircraft from the Ukrainian aircraft manufacturer Antonov, whose production capacity is uncertain. In particular, the production of twenty new An-124-type heavy transport aircraft concurrently with the renovation of another twenty is likely to pose a major challenge. In addition, Antonov is contracted to manufacture sixty medium-range An-70 transport aircraft.

Deliveries of newly manufactured attack and transport helicopters increased significantly in 2009–2010. Government orders were more than filled in 2007–2010, testifying to expanded production capacity in the helicopter industry. The manufacturer Progress will probably meet its delivery target of 120 Ka-52 helicopters by 2020. It will probably also be able to deliver twenty-two Mi-35M attack helicopters (an upgraded version of the Mi-24), the same number of Mi-26 heavy transport helicopters and seventy ship-based Ka-27Ms. However, there are question marks concerning the Mi-28N attack helicopter. To produce 250 of the latter by 2020, the manufacturer Rostvertol will need to further expand its capacity.

Orders for the long-range S-400 air defence system were not met as serial production had not yet begun. As only four battalions were delivered in 2007–2010, producing a further fifty-two by 2020 will be a demanding task. Despite a large production capacity, it is doubtful if Almaz-Antei will also be able to complete development and deliver ten battalions of the S-400's successor, the S-500. According to the chief of the General Staff, Nikolai Makarov, Almaz-Antei in November 2011 was given two years to build two new production facilities to manufacture the S-500. The system is intended to form the backbone of Russia's future air and space defence capability and be able to engage ballistic missiles and hypersonic (over five times the speed of sound) cruise missiles. According to Russian experts, deliveries will probably begin in 2017 at the earliest.[46]

Russia's ability to manufacture radar systems and automated command and control systems for air defence was good, at least in quantitative terms, in 2007–2010. Series production of the newly-developed, short-range mobile Pantsir-S1 air defence system has not been problem-free. The system has been beset by teething troubles, which has mainly affected export customers. It may be noted here that no plans to order tactical air defence systems for the Army have so far been made public. The only known system (Pantsir-S1) seems to be intended for close-in protection of air defence units.

Naval systems

Deliveries to the Navy of newly manufactured and renovated vessels increased substantially in 2007–2010. The largest increase in deliveries of newly manufactured vessels was for support vessels and small landing craft. The renovation of a number of submarines, missile cruisers, destroyers, landing craft and minesweepers was also completed.

New production of large vessels increased but was still limited in 2007–2010. It was not possible to deliver two newly-developed Borei class strategic submarines, although sea trials of the first submarine, the *Yurii Dolgorukii*, had begun and the other vessel, the *Aleksandr Nevskii*, had been launched. These delays have been attributed mainly to insufficient funding.[47] Only two of five diesel-electric-powered submarines that were ordered have been delivered. The only Steregushchii class corvette ordered was, however, delivered as planned in 2010.

It is doubtful whether the ambitious plans for the period up to 2020 can be realised. Delivering a total of eight Borei submarines, the last five of which are to be upgraded versions, will be a formidable task. It is also doubtful if the shipbuilding industry has the capacity required to build six new nuclear-powered submarines. However, it should be able to manufacture a further five diesel-electric-powered submarines. If funding for these orders poses a problem in the coming years, it is likely that submarines will be prioritised over surface combat vessels.

However, ambitions with respect to surface combat vessels are high. It is doubtful if Russia will be able to complete the design and development of new aircraft carriers by 2020. The Russian shipbuilding industry lacks experience in this area as the production of Soviet-era aircraft carriers was based in present-

day Ukraine. Moreover, it is not certain that it will be possible to complete the building of two Mistral class vessels and a new missile cruiser. The same applies to the planned production of 15 new frigates, including two newly-developed vessels. It would appear that plans to manufacture 35 new corvettes, including 23 of a newly-developed class, will prove highly difficult to realise by 2020, as this will entail the completion of three corvettes per year. It may be noted here that if Russia chooses to acquire ocean-going aircraft carriers, these will require combat aircraft plus a protective escort composed of some 15 other vessels per carrier, as well as new bases. The fact that a significant portion of Russia's shipbuilding capacity and materiel acquisition budget would need to be devoted to this project puts the future for aircraft carriers in doubt.

Combat vehicles and tactical ground missile systems

Russia has considerable capacity with regard to the production of newly manufactured and upgraded combat vehicles, both for domestic and for foreign customers. The scale of production of tanks, including the newly-developed T-90A and the upgraded T-72, and of the newly manufactured BMP-3 and BMD-4-type tracked armoured vehicles and the BTR-80-type wheeled armoured vehicle, has ensured that government orders for 2007–2010 have been fully met. Apart from data on the development of a new universal platform for future tanks and armoured vehicles, no information is available on combat vehicles in the known components of the 2020 State Armament Programme.

The scale of production of new cars and lorries in 2007–2010 has meant that deliveries of these items under the 2020 State Armament Programme may also be implementable. Approximately 6 500 new lorries were delivered in 2010. Given a corresponding rate of production in the coming years, the manufacture by 2020 of at least 50 000 lorries for the Armed Forces, Internal Troops, Border Troops and other ministries and services that have troops at their disposal should be a feasible project.

In 2007–2010, over a brigade (12 missile launchers) of the new Iskander-M short-range ballistic missile system were delivered. If production capacity can be boosted somewhat, it should be possible to deliver a further ten brigades by 2020.

Contract problems remain

2011 saw the escalation of an open conflict between the Ministry of Defence and a number of defence industry companies over the signing of new contracts under the GOZ. The companies considered that the prices stipulated in the contracts were too low and that several contracts for 2011 had not been signed in July 2011. The Moscow Institute of Thermal Technology (MITT), the designers of Russia's intercontinental ballistic missile, maintained that missile orders could not be met in 2011 due to delays.[48] The shipbuilding group OSK did not sign contracts for the production of Borei and Yasen class submarines until November 2011, and then only after interventions by President Medvedev and ultimately by Prime Minister Putin. The Ministry of Defence was successful in gaining agreement on the original price levels, despite protests from OSK.[49]

In November 2011, Makarov criticised the quality of Russian arms and equipment at a meeting with the Public Council of the Russian Defence Ministry. Makarov

complained that the lifetime of Russian military satellites was at most only a third that of foreign satellites. He also pointed out that tanks and artillery pieces were inferior to those of leading countries.[50] The latter may partly explain the lack of orders for Army combat vehicles and artillery in the known components of the 2020 State Armament Programme.

The contract-related issues are likely to persist, particularly as price rises, quality issues and delivery delays are caused by problems at subcontractor level, over which end-manufacturers have little control. CAST analyst Ruslan Pukhov points out that the low production rate in the case of the Yak-130 training aircraft has been due to a shortage of engines for the aircraft, which are manufactured in Ukraine. Many subcontractors have had difficulty in achieving profitability and in maintaining quality control during the manufacture of their components.[51]

4.5 The Russian arms trade 2006–2010

Russian arms exports have continued to grow in volume year by year and Russia has maintained a strong international position. However, growing signs of stagnation are threatening the country's future export capacity. Although the defence industry's dependence on export earnings is diminishing, it is still substantial. Military-industrial cooperation has become increasingly extensive and increasingly important. A break in the trend in military materiel imports also occurred in 2008–2010.

Growing international cooperation

Cooperation with other countries' defence industries (not including CIS countries) has become increasingly important to the Russian defence industry. The decision by the Ministry of Defence to procure defence systems from foreign defence industries constitutes the biggest and potentially most revolutionary change for the Russian defence industry in the 2000s. If this is a recurring event it will have a major impact on Russia's domestic industry. Some companies will gain access to foreign know-how and technology through licence manufacturing agreements and cooperative ventures, thereby improving their prospects. Other companies in the industry are likely to be out-competed by foreign actors and Russia will probably be unable to maintain its current product breadth in terms of defence materiel. However, foreign competition for government orders may benefit Russian defence materiel production in the long term. Soft budget restrictions and industry-specific holding companies have had the effect of weakening domestic competition and have therefore not been a driving force for improvement and product development.

India has been Russia's principal cooperation partner since the beginning of the 2000s, and cooperation has been intensified. In October 2009, Russia and India signed an agreement on military-technical cooperation for the period 2011–2020. The agreement involves joint development of helicopters, armoured vehicles and fifth-generation T-50 (PAK-FA) fighter aircraft.[52] In December 2010, India signed a Preliminary Order Agreement worth USD 23–35 billion for 200–300 T-50 aircraft, to be delivered from 2019.[53]

Orders from the Russian Ministry of Defence for foreign arms and equipment (see Chapter 3, Section 3.2) have opened the way for further cooperation with foreign defence industries. A Russian condition for procurement of French Mistral class amphibious assault ships has been the transfer of know-how and technology to the domestic defence industry. One aim of Russia's procurement of light armoured vehicles from the Italian supplier Iveco and of unmanned aerial vehicles from Israel Aerospace Industries has been their eventual manufacture under licence in Russia. In addition, the French company Thales and Rosoboroneksport have signed an agreement for the manufacture in Russia of night vision devices for the T-90S tank and the BMP-3 armoured vehicle.[54] However, it should be noted that it is in the interests of foreign companies to be compensated as fully as possible for technology transferred to Russian companies, or simply to restrict technology transfer. How well the agreements entered into stand up remains to be seen.

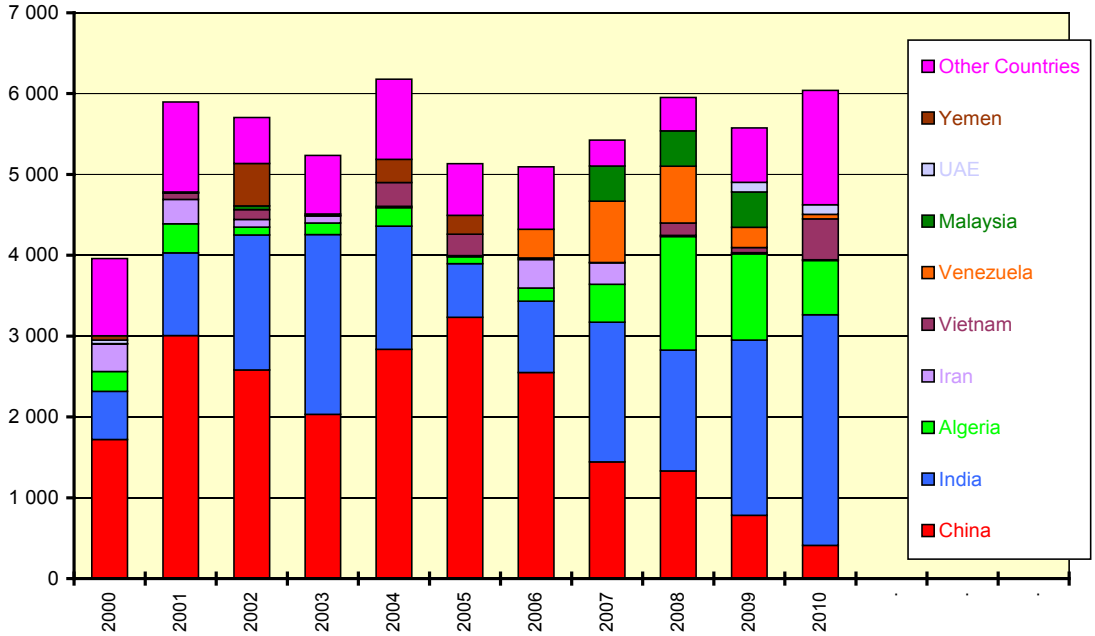
Decreasing significance of export earnings

Despite growing volumes, defence materiel exports have become less important to Russia in quantitative terms in the 2000s. The value of its arms exports at current prices has continued to rise, as it has for total arms exports throughout the world. In 2010, the total value of Russian defence materiel exports was USD 10 billion, an increase of USD 1.5 billion over the preceding year. Thus the slowdown in the rate of growth observed in 2009 has now been reversed, and the trend – an increase of almost USD 1 billion per year since 2006 – continues to hold.[55] At the same time, the share of arms exports in Russia's total export earnings has fallen in the 2000s from just over 4.5 per cent to approximately 2 per cent. The principal reason for this is that other commodities, particularly oil and gas, account for a growing proportion of Russian exports.[56]

The importance of exports to the Russian defence industry has also declined. After the dissolution of the Soviet Union, export earnings were of crucial importance to a number of defence industry companies. Earnings in 2008–2010 certainly increased by more than indicated by the above figures, due to the fall in value of the US dollar relative to the Russian rouble. However, the defence industry's dependence on export earnings declined in the second half of the 2000s owing to the rise in domestic orders. Exports as a share of sales revenues for the twenty largest defence industry companies fell from 60 per cent to 44 per cent in 2010.[57] This is still a high percentage by international standards. With the planned steep increase in government defence orders, the export share will probably shrink still further in the 2010s.

Russian arms exports have stagnated despite a sharp increase in export earnings in the 2000s. CAST has questioned whether the rise in export volumes in 2010 reflects genuine growth in the defence industry. A more likely explanation for the increase is that several major deliveries were made in 2010.[58] In 2009, CAST concluded that the Russian defence industry had probably reached its production ceiling some years before.[59] This assessment has been reinforced by arms trade data produced by SIPRI, based on an alternative calculation model. The volume of Russian arms sales in USD at constant 1990 prices has remained at roughly the same level throughout the 2000s (see Figure 4-2). This would suggest that the increase in nominal terms in the 2000s was primarily due to inflation.

Figure 4-2 Russian arms transfers 2000–2010, total and by major recipient countries
Figures are SIPRI trend indicator values, expressed in USD million at constant (1990) prices.



Source: SIPRI Arms Transfers Database (http://www.sipri.org). The figure was assembled by Bengt-Göran Bergstrand.

Large export country with a wide customer base

Russia retains a strong position in the world as an exporter of defence materiel. After the US, it is the dominant actor in the international arms trade, accounting for 23 per cent of global arms transfers in the five years 2006–2010.[60] While this represents an asset for Russia, it also testifies to the defence industry's dependence on exports. Russia's share of total defence materiel sales by the 100 largest defence industry companies in 2009, most of which goes to domestic customers, was 2.3 per cent, i.e. ten times smaller (see Table 4-2).

Russian exports in 2006–2010 went mainly to Asia (67 per cent). The gap between Asia and the next largest regions – Africa (14 per cent), South America and the Middle East (8 per cent each) – is fairly wide. In these three regions, Russia has boosted its market share by offering barter deals, credits, debt cancellation and Russian investment in infrastructure projects.[61]

The Russian defence industry has a broad customer base. India has been the defence industry's main foreign customer since 2007. Its position was strengthened in 2010, when India signed the largest volume of new arms trade contracts with Russia and the two countries agreed on completion of the protracted and expensive renovation of the aircraft carrier *Admiral Gorshkov*. The ship is to be delivered in 2012 at a cost of USD 3.3 billion.[62] Although exports to China have been significant, they have been steadily declining. China was the dominant recipient country in the period between 1999 and 2006 and came in second place in 2006–2010 (see Figure 4-3). As a result of the drop in

the volume of Chinese orders, however, China was also overtaken by Algeria in 2008. Venezuela, Malaysia, Vietnam, Egypt, Indonesia and Syria were also among Russia's biggest customers in 2006–2010.[63] New buyer countries in 2010 included Uganda and Libya.[64]

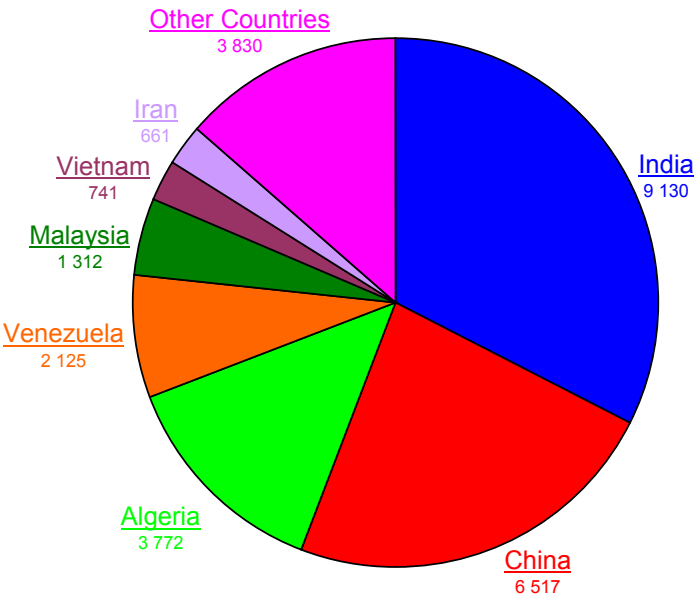
Although Russia has preserved its strengthened position in the international arms market since the mid-2000s, question marks about the future began to arise in 2011. Contracts with Libya have become uncertain following the fall of the Gaddafi regime. The same could happen in the case of Syria should the country be targeted by international sanctions or if the regime falls. Egypt's future role as an arms importer was also uncertain in 2011. The international defence market is not characterised by free and unfettered competition. Russia has long benefited from the opportunity to export to countries that have not been able to buy US or Western arms due to export restrictions. The so-called Arab Spring may, however, have impaired Russia's prospects.

A more serious concern for Russia is that improved relations between India and the US could in the long run mean fewer Indian contracts for the Russian defence industry.[65] In 2006–2010, Russia accounted for 82 per cent of Indian arms imports, the bulk of which were aircraft systems.[66] In October 2011, Russia lost the bid for an Indian order for twenty-two assault helicopters worth at least USD 600 million. The American AH-64D was judged technically superior to the Russian Mi-28N.[67] In 2011, Russia lost a considerably more important order, though not to the US. The Mikoyan MiG-35 was one of six aircraft tendered for a procurement contract for 126 multi-role combat aircraft by the Indian Air Force, to replace the older Russian-manufactured combat aircraft. The contract, valued at over USD 10 billion, would have represented a major achievement for Russia and MiG. In April 2011, however, it was announced that the choice lay between the French Dassault Rafale and the Eurofighter Typhoon.[68]

Chinese competition in the global market is viewed with similar concern. For example, the head of the MiG/Sukhoi aircraft design bureau, Mikhail Pogosian, argued in 2010 against new export contracts for aircraft engines to be exported to China as the Chinese JF-17 combat aircraft had become a competitor to the Russian MiG-29.[69]

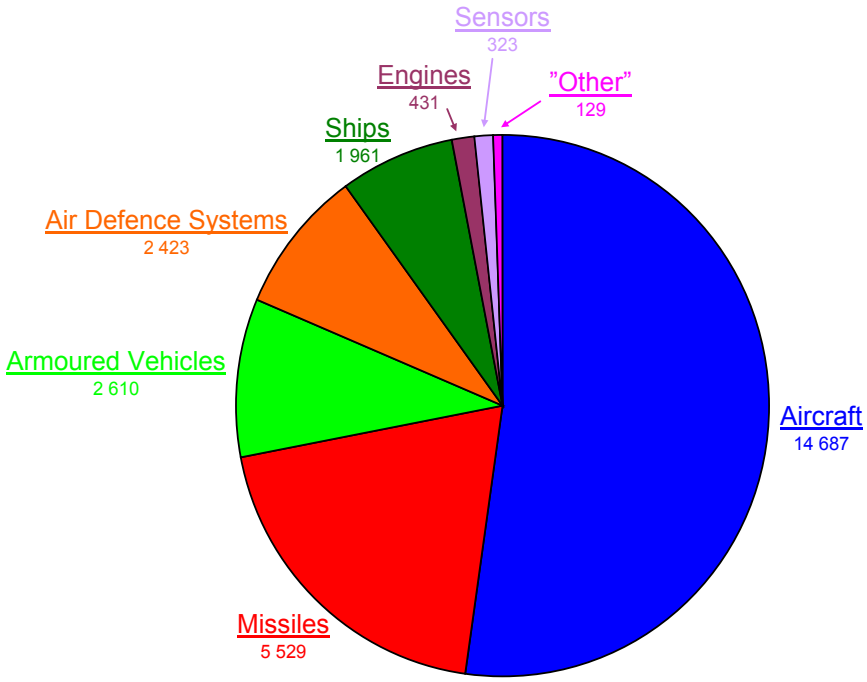
From a supplier perspective, the aviation industry has continued to dominate Russian arms exports. In 2007–2010, aviation materiel accounted for more than half the country's exports of arms. The same applied to the period 2000–2004, according to statistics published by SIPRI.[70] The second largest sector was the missile industry (see Figure 4-4), which has reported strong sales since 2000. These were followed by the armoured vehicle industry, which had its heyday in the 1990s, and the air defence systems industry, which has expanded its export sales volume. The years 2005–2006 were good ones for the shipbuilding industry. However, exports were very weak in 2007–2009. In 2010, the shipbuilding industry came in second place.

Figure 4-3 Russian arms transfers 2006–2010, by major recipient countries
Figures are SIPRI trend indicator values, expressed in USD million at constant (1990) prices.



Source: SIPRI Arms Transfers Database (http://www.sipri.org). The figure was assembled by Bengt-Göran Bergstrand.

Figure 4-4 Russian arms transfers 2006–2010, by major weapon categories
Figures are SIPRI trend indicator values, expressed in USD million at constant (1990) prices.



Source: SIPRI Arms Transfers Database (http://www.sipri.org). The figure was assembled by Bengt-Göran Bergstrand.
Note: The category 'Others' includes artillery and anti-submarine warfare systems.

It is worth noting in this context that these industries cannot be regarded as free-standing, self-contained actors. The centralising trend in the Russian arms export sphere which was observable in the early 2000s has continued. Of the USD 10 billion turnover in Russian arms exports in 2010, USD 8.5 billion went through Rosoboroneksport, the company which has dominated export sales for a number of years through its monopoly on new export contracts.[71] In November 2010, a request by the holding company OSK (shipbuilding) to be allowed to sign export contracts independently was denied.[72]

4.6 The Russian defence industry in a ten-year perspective

What are the prospects for the Russian defence industry as prime contributor to Russia's military capability and agent of modernisation of the Armed Forces between up to 2020? How can the defence industry in general support Russia's great power ambitions?

In 2008, FOI concluded that the defence industry had the capacity to produce arms systems and materiel to enable Russia to remain a regional military power. Its capacity to produce defence materiel suitable for modern warfare was limited, with the exception of air defence systems. The defence industry would still be able to maintain its position as one of the world's largest arms exporters, and thereby support Russia's global great power aspirations. At the same time, the Russian defence industry faced major challenges. These included poorly defined political direction and control, soaring corruption, shortage of skilled personnel and ageing production facilities. The improved financial situation, as a result of growing exports and larger government orders, had made expanded capacity possible. However, the industry's long-term development potential was deemed to be dependent on a strategic choice between self-sufficiency on the basis of twentieth-century technology and acquiring advanced technology at the price of dependence on other countries.[73]

Improved finances but considerable needs

The defence industry's prospects of playing a meaningful part in the ongoing modernisation of the Armed Forces improved in 2007–2010. In the first place, the increase in annual government defence orders from USD 11.9 billion to USD 16.1 billion considerably improved the financial situation. In addition, export earnings rose by nearly USD 2 billion in 2007–2010. The 2020 State Armament Programme will involve substantially larger government orders, and 80 per cent of defence orders, worth a total of RUR 19 000 billion (approx. USD 630 billion), will be for newly manufactured materiel systems. In addition, the 2020 State Armament Programme provides for the direct allocation of RUR 3 000 billion (approx. USD 100 billion) to defence industry companies for pre-production purposes. This will be accompanied by federal target programmes worth over RUR 200 billion (approx. USD 67 billion) per year in 2011–2013, aimed at developing the defence industry's production capacity.

However, the need for investment in the defence industry is great, particularly with respect to production plants. In 2009, 74 per cent of the machinery used in the defence industry was reported to be worn out. Defence industry companies

have limited scope to fund their own investment projects since they are relatively small. In 2009, the big West European and US companies had sales revenues many times larger than those of the biggest Russian industry-specific holding company, Almaz-Antei. Access to foreign capital was also restricted. Government financing will probably be insufficient, despite the increase, to modernise all companies in the defence industry, particularly in view of the widespread corruption.

Clearer political control

Second, the political leadership, acting through the Ministry of Defence, has clearly oriented the defence industry towards the production of more advanced weapons and equipment in smaller volumes. Not all of the newly manufactured arms being ordered are up-to-date, but advanced systems make up a considerable proportion of the 2020 State Armament Programme. In certain areas, however, the known components of the programme provide little or no direction. It is not known what systems have been ordered with respect to precision weapons and command and control systems. The same applies to artillery and tactical anti-aircraft systems, and to armoured vehicles, which are not featured in the known parts of the 2020 State Armament Programme. In the light of this, it is open to question whether the objective of 70 per cent modern materiel by 2020 will be reached as far as the Ground Forces are concerned.

A condition of functioning political control, however, is adequate funding. Shorter production runs constrain the ability to achieve economies of scale. At the same time, development costs are borne by fewer production units. This in turn drives up unit costs, a particularly noticeable development in large materiel systems during the transition from one generation to another, as shown by a FOI study.[74] It is likely that the problems the Ministry of Defence and the defence industry have in agreeing on prices and contracts will persist. Political efforts to steer the industry towards more advanced materiel production will also remain weakened as long as the statutory requirement to maintain a mobilisation capability remains, as this diverts resources from the modernisation of the defence industry.

Imports encourage modernisation

A third change was the steps taken by the Ministry of Defence towards the procurement of entire materiel systems from foreign defence industries. This is potentially the most revolutionary change as it opens the way for manufacturing under licence, joint ventures and deeper cooperation between Russian and foreign defence industries. It would enable the Russian defence industry to gain access to the know-how and capital needed to manufacture state-of-the-art defence materiel. However, statements made in 2011 have cast doubt on the Ministry of Defence's continued intention to procure major materiel systems from foreign defence industries.

Increased production capacity

Fourth, production capacity in the Russian defence industry continued to rise in most areas in 2007–2010, thus enabling it to meet export as well as government orders. The defence industry has in this way contributed to the modernisation of materiel used by the Armed Forces.

However, parts of the 2020 State Armament Programme appear difficult to achieve due to limits to the defence industry's production capacity. This applies primarily to the production of 300 new strategic ballistic missiles, eight strategic submarines and thirty-five corvettes, twenty-three of which will belong to a newly developed class of vessel. It is also doubtful whether the aviation industry will be able to deliver 200 newly developed combat aircraft and 250 modern Mi-28N-type assault helicopters, or whether the shipbuilding industry can build fifteen frigates and develop a new aircraft carrier. These systems are essential to the modernisation of the Armed Forces. The order for 130 military transport aircraft is important to the strategic mobility of the Armed Forces. However, here too it is doubtful whether Russian and Ukrainian production capacity will be sufficient. It has not been possible to assess production capacity with regard to modernisation in crucial areas such as precision weapons and command and control systems.

Some companies have had problems meeting the rising volume of domestic and foreign orders. This was officially acknowledged in 2010 by the Russian government, which tasked the relevant authorities to optimise defence materiel production.[75] Moreover, both production volumes and level of work in terms of quality and technology are low relative to the size of the Russian defence industry, particularly if account is taken of the total number of employees. In 2009, Almaz-Antei employed between five and ten times as many personnel as Western companies earning equivalent sales revenues. Despite its 1.5 million employees, the defence industry suffered from a shortage of skilled personnel.

Russian arms exports

As regards the defence industry's ability to contribute in supporting Russia's great power aspirations in general, it will continue to contribute to them in the short term. Russia enjoyed a strong international position as the world's second largest arms exporter, with 23 per cent of all arms deliveries between 2006 and 2010. On the basis of the country's contract portfolio at the end of 2010, CAST estimates that the current volume of arms exports can be maintained until at least 2014.[76] However, the arms trade is not characterised by open competition and it is not clear whether the Russian defence industry will be able to maintain its market share in the longer term. Competition from both China and Western defence industries made itself felt in 2010 and 2011. Russia's own capacity to manufacture and develop systems in demand will also be a factor.

Division into A and B teams

In conclusion, reforming and modernising the Russian defence industry as a whole seems a formidable task. It is a heterogeneous system composed of a very large number of companies with widely varying prospects and capabilities. There are clear signs that the industry is divided into A and B teams. The export successes of previous years and the planned increase in government orders in the coming decade stand to benefit certain companies, primarily in the aviation, shipbuilding and air defence industries. Other sectors of the defence industry are dependent on government support for their survival and look set to continue to be so. However, even efficient, well-functioning companies are hampered by their domestic subcontractors' limited capability and poor performance.

Dependence on foreign defence industries

This means that the Armed Forces will become increasingly dependent on the supply of weapons and equipment from foreign defence industries. Defence industry cooperation and imports are likely to account for a growing share of future State Armament Programmes as the Russian defence industry cannot produce the entire range of modern weapons systems on its own. Government support could therefore be concentrated in areas where foreign materiel is not an alternative, e.g. nuclear weapons systems.

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5. The Armed Forces

Märta Carlsson and Johan Norberg[v]

Radical reform of the conventional forces

This chapter covers the developments in the Armed Forces (*Vooruzhennye sily*), the military forces under the Russian Ministry of Defence, which have been subject to a comprehensive reform process since 2008.[vi] The overarching purpose of the reform is to create smaller, fully manned units with modern equipment and a high state of readiness as well as to substantially reduce the size of the mostly mothballed and demobilised forces that Russia had, but which could not be deployed at short notice.

The reform is being carried forward under the slogan of the Minister of Defence, Anatolii Serdiukov, to transform the Armed Forces to a *Novyi Oblik* (roughly, 'a new look' or 'new profile'). In purely quantitative terms, it is an enormous reorganisation process that affects at least 1 million people and tens of thousands of tanks, infantry combat vehicles, artillery pieces, ships and aircraft in the country that is the world's largest by surface area.

Military capability is dependent on the context in which it is to be used, the intended tasks and who the enemy is. This means that even outdated units or worn-out equipment can be effective against a weak or unprepared opponent. Comparisons with possible military opponents are, however, outside the framework of this study. Here we deal with the conditions that Russia can influence as it develops its military capability, which we divide into two parts. The first is a rapid deployment capability, in practice units incorporating the *Novyi Oblik* approach that can be deployed at short notice, which is what the Armed Forces standing units are currently being developed into. The other is a mobilisation capacity, that is to say units whose personnel have been disbanded and which may take up to a year to be made ready for action.

The purpose of this chapter is to assess – on the basis of analyses of developments within the organisation, command and control, equipment, personnel, and within the different branches of service – how the reform of the Armed Forces during the period 2008–2011 may affect Russia's military capability in 2020. The chapter deals primarily with conventional forces. The defence industry and other ministries and services which have armed troops at their disposal are not part of the reform and will not be discussed here. It is therefore more appropriate to call the process 'a reform of the Armed Forces', rather than 'military reform', which is a broader concept. The presentation emphasises quantitative factors (such as equipment and personnel) and is based less on qualitative factors, such as the levels to which individuals and units have been trained and undergone joint exercises. Nor do we consider situations in which Russia may resort to military means.

[v] The map on p. 99 was produced by Per Wikström, FOI Umeå, in cooperation with the authors.

[vi] The English terms on the Russian Ministry of Defence homepage have been used to denote the different branches of service (Army, Air Force, Navy) and arms of service (Strategic Missile Forces, Airborne Forces, Aerospace Defence Forces). The Army is, however, also referred to as the Ground Forces (*Sukhoputnye voiska*) at times in this report.

5.1 The reform of the Armed Forces 2008–2011

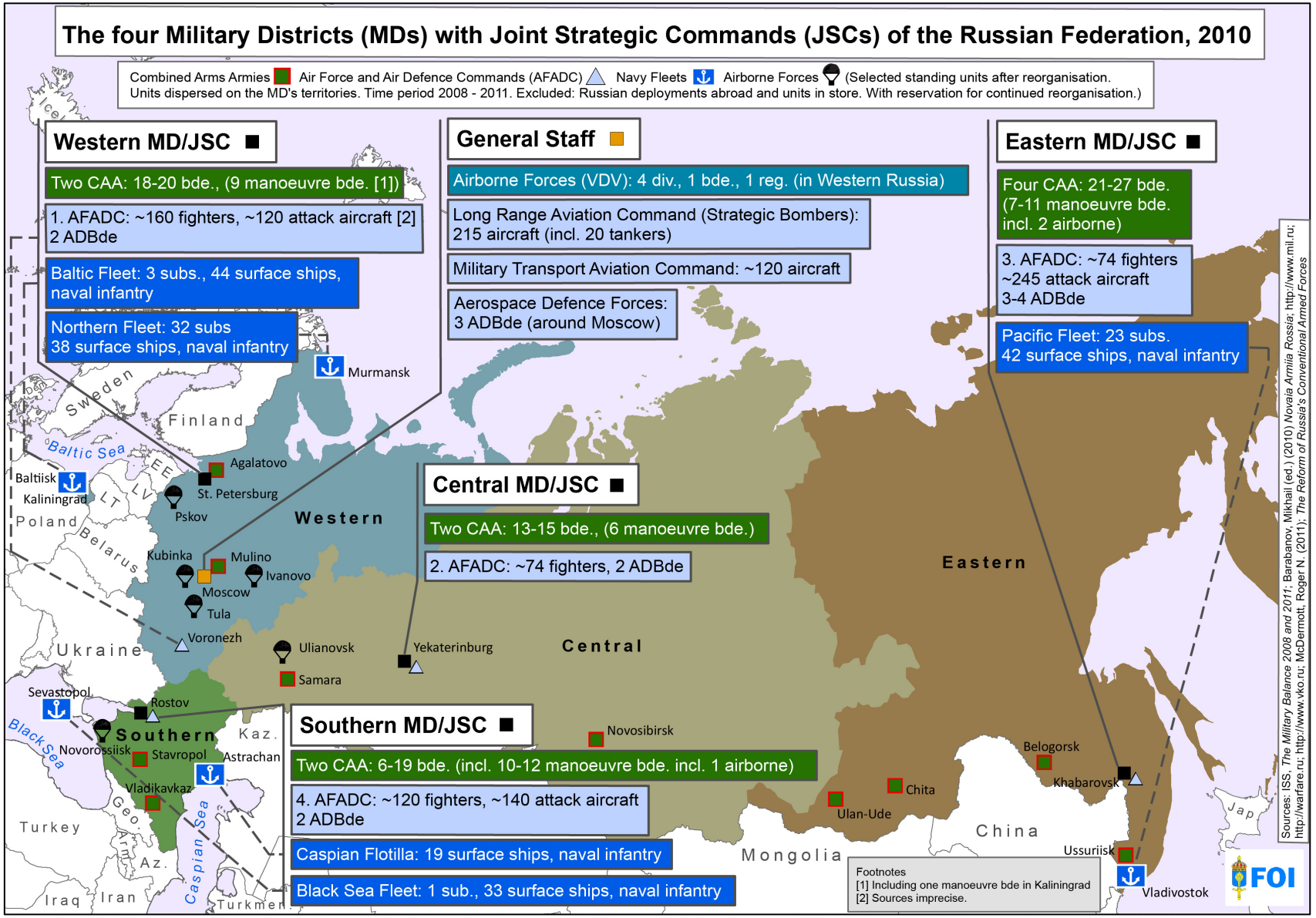
Driving forces

The Soviet Armed Forces and their Russian successors were based on the mobilisation of major resources of personnel and equipment for a large-scale war. Prior to 2008, the conventional Armed Forces were given relatively low political priority and in consequence there were no radical reform initiatives. Although the defence budget slowly increased over the period 1999–2008, the capability of the Armed Forces did not grow in step. The questionable effort of the Armed Forces in the war in Georgia in 2008 put extra political pressure on the reform initiative, which had probably already been prepared.[1] That war showed that Russia needed units able to respond rapidly in local and regional wars and to act in joint operations with units from other branches of service, as well as from other ministries.[2]

The Ministry of Defence launched the reform in the autumn of 2008. The ideas were not new and, according to a Russian interpretation, reflected four approaches that had been present in earlier reform efforts. The first approach was to scale down the large, resource-demanding *mobilisation* system. The second was to increase *availability*. Units whose equipment was in storage and that had retained only certain key personnel could not be used without time-consuming mobilisation. In 2008, only 13 per cent of the Army units were in a permanent state of readiness[3] (probably this meant fully manned and equipped). A third approach was to improve *command and control* for operations, since in the traditional command and control system the focus was on managing mobilisation rather than commanding operations. The fourth approach was to reduce the *variety of units* with different kinds of equipment, often with overlapping tasks and effects.[4]

More combat-ready and mobile units with advanced equipment place different requirements on the Armed Forces. Greater attention has gradually been paid to personnel issues in the reform, because the Armed Forces need to recruit a higher proportion of people with better physical and intellectual capacity. As regards equipment, many systems are ageing and their areas of use overlap. Modern equipment will thus become an important building block in the process of making units more flexible and mobile. The 2020 State Armament Programme stated that 30 per cent of equipment should be 'modern' by 2015 and 70 per cent by 2020.[5] It is not clear, however, whether the Russian defence industry will be able to deliver this.[6] The 2020 State Armament Programme is discussed in greater detail in Chapter 3 (Defence Economics) and Chapter 4 (The Defence Industry).

In the period up to 2020, the conventional Armed Forces will probably continue to consist of elements of both standing rapid reaction units and mobilisation-based units – of both old and new. The introduction of new equipment systems will probably take a long time and meanwhile the old ones will be retained. Neither the reorganisation nor the way in which the provision of personnel would be ensured appeared to have been fully determined at the end of 2011.



Abbreviations: MD = Military District, JSC = Joint Strategic Command, CAA = Combined Arms Armies, AFADC = Air Force and Air Defence Commands, ADBde = Air Defence Brigade, bde. = brigade, reg. = regiment, sub. = submarine

Figure 5-1 Overview of Russia's four military districts in 2010 and its conventional forces in 2008–2011.

5.1.1 Organisation and command[7]

Stronger regional commands

In 2010, decisions were taken on a radical reform of higher command and control in the Armed Forces. Six military districts were amalgamated into four, each with a newly established Joint Strategic Command (OSK – Obedinonnoe strategicheskoe komandovanie) with responsibility for the command of all military units within their geographical areas in both peace and war, something which the previous front-level units had had only in time of war.[8] Exceptions were joint federal resources under the command of the General Staff, such as the nuclear forces and Airborne Forces.

Against the background of failed attempts to introduce the Joint Commands in 1998 and 2006, the approach adopted in 2010 was to simultaneously change the organisation, introduce modern command and control technology, and improve procedures and the competence of officers. This broad process of change (addressing concepts, organisation, technology and training) is likely to take many years and will probably be characterised by the coexistence of new command and control technology in prioritised units and older analogue systems in other units. The problems of integrating command and control systems could thus delay the development towards joint command and the transition to automated command and control systems at unit level.[9]

The regional command and control level was also reinforced both structurally and by the OSKs taking part in strategic operational exercises in 2010 and 2011. It is important to note, however, that the General Staff has retained its role in overall command and control, planning and priority-setting. During the period 2008–2011, there were still relatively few capable units in each Military District (MD), which is why the ability to provide national strategic command and control, to set priorities and to transfer units is a central task, and likely to remain so. An important aspect of the OSKs is the ability to form and command combined battle groups of units both from different branches of service and from other ministries. Large-scale exercises in 2009–2011 indicated that the ability to form combined battle groups varied between the MDs and reflected local and regional conditions.[10] The war in Georgia made obvious a number of problems, including that there were too many levels in the command and control structure to allow effective command of ground forces in the area of operations. This contributed to difficulties in stand-off operations and in changing and adapting larger units.[11]

Divisions were re-formed as brigades, the new basic unit in the Armed Forces. These were often based on standing components of former divisions and were manned by personnel from disbanded units and armed with equipment from decommissioned stores.[12] That brought about the abolition of two command and control levels, the division and regiment levels. (See also the section on the Army below.)

Resources concentrated in fewer units

Improving the ability to act in regional or local wars required the higher military command to be adapted for such scenarios and an increase in the number of units that could be rapidly deployed. Therefore, there was a plan for a substantial reduction in the number of units in 2008, in the Army by an estimated 91 per cent and in the Air Force and Navy by almost a half.

Table 5-1 Number of units in the Armed Forces in 2008 and the number planned in 2012

	2008	2012	Reduction
Army units	1 980	172*	91 %
Air Force units	340	180	48 %
Naval units	240	123	49 %
Strategic missile units	12	8**	33 %
Air assault units	6	5	17 %
Space Forces***	7	6	14 %

Source: Vendil Pallin (2010) *Serdjukovs reformering av de Väpnade Styrkorna – huvuddragen* [Serdiukov's Reform of the Armed Forces – Principal Features], FOI Memo 3143, 25 March 2010 (Stockholm, FOI), p. 3.

Comment: The figures in the table must be read with caution. They are primarily intended to illustrate the ambition in 2008 to reduce the number of units. The size of the reduction can in part be explained by the fact that the basic units (the brigades) are counted as *one* unit that had one military postcode. The previous divisions had seven or eight military postcodes each. When the brigades replaced them, the number of military postcodes fell sharply. The mobilisation capability does not seem necessarily to have fallen as much.

* The figure really ought to be higher. It is, for example, not clear whether further organisational changes such as the further six Army Aviation bases and twelve ground missile brigades which were announced in 2011 are included.

** It is unclear whether the further six divisions which were announced in 2011 were included in this number.

*** The Space Troops were re-formed as Aerospace Defence Forces on 1 December 2012.

The combat readiness of standing units

In 2008, the combat readiness (*boegotovnost*) required of the standing units was 24 hours from notification to embarkation on transport to an area of operations. The reform introduced a requirement for one hour's readiness.[13] The combat readiness of Russian units is a matter of controversy. One Russian approach was that real combat readiness meant that the unit had trained personnel, functioning weapon systems and ammunition.[14] These concrete factors reflect in part the units' problems as regards both equipment and personnel, and hence also overall combat readiness and availability. However, it said less about the assessed capability in terms of the unit's standard of training and the combat experience of the personnel. *The Military Balance 2011* stated that approximately 60 per cent of the new brigades were not prepared for combat,[15] that is to say that the ambition of a one-hour readiness time seems not yet to have been achieved. Furthermore, 24/7 readiness with all units is not feasible in the long run. It is likely that one-hour readiness actually denotes parts of units maintaining such readiness part of the time.

5.1.2 Personnel

Institutionalised 'hazing' (*dedovshchina*), criminality and corruption continue to characterise the organisation.[16] Attempts to resolve these problems have been half-hearted and unsuccessful. Manning is still one of the biggest challenges for the Armed Forces. The demographic situation, the poor state of public health

and the relative unattractiveness of the Armed Forces all make manning difficult. The reform means that the units must be fully manned to have a high level of readiness and availability. Achieving these targets in the prevailing circumstances is a challenge for the Armed Forces.

New personnel structure

It is clear that in 2008 there was no detailed plan for the personnel structure in the reformed Armed Forces. Nevertheless, both the political and the military leadership stated that reform could only be achieved by a re-composition of the Armed Forces' personnel structure. In 2008, the Armed Forces had a surplus of senior officers and the first reduction, from 335 000 to 150 000 officers, was an endeavour to create a more pyramid-shaped structure regarding rank. In early 2011, in a change of direction, the Ministry of Defence announced that the number of officers was to be 220 000.[17] Possible reasons for this may be that a modern defence entails an increased need for specialists, that officers were needed for non-commissioned positions that are difficult to recruit to[18] and that the remaining mobilisation structures needed officers.

In March 2011 the Minister of Defence, Anatolii Serdiukov, announced that the number of conscripts in the Armed Forces was to be reduced to 10–15 per cent. It is not clear whether he was referring to the percentage of the total number of 18-year-olds who would be conscripted or of the total number of men in the Armed Forces. Whichever is the case, it meant that the number of conscripts should amount to some 70–150 000, which is low in view of the target of 1 million men in a rapidly deployable force, and 700 000 men for the mobilisation structures. The number of contracted men was further to increase from 180 000 to 425 000.[19] Irrespective of the exact numbers, the new ratio between contract-employed soldiers and conscripts was a radical change.

In October 2011 the Ministry of Defence presented new changes. The Armed Forces should by 2017 comprise a maximum of 270 000 conscripts, while the 425 000 contract-employed would include both non-commissioned officers (NCOs) and soldiers; the ratio between them was, however, not clear.[20] In the view of observers, it will nevertheless take ten years to establish a corps of contract NCOs[21] and for that reason this target is appears difficult to reach.

Numerical strength

The present situation and outlook as regards demographics and public health in Russia are not good and make it impossible to maintain a numerical strength of 1 million men on the basis of one year of compulsory military service.[22] Between 2011 and 2020, the annual number of men reaching the age of 18 will be only 600 000–700 000 (see Figure 3-5, Chapter 3, p. 54).[23] It is therefore impossible to maintain the annual recruitment rate of approximately 700 000 men required to achieve the numerical strength envisaged under the original plans. The Ministry of Defence has conceded that it is not possible to recruit more than 550 000 conscripts per year[24] and in 2011 only 354 570 were called up for compulsory military service (not all of whom serve in the Armed Forces; an unstated proportion serve in, for example, Ministry of Interior Troops). The planned rate of recruitment of contract-employed soldiers (50 000 per year) is probably insufficient to replace the reduced number of conscripts.

Table 5-2 Staffing structure under the original and revised plans

	2008 (actual numbers)	Plan for 2012*	Revised plan**	Revised plan for 2017***
Officers	355 000	150 000	220 000	220 000
Warrant officers (*Praporshchiki*)	140 000	0	0	0
NCOs and privates	623 500 contract NCOs and soldiers	850 000 (of whom 180 000 contract NCOs and soldiers)	Undefined number of contract NCOs 425 000 contract soldiers 10–15 % conscripts	425 000 contract NCOs and soldiers Maximum 270 000 conscripts
Total personnel	**1 118 000**	**1 000 000**	**?**	**max 915 000**

Sources: For 2008 and 2012: Shlykov, Vitalii (2009) 'Tainy blitskriga Serdiukova' [The Secrets of Serdiukov's Blitzkrieg], *Rossiia v globalnoi politike*, No. 6, 27 December 2009; for revised plan for 2012: *Nezavisimoe voennoe obozrenie*, No. 10, 18–24 March 2011, p. 3; for 2017: McDermott, Roger N. (2011) 'Arbat Square's Dream Machine Conjures Up a Professional Russian Army', *Eurasia Daily Monitor*, 12 October 2011.
Note: The figures for total personnel are probably lower in reality than the official numbers presented here.
* Plan announced by the Ministry of Defence in early 2011.
** Plan announced in early 2011.
*** Plan announced in October 2011.

According to Russian experts, in the autumn of 2011 the Armed Forces comprised not more than 800 000 men.[25] By about 2020, the numerical strength is expected to fall to 500 000– 600 000.[26] That means that the Armed Forces will not be at full strength either in 2011 or in 2020 and thus will not reach the reform targets as regards fully manned, and hence combat-ready, units. If the politically established target is to be achieved, vigorous measures are needed, for example more contract-employed soldiers or the introduction of a longer period of military service.

Recruitment

One unresolved question is how the Armed Forces are to recruit, retain and pay for men who have the potential to become good soldiers. The conditions in the Armed Forces are well known, which leads to difficulties in attracting the suitable personnel necessary to take full advantage of the introduction of modern weapons systems.[27]

The conscription system is unable to meet the Armed Forces' requirements for soldiers of good quality. The majority of recruits have a low level of education, sometimes have a criminal record (albeit one of petty crimes) and are at times under-nourished and in poor health.[28] When contract-employed soldiers and NCOs are recruited among conscripts, these problems risk becoming permanent in the organisation.[29] As the number of contract-employed soldiers and NCOs increases at the same time as the number of conscripts decreases it will be exceedingly difficult to recruit from the latter alone. With the transition to a system which is based to a greater extent on voluntary service, it is unclear how the intended manning levels are to be achieved.

Experiments with contract-employed soldiers in 2003–2010 made obvious the problems with both recruitment and retention. For example, the Armed Forces were unable to honour commitments regarding living quarters and pay. Among the contract-employed soldiers, there were significant problems with hazing, corruption and criminality.[30] The budgeted costs were exceeded by 50 per cent, causing the Ministry of Defence to halt the experiment and return to recruitment based on conscription.[31] In the autumn of 2011, the Ministry attempted to raise the status of the profession by setting higher admission standards and sought to attract recruits on the basis of career opportunities and pay of 25–36 000 roubles a month.[32] However, it is not clear how the new contract-employed soldiers are to be financed.[33] (For an analysis of pay and benefits, see Chapter 3, Section 3.3, p. 53).

There are also question marks over the introduction of a new type of contract NCOs. Resources have been allocated for the financing,[34] but the numbers, tasks, recruitment and training programmes are unclear. Earlier experiments with contract NCOs have suffered from problems such as inadequate training and low levels of pay, with the result that 80 per cent of the NCOs left the Armed Forces before the expiry of their contract.[35]

Availability and capability

The reform of the Armed Forces aims to improve their availability, which imposes new demands on the personnel. A high-readiness unit must be fully equipped and manned. As mentioned above, in the autumn of 2011 the Armed Forces were not fully manned, which means that the Armed Forces do not really meet the first criterion of higher readiness. The system of a one-year conscript service, with two call-ups per year, limits a unit's training levels and hence its readiness and mobility, i.e. its availability. Conscripts cannot be made combat-ready until they have undergone basic training and the need for high mobility prolongs the period of training. Although the Armed Forces often send new recruits on exercises and even commit them to combat operations, shorter training time means that both individual soldiers and, consequently, their units have a reduced capability.

Under the reform, the capability of units is supposed to be raised by the introduction of advanced weapons and command and control systems. However, this necessitates a higher level of competence among privates, NCOs and officers and, as a result, longer training periods are required. Advanced systems may require more than a year of training, thereby reducing the possibility to train conscripts to use them. In other words, it is essential that Russia finds a solution to the manning problem if the potential improvements offered by more sophisticated equipment are to come about. Certain units will have a relatively low capability so long as half of the conscripts always have less than six months' training.[36] In sum, this means that the Armed Forces with a mixed manning system will have a lower level of availability and capability than the reform is set to achieve.

Table 5-3 The overall equipment holdings of the Ground Forces (selected systems)

Kind of equipment	2005	2008	2010 (stored)	2010 ("active")
Tanks	22 950	23 000	18 000	2 800
Infantry combat vehicles*	24 990	25 040	15 500	18 260
Artillery pieces**	30 045	26 121	21 695	5 436

Source: IISS (2011) *The Military Balance 2011* (Abingdon, Routledge for the International Institute for Strategic Studies, IISS), p. 184; *The Military Balance 2009*, p. 218; *The Military Balance 2006*, p. 155.
Note: * Includes armoured infantry fighting vehicles (AIFVs), armoured personnel carriers (APCs) and armoured reconnaissance vehicles.
** Includes rocket launchers, heavy mortars, and drawn and self-propelled artillery pieces.

In addition to changes in the organisation and the acquisition of modern equipment, setting up training programmes for these new systems and introducing new roles for personnel at all levels will take time. Together with the problematic personnel situation, this may further delay and complicate the achievement by 2017 of the objectives of the reform as regards fully manned units with up-to-date equipment and a high state of readiness and mobility.

5.2 Developments in the Armed Forces

5.2.1 The Army

Large amounts of old equipment

The Army (also called the Ground Forces) had large quantities of equipment in 2008–2011, but not all of it represented military capability, since much was inoperative or obsolete. According to the Commander of the Ground Forces, in 2011 only 12 per cent of the equipment was modern.[37] *The Military Balance 2011* found in 2010 that about 14 per cent of the tanks and about 20 per cent of the artillery pieces were in active units. Approximately 54 per cent of the armoured vehicles were functioning, though it was unclear whether this applied also to the 2 650 vehicles from other units[38] which are under the command of other ministries and services, such as the Interior Troops and the Federal Security Service (Federalnaia sluzhba bezopasnosti, FSB) Border Guards. Double counting of 'active' and stockpiled vehicles may have occurred, since the combined figure in 2010 (more than 33 000) is far higher than that in 2007 (25 040). It is improbable that 8 000 vehicles had been produced during that period. The new standing brigades' requirements were about 7 000 armoured weapon-carrying vehicles. The number of tanks in 2010 tallies relatively well with the new brigades' requirements, approximately 2 550.[39]

The brigade – the basic unit

In 2008 the Army comprised twenty-four divisions, twelve motorised rifle and infantry brigades, and two division-status bases, one in Armenia and one in Tajikistan. The reform brought a change in the basic unit of the Army from divisions, with regiments that in turn consisted of battalions, to brigades. The division and regiment levels were abolished.

In their four manoeuvre battalions[40] the new brigades have roughly the same firepower as the former motorised rifle regiment, but in relative terms have

stronger support such as artillery, air defence and anti-tank units. With the old divisions' support units, a new brigade's endurance and capability for independent action is probably greater than that of the former regiments. It is not clear whether the brigade subunits (both manoeuvre and support units) are identical with their counterparts in the former divisions. An important requirement is that the brigades must have one-hour readiness.[41] That would mean, however, that all personnel have their equipment loaded on vehicles and may not leave their barracks, train, or take rest periods. The one-hour readiness notion is often used in the Russian debate but could be seen more as a reform slogan than an absolute requirement.

Brigade structure under development

The reform was supposed to bring about standardised brigades. The idea was to reduce the number of weapons systems and hence the requirement for training, maintenance and repairs, but the large variety of units and equipment inherited from Soviet times complicated the design of a standard unit.[42] The organisation of the brigades has been undergoing constant changes as lessons have been learned. For example, the brigade's reconnaissance units were increased from a company to a battalion, so that in future they may be provided with unmanned aerial vehicles (UAV)s.[43] Critics regarded the inadequate brigade command (roughly 35 personnel), weak information processing and unclear maintenance solutions as weaknesses.[44] A critical Russian analyst commented that no two brigades were alike, despite the fact that there were six established brigade structures. The concept of 'new' in the efforts to modernise the brigades' equipment was dismissed as meaning no more than 'functioning'. In order to create fully equipped units, resort was often made to mothballed equipment that still worked.[45]

One approach has been to rename the motorised rifle and airborne brigades according to the more standard concepts 'heavy' (*tiazhelye*, probably tracked), 'medium heavy' (*srednie*, wheeled) and 'light' (*legkie*, highly mobile units, primarily with lightly armoured vehicles).[46] A Russian analysis of 2010 found that if this classification were implemented, the new brigades would not be ready before 2015 at the earliest,[47] while another analyst believed they would probably not be ready until 2020.[48] Alongside this attempt towards integration, there was also an effort to adapt units to regional conditions, for example lighter units in mountainous terrain in the northern Caucasus, or for Arctic conditions.

Personnel must be trained and exercised in the new structures. During 2011, new manuals for the company and battalion levels were tested.[49] The development of the brigades will probably continue for several years. Because of the uncertainties remaining in 2011 about the final form they will take, it is a difficult to judge the significance of the brigades for military capability. It is thus important to see how the organisation of the brigades is being shaped and what equipment systems are being adopted.

Table 5-4 Possible distribution of Ground Forces brigades in military districts

Military District	West	South	Central	East
Army staffs	2	2	2	4
Brigades				
Motorised rifle brigades	8	9–11	5	7–10
Tank brigades	2	0	1	1
Brigade depots	2	1	3–5	7–8
Brigade depots	1	0	0	0
Artillery brigades	2	1	1	4
Rocket artillery brigades	1	1	1	1
Ground missile brigades	3	1	2–3	2–3
Air defence brigades	2–4	0–1	2	3–4
Airborne brigades	0	1	0	2
Special forces brigades	2	2	1-2	2
Total number of brigades	**23–25**	**16–19**	**16–20**	**29–35**

Sources: Gaidai, Aleksei (2010) 'Reformirovanie Sukhoputnykh voisk Rossiiskoi Federatsii' [Reform of the Russian Federation's Ground Forces] in Barabanov, Mikhail (ed.) *Novaia Armiia Rossii* [Russia's New Army] (Moscow, CAST), pp. 11–35; McDermott, Roger N. (2011) *The Reform of Russia's Conventional Armed Forces: Problems, challenges and policy implications* (Washington, DC, Jamestown Foundation) and warfare.ru.

Note: The figures vary since they reflect changes over several years. The lower total figure, 82 brigades, is in line with the presence in 2010 of 85 brigades. The upper figure, 97 brigades, is close to the highest declared ambition, 109 brigades. That applies only to organisational units and not to how well manned, equipped or trained these units are.
'Army' refers here to what in Russian is termed 'obshchevoiskovaia armiia' (Combined Arms Army), i.e. a command level that coordinates the actions of several brigades on the battlefield.

Eighty-five brigades

According to the reform plans, the Army's Order of Battle includes some eighty-five brigades and in the longer term (2020) possibly up to twenty more. Of these, seventy should be permanently manned and equipped, but problems over recruitment and equipment have meant that far from all of them could be fully manned, with modern equipment. Approximately thirty-five brigades were manoeuvre units – different forms of motor rifle brigades and four tank brigades. Fifteen of the eighty-five brigades were in reserve and only partly manned and would require additional personnel prior to deployment. The idea is probably that it is simpler to strategically move personnel than to move equipment.

In 2011 the new brigades were initially grouped in the four military districts and commonly subordinate to ten Combined Arms Army headquarters (HQs), which in turn were subordinate to the MD/OSKs. Open sources gave no unequivocal picture as regards the chain of command and the allocation to the military districts. The initial peacetime deployment indicates today's priorities regarding strategic directions, although the military capability in each strategic direction could be changed by redeploying forces, primarily by rail.

Eastern and Southern MDs in focus

The Order of Battle of manoeuvre brigades, especially motor rifle brigades, indicates that the Southern and Eastern MDs (which had about ten each) have been prioritised. These MDs also have their own airborne brigades, which the others lack. The Eastern MD has four Combined Arms Army HQs to command the brigades (the other three military districts have two each) and the highest number of brigades in reserve (eight), which is probably because of the size of this military district and also of an intention to supplement them with personnel from elsewhere in Russia. This was practised during the Vostok-2010 exercise when personnel from the 28th Motorised Rifle Brigade were transported from Yekaterinburg to Vladivostok, where they were equipped from a store before joining the exercise.[50] Additional prepared command resources are also required in case of mobilisation of reserve units. The artillery resources are somewhat bigger in the Eastern MD than in other military districts. Preparations seem to have been made to confront an opponent with large tank and motor rifle units. Russia's tank brigades are probably already deployed in those districts where the terrain is most suitable, in the Western (two), Central (one) and Eastern (one) MD. In the Southern MD, large tank units are less appropriate for battle against detachments of irregulars in mountain terrain. It was dominated in 2011 by motor rifle brigades that were better adapted to the area. It is noteworthy that the Army Aviation Corps (i.e. attack and transport helicopter units) appears to be a prioritised force, since it has not been affected by reductions. That reflects both the decisive role of helicopters in ongoing operations and the importance of a high degree of mobility for these units. New equipment is being supplied, primarily in the Southern MD.

A mobilisation organisation of up to 700 000 men

Russia's repeatedly stated ambition is to have 1 million men in the Armed Forces. There has also been mention of a mobilisation reserve of some 700 000 men organised in up to 100 further brigades.[51] That may explain why Russia still has considerably more military equipment than is needed by the new rapid deployment organisation. Small mobilisation elements remain a feature in the annual strategic exercises, despite the trend towards permanent rapid deployment units and despite the fact that the concept of mass mobilisation has been abandoned. A mobilisation organisation also benefits from former conscripts after their service period. Much is still uncertain concerning this mobilisation capability, for example organisation, tasks, mobilisation times envisaged, frequency of exercises and geographical distribution.

Mobilisation units as a quantitative complement to the standing units in the Order of Battle described above are probably required primarily in the Army. Reinforcements may be required in the event of major conflict and in prolonged low-intensity campaigns. A retained mobilisation capability can be an insurance if the transition to standing, contracted forces should fail, for example if too few volunteer to serve. Furthermore, if Russia retains the mobilisation organisation, it will not be necessary to rebuild it if it wishes to increase the numerical strength of the Army by extending the period of conscription.

Overall, the reform of the Army in the three years 2009–2011, and the introduction of the new standing units, have probably reduced Russia's rapid

capability for major ground operations for the following three to four years. The combined mobilisation capability at, say, one year's notice probably diminished when the concept of mass mobilisation was phased out. The remaining reserves could probably provide personnel and equipment, even if not fully-fledged, combat-ready units. On the other hand, there may be situations when Russia must use its available military resources rather than those which it would wish to have.

The reform appears to aim to create the structural preconditions for a future strengthening of the Army. This will, nevertheless, require continued political interest and financing as well as the solution of the personnel problem. Even though uniformity is a stated goal, there are also elements of adaptation to regional conditions. The role of the military districts has been reinforced and their units could be adapted to the terrain and foreseeable assignments.

Even if over time Russia succeeds in equipping and manning eighty-five standing brigades and maintaining them in a high state of readiness, strategic mobility will be decisive to be able to confront major conventional military threats on the ground.[52] Russia will probably be able to continue its operations in former Soviet republics that were ongoing in 2011, but until the personnel issue has been resolved it will be unable to increase them significantly or, above all, to maintain them over any length of time. The modest share of the Army in what is known of the 2020 State Armament Programme makes it improbable that the target of 70 per cent modern equipment can be achieved with the present size of organisation (see Chapters 3 and 4 as regards the details that are known about the 2020 State Armament Programme, esp. Table 4-1, p. 68).

5.2.2 The Airborne Forces

Limited reductions

The 32 000[53] man-strong Airborne Forces (Vozdushno desantnye voiska, VDV) were in 2008–2011 still an independent force, subordinate to the General Staff. This status seem nevertheless to have been called in question, because the chief of staff of the VDV, Lieutenant-General Nikolai Ignatov, found himself obliged in July 2011 to emphasise that they were not to be disbanded.[54] These units were part of the conventional forces reserve.[55] Airborne units were also earmarked for the Collective Security Pact Organization (CSTO)'s rapid deployment force. According to a statement by the commander of the Airborne Forces, Lieutenant-General Vladimir Shamanov, in August 2011, a possible future task was to participate in a future grouping of forces combining different service branches in the Arctic.[56]

In 2011, the Airborne Forces comprised four divisions,[57] an independent brigade, a signals regiment and a reconnaissance regiment, all based west of the Urals.[58] The military districts' independent airborne brigades were not part of the Airborne Forces,[59] which comprised airborne units (*vozdushno-desantnye*) that are to be dropped by parachute, and air assault units (*desantno-shturmovye*) that are transported by aircraft to the combat area.[60] The latter were a highly mobile infantry that could be landed on airstrips by the Military Transport Aviation

Corps. In the air assault regiments, a battalion is trained with equipment to be dropped by parachute.[61] It is likely that this unit's mission was to secure landing strips to make it possible to fly in resources. The whole regiment was said to be capable of parachute landing but without its equipment.[62]

As regards equipment, Nikolai Ignatov said in August 2011 that VDV units earmarked for the CSTO's rapid deployment force (98th Air Assault Division at Ivanovo and 31st Independent Airborne Brigade at Ulianovsk) and in the Southern MD (7th Air Assault Division at Novorossiisk) were to be prioritised until 2020.[63] Equipment plans also included new automated landing and communication systems as well as new self-propelled artillery pieces, which were to be introduced as from 2013.[64] Another ambition is for the Airborne Forces to have their own helicopter units in the future,[65] which will enable a further increase in their tactical mobility. The order placed for 3 000 lightly armoured Italian combat vehicles (see Chapter 4, Table 4.1) indicates a wish to improve mobility, inter alia in the VDV. The order may also reflect impatience in the Ministry of Defence as regards the domestic defence industry's limited capacity to respond to these requirements.

The personnel question was also difficult for the Air Assault Forces in 2008–2011. The four divisions and the independent brigade each had one battalion with up to 70 per cent contracted employees in order to maintain a high readiness in parts of the unit. According to the analyst Anton Lavrov, airborne units could not function if they comprised more than one-third conscripts.[66] Lieutenant-General Shamanov stated in 2011 that the total proportion of contracted employees was to increase to 50 per cent in the year 2015–2016, in other words fewer than 50 per cent were contract-employed in 2011.[67] One problem was that not even the prioritised Airborne Forces could offer their contracted employees reasonable conditions.[68]

The Airborne Forces were described in 2011 as having the most combat-ready units in the Armed Forces. Against a weak or unprepared opponent, they were estimated to be able to make rapid advances, particularly if transport distances to the combat areas were short, making it possible to exploit the element of surprise. The capability of the Airborne Forces for rapid deployments was limited primarily by old equipment (more than 70 per cent seems to have been obsolete in 2011), a large proportion of conscripts (more than 50 per cent in 2011) and the capacity of the Military Transport Aviation. Its airdrop capacity was assessed in 2010 to be about one regiment and its equipment at a time. The intention was to increase this capacity to be able to airdrop one division-size unit by 2020.[69] Another limitation was that air transport and the airdrop of airborne units from aircraft that lack protection of their own always requires air superiority.

Table 5-5 Russian military aircraft numbers 2005, 2008 and 2010

Kind of equipment	2005	2008	2010
Fighters	1 013	725	707
Attack fighter aircraft	677	807	337
Attack aircraft			256
Reconnaissance aircraft	119	119	113
Training aircraft	383	92	193
Bombers (medium-heavy and heavy)	124*	116*	195
Transport aircraft	293	293	298
Others (pathfinding, refuelling, radar)	40	40	44
Total	2 649	2 192	2 143

Source: IISS (2011) *The Military Balance 2006* (Abingdon, Routledge for the International Institute for Strategic Studies, IISS), p. 158; *The Military Balance* 2009, p. 218; and *The Military Balance 2011*, p. 187.
Note: * This figure relates to operative aircraft and probably excludes e.g. available heavy bombers (of which there were 77 in 2011).

5.2.3 The Air Force[70]

Capability remains limited

The Russian Air Force in 2008 comprised both air force and air defence units, a result of the merger in 1998 of former Air Defence Forces and the Air Force into one organisation. FOI's assessment in 2008 noted that the Air Force's capacity for air operations had significant limitations.[71] This assessment is still valid for the immediate future. Russia has, however, begun to reorganise and modernise its Air Force in order to create conditions for increasing its capacity for air operations.

The reform of 2008–2011 meant major changes in order to cope with problems that had emerged over a long period.[72] The equipment was largely obsolete.[vii] Few completely new aircraft had been delivered during the period 1991–2008. 'New' aircraft were in 2008 very frequently between fifteen and twenty years old, and many air defence systems were even older. Worn-out equipment together with a lack of money and inadequate maintenance meant that the aircraft fleet largely remained on the ground.[73] Economies in fuel costs which reduced the pilots' flying time also complicated the training of combat units.[74]

The war in Georgia in 2008 revealed other shortcomings. The capability of Russian aircraft to engage ground targets was poor.[75] Coordination with the ground units that the Air Force was supposed to support was inadequate, causing friendly fire incidents.[76] A shortage of long-range weapons forced the Russian aircraft to fly close to the Georgian air defence to attack its targets.[77] These shortcomings contributed to the momentum of reform of the Air Force.[78]

[vii] Here 'equipment' refers chiefly to the aircraft. Within the framework of this study it has not been possible to consider other systems that contribute to air operations capacity, such as radars, countermeasures, command and control systems and armaments.

Fewer aircraft in 2020

In 2008–2011 Russia had between about 1 500 and 2 150 military aircraft,[79] but far from all of them were operational. According to the analyst Anton Lavrov, the number was more likely to be about 1 900, since one third of the 2 800 military aircraft in 2008 had been taken out of service. In 2011 Russia had 1 500–1 600 aircraft in the Air Force.[80] *The Military Balance 2011* stated that Russia had in total 2 143 military aircraft, of which 1 604 (about 75 per cent) were 'combat capable'.[81] Organisational changes in 2009–2011 meant that the number of available aircraft probably changed constantly. The number of aircraft will fall up to 2020 as equipment from the Soviet period is gradually taken out of service.

Focus on air superiority

Lavrov considers that without air superiority, or at least parity with an opponent, the use of forces from other branches of service is difficult.[82] In the renewal of equipment, priority is therefore being given to fighter aircraft, often with a multi-role capability (i.e. also with attack capability). Modernisation can be achieved either by upgrading or by buying new systems.[83] Armaments and systems for situational awareness and for countermeasures are also to be modernised.[84] Furthermore, Russia intends to buy only precision munitions for new aircraft.[85]

The number of modern aircraft in 2020, i.e. foreseen new and renovated aircraft over the period 2003–2020, is assessed at about 700.[86] This is probably too low to replace the number that are to be scrapped in 2011–2020. However, their standard of performance is likely to be higher. Further orders up to 2020 are probable. The problems in the defence industry and possible increasing costs make it likely that their delivery will be delayed. But there is a political will to modernise the equipment and Russia is allocating major financial resources for it in the period 2011–2014 (see Chapter 3).

Greater influence for the military districts

During 2011, the Army Aviation Corps – division – regiment command system was replaced by three command levels (strategic – operative – tactical). The new organisation has a Command of the Air Force and seven operational commands:[87] the Military Transport Aviation Command (Voenno-transportnaia aviatsiia, VTA), the Long-Range Aviation Command (Dalnaia aviatsiia, DA, Russia's strategic bombers), the Aerospace Defence Forces Command (Vozdushno-kosmicheskaia oborona, VKO) and Air Force and Air Defence Commands, AFADCs (one in each of the four new military districts). The surface-to-air missile (SAM) units were re-formed as thirteen Air Space Defence Brigades (VKO brigades) and placed under the military districts' AFADCs.[88]

Each AFADC was given territorial responsibility and placed under the OSKs. They are responsible for ensuring that their aircraft resources are used in support operations of other forces. The Command of the Air Force retained responsibility for training and force development.[89] Former divisions and regiments were re-formed as 'Air Bases', seven category-1 bases (one for each operational command) and eight category-2 bases. An 'air base' is not an airfield as such, but rather an organisational unit. It probably also refers to a command level, which comprises several subsidiary air bases with the accompanying air groups (*aviagruppy*). The AFADC in each military district has one category-1 air base, some category-2

air bases and two or three SAM brigades. Support functions such as training and maintenance were also changed.[90]

The reform has almost halved the number of units in the Air Force, from 340 to 180.[91] The number of operational airfields has reportedly been cut from about 245 to about thirty.[92] It is likely that the operational equipment and personnel were concentrated in the new air bases. Reductions were made in the command structures and in personnel.[93] Formerly independent maintenance and radar units were assigned to the air bases in order to create a more uniform command. However, it was not clear by 2011 whether efficient command was possible within the framework of the new AFADCs, given the great distances involved in a country the size of Russia and the still large number of different sorts of aircraft.

Structural preconditions for 2020

The reorganisation signalled an endeavour to concentrate operational equipment and personnel in fewer units in order to obtain greater effect. In the past there were few completely functional units. Defective equipment was often mixed with functioning equipment. The questions are whether modernisation and new acquisitions will suffice to replace the older aircraft that are to be scrapped by 2020 and how the new units are to be commanded given Russia's vast territory.

Military Transport Aviation and strategic air lift

One purpose of the reform of the Armed Forces is to increase the mobility of units. The railway has great capacity, but rail transport is slow even in the well-developed network of western Russia. The Zapad-2009 exercise showed that it could take more than five days to move one brigade from central Russia to Belarus, where the road and rail networks are considerably better developed than they are in Siberia and the Russian Far East. The Military Transport Aviation[94] is, and will remain, decisive during the foreseeable future as regards rapid strategic mobility, i.e. the ability to move military resources quickly between strategic directions, e.g. in order to react to outbreaks of conflict. Nevertheless this capability only concerns a small proportion of the Army's units. Larger units and heavy equipment will also in the future to be transported by rail. (See also Section 5.2.6 in this chapter on Railway Troops.)

The capacity of the Military Transport Aviation diminished greatly during the period 1991–2010, from 657 transport aircraft to 260–300 (112 heavy, fifty medium-heavy and 105 light aircraft, plus thirty-one passenger aircraft). The Russian analyst Maksim Shepovalenko has argued that the Military Transport Aviation Corps in 2010 was almost fully manned and had 100 per cent functional aircraft,[95] a high figure given the customary picture of an ageing aircraft fleet.

As from 2011, the Military Transport Aviation is no longer directly subordinate to the General Staff but to the Command of the Air Force. The command of the Military Transport Aviation Corps is in Moscow, and one category-1 air base is in Tver, with aircraft groups in seven places, often close to the Airborne Forces. The transport and airdrop of such a battalion with equipment requires approximately thirty Il-76MDs. The Military Transport Aviation can probably manage two to four battalions at a time, i.e. one air assault regiment.[96]

Modernisation of the remaining aircraft of the Military Transport Aviation will probably enable them to remain in service till 2030. Shepovalenko believed in 2011 that in the period up to 2020, the Military Transport Aviation intended to order or to modernise some 100 aircraft, of which between twenty and thirty will be strategic transport aircraft (An-124s). Furthermore, the manufacturer claims that some forty new Il-76TD-90As are to be ordered, as transport aircraft, airborne refuelling aircraft and for airborne surveillance.[97] According to other reports Russia might order up to 140 of the medium-heavy transport aircraft An-70 and MTA (multi-role transport aircraft which is being developed in cooperation with India). Production and delivery are, however, unlikely to begin before 2015–2020. The reliance on heavy strategic aircraft is important because it affects the rapid strategic mobility of the tank brigades, the heaviest units of the Army.

The ambition in the reform is to concentrate and reduce the organisation of the Military Transport Aviation and to replace heavy, medium-heavy and light transport aircraft as old Soviet aircraft reach the end of their life. In the period up to 2020 Russia will probably retain the airdrop capacity if had in 2011, i.e. two to four VDV battalions. Towards 2020, this capability should increase if the State Armament Programme is carried out as planned. Civilian transport aircraft can also be included in this capability, although that has not been done in this study.

The Long-Range Aviation

Within the framework of the reform of the Armed Forces, the Long-Range Aviation organisation was changed, but the number of aircraft was not reduced.[98] As part of the Russian nuclear triad, its main task is to operate with strategic nuclear weapons from the air. Russia has few bases outside the former Soviet republics and its naval forces are weak. The Long-Range Aviation's conventional precision weapons are Russia's chief means of global non-nuclear force projection. However, the shortage of such weapons limits this role in practice. For further details about the Strategic Bomber Force, see also Chapter 6, Section 6.1.3, p. 140).

In 2010 Russia had some twenty A-50-type airborne warning and control systems (AWACs) for surveillance, warning and control, primarily in areas where it lacked coverage of permanent land-based systems, both in and outside Russia. Many A-50s were probably in poor condition and two possible replacements were known of in 2011: a modernised A-50U with improved performance[99] (reportedly to be ready in 2012)[100] or a new type of control platform within the framework for the development of the Il-76.

Although the 2020 State Armament Programme stated that Russian-manufactured UAVs for ground target attack were to be procured, the Ministry of Defence decided in 2011 to buy two kinds of UAV from Israel. The heavier version is to be built under licence in Russia. Under the USD 400 million contract Israel will also deliver components. The first UAVs are planned to be tested in 2012,[101] but work on testing was carried out in exercises as early as 2011. Clearly, Russia wants to strengthen its UAV capability.

The reform of the Air Force meant that Russia's air operations capacity decreased through cuts in the command and control system. Organisational changes often make demands on time and energy in the organisation concerned. At the same time the purpose was probably to counter the disintegration that the Air Force had suffered since the fall of the Soviet Union. Concentrating operational personnel and equipment in combined units could in the long run increase overall capability. Capability is likely also to be reinforced when newly produced or modernised aircraft are delivered, even if they do not match the quantitative reductions that are to take place up till 2020 as aircraft from the Soviet period are taken out of service.

The reduction in the organisation may also be simply an adaptation to the smaller size of the future aircraft fleet. By 2020 Russia could have about 700 aircraft.[102] It may pay a price in reduced capability during the years after 2011 in order to create conditions for a gradual strengthening of capability in the longer term. Important capabilities which will probably be prioritised during 2011–2020 include the ability to act with other defence branches and units in joint operations, as well as to contribute to strategic mobility – a decisive military capability.

In autumn 2011, the reorganisation continued to affect Russia's capability for air operations. On 1 December 2011 the new Aerospace Defence Forces (VKO) were formed from the former Space Forces, Missile Defence and parts of the Air Defence Forces (chiefly SAM units). Open sources did not at the beginning of December 2011 give a uniform picture of this new organisation.

5.2.4 The Aerospace Defence Forces

President Dmitrii Medvedev decided in 2010 that Russia should have an integrated air and space defence.[103] On 1 December 2011 the Aerospace Defence Forces were formed by putting the Air Force's SAM brigades (also known as VKO brigades) under the command of the Space Forces.[104] The likely intention was to bring together systems for monitoring and for offensive and defensive action in the air and in space in one integrated organisation. As a result the SAM units in the military districts came under central control, even if they remain located in the military districts.[105] The transfer of the Space Forces' remaining capabilities to the new branch of service is, according to its commander, to be effected in stages. The Aerospace Defence Forces Command is to be established by 2016.[106]

The task of the Aerospace Defence Forces is to warn Russia's political and military leadership of impending missile attacks and to neutralise incoming missiles. It is to protect command and control centres for the top leadership of the state and defence, military units and industrial and economic targets of major importance. Finally it has responsibility for the launching and control of spacecraft and commercial and military satellites that provide information to the Armed Forces.[107]

The missile defence consists of three systems. The first is a warning system for missile attack, which comprises a space-based and a ground-based warning system. The space-based warning system can detect the launch of intercontinental missiles in the US and the ground-based system can detect missiles incoming towards Russia. Second and third, the missile defence includes a space surveillance system and an anti-missile system, which can destroy incoming intercontinental missiles.[108] For further information, see Chapter 6, Section 6.1.5 (p. 147).

The military districts had thirteen SAM brigades in 2011 consisting of altogether forty-five SAM regiments[109] and eighteen radar regiments.[110] Automated control systems are said to have been introduced in parts of the organisation.[111] Different versions of the S-300 system will probably remain the main armament of the SAM brigades until 2020. Deliveries of the S-400 began in 2007, mainly to units around Moscow, but in 2011 to Kaliningrad as well. In the period up to 2016 the plan is that four regiments are to be equipped with the S-400 and by 2020 a further twenty-eight. In addition, the intention was to obtain five regiments of the modern S-500 long-range system, but this is unlikely before 2016. By 2020, therefore, forty out of forty-five regiments are likely to have modern equipment.[112] In 2011, short-range air defence began to be delivered to the SAM brigades around Moscow.[113]

It is unclear how far the Air Force's SAM brigades can be integrated with systems for surveillance and operations in space. Russian experts point to differences in the organisational structures and in the automated control systems. They question the logic behind the integration since the Space Forces and the SAM brigades operate in different arenas and their systems have few technical elements in common. There are currently no weapons systems that can operate both in space and in the air. Therefore, obtaining integration by just merging organisations is probably insufficient for achieving better output in air and space operations.[114] Finally, it is not clear how cooperation is to be conducted between the centralised SAM and space resources and the regionalised Air Force, which is controlled from the Air Commands in the respective military districts.

5.2.5 The Navy

Since the dissolution of the Soviet Union, the Navy has been characterised by an ageing fleet with limited budgets for repairs and new acquisitions. The focus has instead been on the naval part of the nuclear triad. In the 2020 State Armament Programme, the Navy was nonetheless allocated funds to acquire new vessels. If this programme is fulfilled Russia will in time have a new naval capability.

Task

The task of the Navy is to employ conventional and strategic resources to prevent the use of military means against Russia, and to defend Russian sovereignty in the territorial seas, in the economic zone and on the continental shelf. They are to guarantee the security of Russian economic activity on the world seas and also to take part in peacekeeping operations.[115]

Capability

There are reasons to question whether the Navy can meet all the objectives set, since important types of naval vessels such as patrol boats, destroyers and submarine hunters simply are too few.[116] Experts point to the fact, that in addition to new vessels, Russia needs to establish more bases abroad than Tartus in Syria if the Navy is to be able to act on the high seas.[117] Russia therefore lacks the capability to guarantee the security of its economic interests on the high seas. It is, however, taking part, in a national capacity, in the anti-piracy operations off the coast of Somalia. Other experts point to the fact that Russia's primary sphere of interest is its immediate surroundings and that compared with its neighbours it has a greater naval power projection capability. The Navy is regarded as being able to manage both that and the defence of Russia's maritime boundaries.[118]

The 2020 State Armament Programme

Ninety per cent of the Navy's vessels were built during the Soviet period.[119] Several programmes for repair and modernisation have been launched, but only the modernisation of the Northern Fleet's six strategic submarines has been given adequate funds during the last fifteen years.[120] Observers in Russia's Navy believe that a large proportion of the vessels must be decommissioned in the period up to 2025–2030.[121] In the 2020 State Armament Programme, RUR 4 700 billion have been allocated to the acquisition of 100 vessels, including twenty submarines, thirty-five corvettes and between ten and fifteen frigates. The first priority, however, remains the naval element in the nuclear triad.[122] It remains to be seen to what extent the 2020 State Armament Programme will be realised and whether the number of new vessels will be adequate to replace those decommissioned.

The shipbuilding industry

The shipbuilding industry constitutes the limiting factor in this context.[123] The Russian defence industry is mostly unreformed since the dissolution of the Soviet Union. The shipbuilding industry is old and inefficient[124] and, against the background of what emerges in Chapter 4, it is unlikely that it can deliver all the vessels that have been ordered within the stated time frame of the 2020 State Armament Programme. In order to maintain naval capability over time, Russia may have to order vessels abroad, as it did in 2011 when a contract was concluded for four French Mistral class amphibious operations vessels. Before that, Russia had been cautious about foreign purchases, since the domestic defence industry is of great importance for both security policy and employment policy.[125] Another option, which could serve as a complement, would be to reform the shipbuilding industry, which is very much needed.

The reform

The reform of the Armed Forces that began in 2008 meant that the Navy, which previously had been independent, was integrated within the four military districts,[126] in so far as naval divisions were established at the regional headquarters. They coordinate operations both within the regional navy and with the other branches of service. Below that level, very little has changed and the coordination with the Army and the Air Force is probably limited.[127] The Navy, like the Army, has gone over to smaller basic units. Furthermore, the Naval Infantry and the Coastal Defence Forces have been converted to standing units. Cuts have been made in the command structures and under the reform plans a new command and control system is to be introduced, though it is

unclear when. Logistics and rear services have been concentrated at a number of bases. The introduction of a new equipment procurement system, to enable different branches of the Navy to acquire a similar range of equipment, appears to be delayed. Nor have the Navy's air units been fully transferred to the Air Force.[128]

Regional fleets

Russia's two regional fleets with the greatest strategic importance are the Northern Fleet and the Pacific Fleet. The interests of the world's superpowers meet in these areas and it is here that the naval element in the nuclear triad is based. The Pacific Fleet is of central importance for Russia, since China is in the process of a major naval rearmament[129] and in time at least one of the Mistral vessels is likely to be based here.[130] Russia has great economic interests in the Arctic, which means that an important role is assigned to the Northern Fleet.[131]

In the period up to 2020, the Black Sea Fleet will undergo major re-equipment, since it has difficulty in fulfilling its tasks.[132] According to plans, new vessels[133] and long-range anti-submarine weapons and fighter-bomber aircraft are to be acquired.[134] One circumstance that may delay the rearmament is that permission must be obtained from Ukraine as regards new aircraft[135] and the number of vessels is defined in an agreement from 1997.[136] The Caspian Flotilla's fleet and capability seem not to have been changed to any great extent. The Baltic Fleet aspires to complement its four large and two small landing craft[137] with more amphibious vessels, both large and small, plus corvettes, as well as equipping existing vessels with high-precision weapons. It is likely that at least one,[138] possibly two, new corvettes will be supplied to the Baltic Fleet.[139]

There are tendencies towards reassignment of some vessels from the north and west to the south and east.[140] These tendencies follow the pattern in the rest of the Armed Forces – a shift in capability towards the south and east. The likely reason is that Russia expects that future conflicts will take place in these strategic directions.

The Naval Infantry

As a result of the reform, cadre units in the Naval Infantry have been abolished and the remaining units are more fully manned. Contract soldiers have been replaced by conscripts. Only contract NCOs have been retained. In numerical terms, however, units of the Naval Infantry remain at the same level or have increased.

In the Northern Fleet, at Kamchatka and in the Caspian Flotilla levels of manning are unchanged while those in Vladivostok and the Black Sea Fleet have increased. There are plans to increase the number of service personnel in the Naval Infantry in Kaliningrad from 2 500 to 4 000 by 2012. New equipment has been delivered to a number of units, but it is not clear to which.[141]

Table 5-6 Regional fleets in 2007 and 2010 (*2007 in brackets*)

Vessel types	Baltic Fleet	Northern Fleet	Black Sea Fleet	Pacific Fleet	Caspian Flotilla
Strategic submarines (SSBN)	-(-)	9(11)	-(-)	5(4)	-(-)
Nuclear-powered cruise-missile submarines (SSGN)	-(-)	3(3)	-(-)	5(10)	-(-)
Nuclear-powered attack-submarines (SSN)	-(-)	13(13)	-(-)	4(-)	-(-)
Diesel-electric submarines (SSK)	3(1)	7(7)	1(1)	9(9)	-(-)
Number of submarines	**3(1)**	**32(34)**	**1(1)**	**23(23)**	**-(-)**
Aircraft carriers (CV)	-(-)	1(1)	-(-)	-(-)	-(-)
Cruisers	-(-)	2(3)	2(2)	1(1)	-(-)
Destroyers	2(2)	7(6)	1(3)	7(7)	-(-)
Frigates	4(3)	-(-)	2(7)	-(1)	1(1)
Number of major vessels	**6(5)**	**10(10)**	**5(12)**	**8(9)**	**1(1)**
Patrol and coastal combatant ships	19(18)	12(26)	12(8)	23(25)	6(6)
Mine-warfare vessels	15(15)	11(11)	9(9)	7(8)	6(5)
Amphibious vessels	4(5)	5(6)	7(2)	4(4)	6(6)
Number of minor vessels	**38(38)**	**28(42)**	**28(19)**	**34(37)**	**18(17)**
Total number of vessels	**47(44)**	**70(86)**	**34(32)**	**65(69)**	**19(18)**

Note: These figures are taken from *The Military Balance* and differ from those given in Barabanov, Mikhail (ed.) *Novaia Armiia Rossii* [Russia's New Army] (Moscow, CAST). What is of interest in this context is the development over the years.
Source: IISS (2008) *The Military Balance 2008* (Abingdon, Routledge for the International Institute for Strategic Studies, IISS), pp. 213–15; and *The Military Balance 2011*, pp. 188–91.

Naval capability up to 2020

Since the dissolution of the Soviet Union the Navy has been under-financed. Combined with the effects of the reorganisation under the reforms, starting in 2008, the Navy's capability has declined. In the autumn of 2011 it was partly unable to fulfil its tasks. In the 2020 State Armament Programme, funds have been allocated for the acquisition of new vessels, but it is unlikely that this can be implemented in its entirety because of a shortage of production capacity in the shipbuilding industry. The introduction of the vessels that the shipbuilding industry does produce and a completion of the reform would have a positive effect on Russia's naval capability. Whether Russia chooses to order

vessels abroad and/or reform its shipbuilding industry will be decisive for its future capability. If it decides to do neither, its Navy's capability will gradually diminish up to 2020 and possibly more substantially in the period 2025–2030, when the greater part of the fleet must be decommissioned.

5.2.6 Endurance and mobility

Logistics and Rear Service

In 2010, as part of the reform of the Armed Forces, the purchase and maintenance of equipment, logistics, rations and uniforms as well as the Railway Troops were merged into the new Logistics and Rear Service.[142] The basic unit in the Railway Troops was changed from division to brigade, in total ten of them, and the command and control system was reduced to three levels.[143] As a result, there are larger bases in the military districts with territorial responsibility for equipment, special stores for missiles, ammunition and artillery rockets, plus Rear Service brigades. In the Army brigades, there are logistics battalions to enable the brigades to maintain constant combat readiness.[144]

The creation of the Logistics and Rear Service also opened the way for outsourcing various services and activities,[145] e.g. transport, laundry and the maintenance of navy vessels on the high seas.[146] Out of the companies supplying goods and services to the Armed Forces, ten holding companies have been created, one for each area of activity.[147] International experience shows that systems like this are complicated, e.g. as regards private companies operating in conflict areas.[148] In the autumn of 2011 it was not yet clear what effect the new system of centralised and joint maintenance functions was having on Russia's military capability.

The Railway Troops

The railway is the backbone of Russia's transport system for both civilian and military purposes. In peacetime, 85 per cent of all transport is by rail. In wartime it is estimated to be 95 per cent.[149] The Military Transport Aviation is more rapid, but has limited capacity and in time of war it is dependent on Russian air supremacy. The railways are therefore of decisive importance for the transport of large quantities of personnel and equipment.[150]

The overall task of the Railway Troops is to keep railway traffic open, build railways, protect the infrastructure, carry out mine clearance, enable mobilisation and ensure rail transport in times of war. In peacetime, the major task is to assist other units to maintain constant readiness.[151]

The reforms of 2008–2011 entailed major changes for the Railway Troops. Their personnel was reduced from 28 500 to 24 000.[152] The central command and control function in Moscow was complemented by an HQ for the Railway Troops in each of the new military districts.[153] Under the regional HQs, there are ten manned and equipped brigades, all reportedly at constant readiness.[154] As within the Armed Forces, the command and control system was simplified and the mobilisation system was amended,[155] probably an adaptation from mass mobilisation to limited mobilisation. In January 2010, the Railway Troops generally lacked modern equipment, but planned to renew both weapons and other equipment.[156] The target is that by 2020 the Railway Troops will have at least 70 per cent modern equipment.[157]

During 2011 the focus of the Railway Troops' activities was to raise capability by improving leadership skills among its officers and raise the competence of servicemen and specialists.[158] The Railway Troops participated in operational-strategic exercises in 2009–2011. In the course of these exercises, they helped moving units up to brigade size over long distances.[159] The capability to transport ground units is probably regarded as central when fewer forces have to be able to act to protect Russia's vast territory.

5.3 Defence exercises

Exercises 2009–2010

During the three years 2009–2011 the Armed Forces carried out annual operational-strategic exercises. The 2009 Osen (autumn) series of exercises was an exercise in three parts in the overall western direction: Zapad-2009 (westward), Kavkaz (southward) and Ladoga (north-west). In 2010, the Vostok-2010 (eastward) exercise was carried out in the Far East. In 2011, the exercises Tsentr-2011 (central) and Shchit Soiuza (Union Shield), primarily an air defence exercise, took place mainly in the Central MD.

Zapad-2009 and Ladoga took place at roughly the same time in the autumn of 2009, in what by 2011 had become the Western MD. In total, approximately 20 000 service personnel from Russia and Belarus took part (12 500 in Zapad-2009, 7 400 in Ladoga). They were nominally two separate exercises but were probably linked in some way, since it would make sense from a command and control development perspective to try to exercise as large formations as possible. The scenario in Zapad was a large-scale attack by NATO.[160] The exercise mainly consisted of traditional warfare elements, with front-line combat and heavy conventional weapons against an opponent behaving in a similar fashion. High-technology NATO units would not necessarily behave as indicated in the scenario, which suggested that the intended opponent was actually a state actor with other types of forces, and not necessarily in Europe, but perhaps near other parts of Russia.[161]

About 20 000 men took part in the Vostok exercise in the Eastern MD in summer 2010. The scenario was that 'bandit formations' attacked Russia, but probably here too the envisaged opponent was rather a state in the region. In such a conflict, the ability to move troops and equipment from western to eastern Russia would be decisive. In Vostok, a lightly equipped motor rifle brigade was airlifted from Yekaterinburg to the Russian Far East and given heavier equipment at a base in Ussuriisk, north of Vladivostok. Attack aircraft flew from western to eastern Russia, were refuelled in the air and engaged ground targets in the exercise directly. The Railway Troops, which are of central importance for major troop transports, took part in the exercise. As in Zapad, a traditional defence battle was conducted along a line.[162] The approach was primarily to use conventional weapons, even if nuclear weapons played a part in the scenario.[163]

Tsentr-2011 – emphasis on joint operations

In September 2011, the strategic exercise Tsentr-2011 involved some 12 000 men, fifty aircraft, 1 000 vehicles and ten ships from Russia, Belarus, Kyrgyzstan, Kazakhstan and Armenia.[164] Under the command of the chief of the Russian

General Staff, Nikolai Makarov, the exercise took place in Russia's Central MD, Kazakhstan, Kyrgyzstan and Tajikistan. The aim was to practise maintaining military security in Central Asia,[165] primarily within the CSTO framework.

Makarov stated that the exercise chiefly involved units up to brigade size.[166] One estimated brigade was transported to the exercise area 2 500 km by train from Yekaterinburg. He indicated that the background was the unpredictable developments in North Africa and the Middle East. In addition to one particular element in Tsentr-2010, namely a command post exercise in Tajikistan, which was designed to rehearse the commitment of the CSTO's operative forces (primarily units from Russia's Airborne Forces), one interpretation in the Russian press was that the exercise signalled support for the regimes in Central Asia.[167] The scenario has, however, also been interpreted as suggesting that the military opponent in mind was actually Iran.[168]

On Russian training areas, Ministry of Defence troops also exercised jointly with units from other ministries and services, for example the Ministry of Interior, the Federal Security Service and the Federal Protection Service (Federalnaia sluzhba okhrany, FSO).[169] Cooperation was complicated by units from different Russian ministries and services having different command and control and communications systems, which were often incompatible. The cooperation of Russian units with other participating countries' units was complicated by differences in e.g. planning procedures and tactical behaviour.[170]

Before Tsentr-2011 the Russian–Belarus joint exercise Shchit Soyuza-2011 took place with 12 000 participants (7 000 from Russia and 5 000 from Belarus)[171] with Army (including 100 tanks, approximately one brigade), Air Force and Air Defence troops. The Air Defence's primary role was linked in the Russian press with NATO's ongoing air operations in Libya and there was also speculation that it was a signal to the Baltic states. The purpose was said to be to reinforce military security in the union between Russia and Belarus.

Exercises and military capability

The strategic exercises in the period 2009–2011 partly reflect an exploratory approach – to train for many different capabilities and elements as part of the development of the Armed Forces. This may explain why multifaceted scenarios and exercise elements seemed more important than a single comprehensive and clearly coherent scenario. A further possible explanation for the multifaceted scenarios may be a need to practise for a wide range of types of conflict with increasing complexity and to train many different kinds of units.

From a military capability perspective it is important to note that Russia carried out major strategic exercises every year in 2009–2011. It is likely that such exercises will continue, since they are needed to develop military capability. They took into account Russia's geography (major distances) and its geopolitics (several strategic directions). They involved the higher command levels (General Staff, Military District/OSK), large forces (up to 20 000 men), strategic movements, joint operations between different branches of service and units of the Armed Forces, and cooperation with units from different Russian ministries

and services and with units from Russia's allies, and they took place within and beyond Russia. Even though many problems arose, the exercises were a tool to advance the reform and to test the new structures and methods that had been developed within its framework.

5.4 Russia's conventional military capability up to 2020

A consequence of the reform of Russia's conventional Armed Forces, from a mobilisation-based mass army configured for large-scale war to smaller but more mobile and combat-ready forces designed for local and regional conflicts, was that the overall conventional military capability declined during the period 2008–2011. The comprehensive cuts in personnel and equipment and the turbulence created in the organisation by the changes contributed to this.

As of 2011, Russia's combined conventional military capability consists of a limited rapid deployment capability and a mobilisation capability. Since the development towards standing modern units has been going on for only a few years, the potential to mobilise further military capability probably still constitutes an important element. The concentration of operational equipment and personnel into brigade units had by 2011 begun to create the structural preconditions for a gradual increase in Russia's conventional military capability, in particular its rapid deployment capability, over a period of four or five years.

A long-term strengthening of military capability presupposes continuing political commitment, a defence budget that is maintained, a long-term resolution of manning problems and an ability on the part of the defence industry to supply the equipment that is required. In the autumn of 2011, it was unclear whether the defence industry could meet the targets of the 2020 State Armament Programme that 70 per cent of the Armed Forces' equipment should be modern by 2020. It appears that the defence budget will increase up to 2014, which is essential to achievement of the objectives of the reform. With Russia facing many important political and costly decisions about pensions, infrastructure and health care, continued political commitment to reform of the Armed Forces cannot be taken for granted.

The Armed Forces are having difficulty in living up to the ambition of 1 million service personnel. The negative demographic trends mean that the level of approximately 800 000 personnel which the Armed Forces had reached by 2011 will probably have fallen back to 500 000–600 000 by 2020. The Armed Forces can thus not achieve the intended manning levels, either in 2011 or in 2020.

The ambition for increased strategic mobility and a higher state of unit readiness can be achieved if the Armed Forces can acquire modern equipment and are fully manned. The higher the proportion of contracted service personnel, the greater the chances of improving mobility and readiness. Continuing dependence on conscripts will probably remain a limiting factor in the quest for increased mobility and readiness up to 2020.

A related question its how the Armed Forces could recruit sufficiently qualified people as soldiers, NCOs and officers to handle a growing proportion of increasingly advanced modern equipment in accordance with the ambitions in the 2020 State Armament Programme. The incidence of criminality, corruption and institutionalised hazing makes recruitment more difficult when manning levels are increasingly dependent on volunteers. If reform of pay and conditions for contracted service personnel are not adequately funded this may further complicate achievement of the manning levels intended. Taken as a whole, these problems may entail further organisational changes in the Armed Forces before 2020.

Russia will probably retain the capability to mobilise substantial forces. The reform entails a reduced target for *mass* mobilisation, from about 4 million men to about 700 000. As Russia has large quantities of stored equipment, this is adequate to form a large number of units in addition to the standing units that have developed in the course of the reform of the Armed Forces. Even though the details are not clear, the building blocks may exist for a significant additional military capability that can be mobilised, albeit one which would take time to put on a war footing.

During the period 2008–2011 the old and the new coexisted and that is likely to remain the case up to 2020. Even if the organisational structures are changed, the old equipment that remains will probably take a long time to replace. Even if the ambition of the 2020 State Armament Programme is realised and budgets are maintained, 30 per cent of all equipment will still be old in 2020.

Up to 2020, the primary areas of operations for the Army will probably remain Russia and its immediate surroundings. The Army's capability for operations outside Russia's territory is not necessarily dependent on the exact number of brigades and their location in each military district, but rather on whether they can, if required, be moved relatively quickly (within weeks or months). The development of the brigades will probably continue for many years to come. As of 2011, the foreseeable limited renewal of equipment will probably entail continuing overall dependence on relatively old equipment. The Army Aviation Corps is an exception and appears to be given priority, given its importance for increased mobility and flexibility. If the plans for new orders for the Army Aviation Corps are fulfilled, it can become a powerful mobile military resource.

The current airdrop capability for the Airborne Forces (approximately one airborne regiment at a time) will probably remain unchanged, mainly because of the continuing limitations of the Military Transport Aviation. Generally old equipment and the high share of conscripts in units will continue to limit the Airborne Forces. The known trend of the equipment plans (more lightly-armoured vehicles, fewer airdrop vehicles) is probably an element in making the Airborne Forces more readily transportable, in line with Russia's effort to increase the immediately deployable military capability.

The Air Force's capability will probably continue to be restricted, chiefly because the number of military aircraft will fall sharply up to 2020 as they reach the end of their service life. Operations in or near Russia will probably be the most feasible for the Air Force as well, both because of the country's size and because of a limited capability for situational awareness and command and control. Organisational changes made in the Air Force and the Aerospace Defence Forces in the autumn of 2011 make it more difficult as yet to form a judgement about the development of their capability in the period up to 2020.

There are clear signs that the Navy in 2011 was having difficulties fulfilling its tasks. The fleet is old. The major effort embodied in the 2020 State Armament Programme can probably not be implemented in full, because the shipbuilding industry lacks the capacity to produce such a large number of vessels. Unless Russia chooses to buy vessels abroad, naval capability will slowly decline up to 2020 and thereafter fall more sharply. As regards naval command and control, it will probably take several years before the regional navies' role and use within the framework of the Joint Strategic Command of the military districts become clearer.

All in all, up to 2020 the Armed Forces will be increasingly able to operate within or along Russia's borders. With a few days' warning, Russia will probably be able to deploy, within or along the national frontiers, chiefly some Airborne Forces and parts of the new standing units. The decisive limitation for rapid deployments lies in the overall capability of the Military Transport Aviation and in the endurance of deployed units. With a few weeks' warning, Russia will probably be able to move the standing units created by the reform. Here the Military Transport Aviation's capability may be complemented by the ability to move a large number of units by rail. Over the course of a few months, it might be possible to mobilise further units and transport them across Russia, primarily by rail.

To what extent has the reform mirrored the approaches characterising Russia's attempts to change its armed forces since 1991 as mentioned at the beginning of this chapter?

First, the concept of large-scale *mass mobilisation* seems to have been finally abandoned. The mobilisation organisation that has been retained is significantly smaller than before and large quantities of equipment still exist, primarily for the Army. But the ambition to have de facto standing units will probably gradually provide a greater military capability than the former mass mobilisation organisation, primarily where combat readiness is concerned, although it is unlikely to be achieved as stated until 2020.

In the short term, *availability,* the second approach, will probably be limited by the effect of ongoing restructuring, by the still large proportion of obsolete equipment and by the dependence on one-year conscripts to man units. Demographics, problems with recruitment and uncertain contract conditions mean that this shortcoming will probably persist up to 2020 and may even

lead to further reorganisation. As for the third approach, to address *command and control* issues, commanders face problems with the integration of technical systems and ongoing organisational changes. At the same time, however, the Armed Forces are carrying out regular strategic exercises that both form an element in the system development and increase the capability of units and personnel taking part. The capability for joint command is being developed slowly, for conceptual, legal and technical reasons. Within the framework of this study, it has not been possible to assess the fourth approach, the degree to which the Armed Forces have succeeded in reducing the *variety in equipment systems* and in the accompanying support organisations.

There are signs that Russia is investing in increasing the *strategic mobility* of the Armed Forces. Modernisation plans for the Army Aviation Corps and the Military Transport Aviation are ambitious. Cuts in the organisation of the Airborne Forces and the Railway Troops are smaller than those in almost all other types of unit.

Demographic problems, the defence industry's inability to supply and recruitment problems mean that the Armed Forces can only achieve all their targets with difficulty. Russia has nevertheless a significant potential for military capability and a clear intention to gradually strengthen it until 2020.

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6. Weapons of Mass Destruction

Fredrik Westerlund and Roger Roffey[viii]

Weapons of mass destruction (WMD) have long been important for Russia's military capability and for its claim to great-power status in the world. Nuclear, biological and chemical WMD have been seen in Russia as being very different in character. These weapons have both a practical and a symbolic function by virtue of their destructive potential. WMD have a clear political dimension alongside their purely military aspects. In this and previous reports, the subject has therefore been dealt with separately from conventional military capability (which is dealt with in Chapter 5, The Armed Forces).

From a security policy perspective, it is important to assess both the development of Russian capability for the use of WMD and the phasing out of its former capability under the terms of international conventions. However, the focus differs between the different types of weapon. Where chemical weapons are concerned, the main question has long been Russia's compliance with the requirements of the Chemical Weapons Convention (CWC), principally the complete destruction of stockpiled chemical weapons. As regards biological weapons, the focus has been on compliance with international arms control agreements. For nuclear weapons, on the other hand, the capability for use overshadows questions of destruction and arms control, in particular in the assessment of Russian military capability in a ten-year perspective. That makes it also important to assess developments as regards the Russian early-warning system against nuclear attack.

The purpose of the present chapter is therefore twofold. The presentation aims to describe the role of nuclear weapons and to assess developments in Russian capability. It also assesses Russia's defensive capability as regards chemical and biological weapons, as well as its observance of the international conventions on them.

The main questions for assessment over a ten-year perspective have been:

- What part do nuclear weapons play in Russian policy?
- How will Russian nuclear weapons and early-warning capability develop?
- How is Russian defence capability against chemical and biological weapons developing?
- What are the prospects as regards Russia fulfilling its undertakings on the destruction of chemical weapons?

This chapter first discusses the questions related to nuclear weapons. There follows a discussion of Russia's compliance with the Chemical Weapons Convention and the destruction of chemical weapons, and thereafter of its compliance with the Biological and Toxin Weapons Convention (BTWC). Finally an assessment

[viii] Fredrik Westerlund wrote the section on nuclear weapons, with assistance from Jakob Hedenskog as regards the question of missile defence. Roger Roffey wrote the sections on biological and chemical weapons.

is given of developments within the respective fields over a ten-year perspective. Issues related to the non-dissemination and destruction of nuclear weapons are not dealt with in this chapter.

6.1 Nuclear weapons and strategic early warning

The strategic nuclear forces and early-warning system have a central position in Russian defence and security policy. Nuclear capability also plays a part in domestic and foreign policy. This section describes the overall development and foreseeable trends. As regards nuclear weapons, we deal by way of introduction with the strategic context and nuclear doctrine, with a view to illuminating the role of nuclear weapons in Russia. Thereafter, a description is given of developments in Russia's nuclear weapon capability by means of a discussion of the way it is organised, its numerical strength and plans for new equipment, as well as defence exercise programmes. Both strategic and sub-strategic (tactical) nuclear weapons[ix] are considered. In conclusion, the development of capability in the Russian early-warning system is described.

6.1.1 The strategic context

A challenging strategic context

The part played by nuclear weapons in Russian policy is largely connected with the strategic context. The dissolution of the Warsaw Pact and the Soviet Union brought about a major reduction in Moscow's economic, industrial and demographic resource base. At the same time, the military strategic depth to the west was reduced and the military balance of strength was radically changed, to Russia's disadvantage. This development continued up to the mid-2000s, as several former Soviet republics gravitated westwards in foreign policy terms and, in addition, five East European countries became members of NATO. Nuclear weapons have come to be one of the few areas in which Russia is a world power and the only one in which it is almost the equal of the United States.

The Russian leadership has repeatedly expressed dissatisfaction with the present security policy situation in Europe. The response to President Dmitrii Medvedev's proposal for a European security treaty has so far been lukewarm. At the end of 2007, Russia suspended its participation in the Conventional Forces in Europe (CFE) Treaty, and it had previously threatened to withdraw from the Intermediate-Range Nuclear Forces (INF) Treaty.[1]

The reset policy and the new START treaty

Since the launch of the Obama administration's 'reset policy', however, the relationship between Russia and the West has become less tense. The new Russian–American strategic arms agreement is an important part of this. The parties signed the 'New START' (Strategic Arms Reduction Treaty) in April 2010 and ratified it early in 2011. This treaty is the first more comprehensive treaty within the nuclear weapons field for two decades and breaks the trend of the 2000s towards ever-fewer functioning arms control treaties.

[ix] In the absence of a generally accepted definition, sub-strategic nuclear weapons here refer to nuclear weapons not covered by strategic arms control agreements.

New START entails a major reduction in the permitted number of strategic launchers and warheads as compared with the earlier treaty, START I. The number of launchers in use is to be halved to 800 per side, of which a maximum of 700 may be armed with nuclear warheads. The number of warheads on launchers is reduced from 6 000 in START I to 1 550 for each party, and at the same time new counting rules are introduced. Under this treaty, bombers are counted as carrying only one warhead, irrespective of the actual number they carry. In 2011 the Russian arsenal was already below these levels according to the new counting rules. Russia declared 1 537 warheads, distributed over 521 launchers in service within the framework for information exchange in New START. The number of launchers is likely to fall further in the period up to 2020.[2]

In contrast with START I, the development of new ballistic missiles with several warheads (multiple independently-targetable re-entry vehicles, MIRVs) is permitted. Because of the limitations in the Russian missile production capacity, MIRVs were previously, and have now again become, Russia's primary means of maintaining nuclear parity with the US. At the same time, the US has chosen to put fewer and fewer warheads on its missiles.

NATO's missile defence

Another important part of the strategic context is the build-up of a ballistic missile defence in Europe. The preamble to New START refers to defensive strategic systems, but they are not regulated in the treaty text. The Russian government regarded the American plans for a ballistic missile defence (Ground-Based Interceptor, GBI) in Poland and the Czech Republic as a threat to Russia's deterrence capability. The recast missile defence plans (Phased Adapted Approach, PAA) are also perceived as a potential threat.

The partly sea-based PAA has a better capability than the GBI to combat intermediate-range missiles and several simultaneously incoming missiles. The use of ships also means greater flexibility to meet threats from different directions, and not only from Iran and North Korea. For Russia, the sensitive question of the capability to combat intercontinental ballistic missiles (ICBMs) is also part of the new plans, albeit from 2020 rather than from 2018.[3] In the first stage, ships armed with the Aegis radar and air-defence missile system will be stationed in the Mediterranean. The PAA has become a joint NATO project that involves several countries. A ground-based radar will be stationed in Turkey and mobile launching pads in Romania from 2015 and in Poland from 2018.[4]

At the NATO summit meeting in Lisbon in November 2010 it was decided that Russia and NATO should jointly develop, within the framework of the NATO-Russia Council, plans for a European missile defence. Nonetheless there were significant differences of opinion from the very opening. NATO dismissed Russia's original proposal that the PAA should be responsible for missile defence of Western Europe, while Russia would defend the East European countries. NATO found it unthinkable to give up responsibility for the missile defence of its allies, and Russia had no actual plans for a missile defence system corresponding to the PAA. While NATO advocates two separate systems with an increased

exchange of information, Russia wants a common system that gives both sides the same powers over decision-making and launching systems. NATO has also dismissed the Russian demand for legally binding and verifiable guarantees that European missile defence will not threaten Russia's strategic nuclear capability.

An American missile defence to some extent undermines Russia's nuclear deterrence, through its capability to counter incoming Russian warheads. A European missile defence and forward-based systems in other parts of the world would be able to counter Russian missiles before the warheads have separated. Given Russia's emphasis on MIRVs, this entails a serious threat against the Russian second-strike capability.

In a televised speech to the nation in November 2011, Medvedev announced that the negotiations with NATO would continue, but that Russia would take measures to counter the PAA. Russia's ballistic missile defence is to be upgraded and systems to disrupt missile defence systems are to be developed. If this proves to be insufficient, Medvedev has threatened to station the Iskander short-range ballistic missile system in south-west and western Russia, including the Kaliningrad Oblast, in order to be able to strike European missile defence sites.[5] Missile defence will be an important question for Russia in the coming decade.

China a growing challenge

Even if the build-up of NATO's infrastructure in Europe alarms Russia, developments in China constitute a potentially greater challenge. China has continued to develop both its nuclear arsenal and its conventional forces. Officially, China is not designated a potential opponent, but over a ten- to fifteen-year period its military capability may become one of the most important factors in Russia's strategic context.

6.1.2 Russian nuclear doctrine

The political and military leadership's view about when and how nuclear weapons are to be used, as well as about the composition and development of the nuclear arsenal, constitutes Russia's nuclear doctrine. Unlike the Military Doctrine, this is neither a single document nor openly accessible in its entirety. The published parts of the guidelines relating to nuclear weapons are customarily referred to as the declared nuclear doctrine. In addition, there is an actual nuclear doctrine, which has not been published. In this section, we first briefly describe the declared Russian doctrine and thereafter give an analysis of the actual nuclear doctrine.[6]

An unchanged declared nuclear doctrine

Russia adopted a new National Security Strategy in 2009 and a new Military Doctrine in 2010. The officially declared Russian nuclear doctrine is largely unchanged. It is basically defensive, but the Military Doctrine reserves the right to make a first strike with nuclear weapons if Russia or any of its allies are attacked with WMD. The same applies as regards an attack with conventional weapons that threaten Russia's existence (Article 22). This is a narrower definition than in the Military Doctrine of 2000, which specified situations 'critical for Russia's national security'.

In official documents, nuclear weapons are given a less prominent place than before in the defence and security policy of the early twenty-first century. The four areas in which nuclear weapons are given a role are:

- maintaining and supporting Russia's claim to be a global great power;
- maintaining global strategic stability, through parity with the US in strategic offensive weapons;
- maintaining strategic deterrence against attacks on Russia or its allies; and
- defending Russia in the event of military attack.

The Military Doctrine and the National Security Strategy relate primarily to questions in which nuclear weapons have only a limited role, if indeed any. Nevertheless, within the four areas listed above, nuclear weapons – and, judging by the wording, strategic weapons – do play an important role, and this increases to some extent if Russia's economic, scientific, energy policy and conventional military power are weakened.

A nation's actual nuclear weapon doctrine often differs from that which is declared. The 2010 Military Doctrine was accompanied by a document entitled 'Principles for Government Policy in the Field of Nuclear Deterrence, up to 2020', which was adopted at the same time but was not published. This document may be assumed to contain large parts of the actual Russian nuclear doctrine.

The role of nuclear weapons is in practice greater

Analysis of the actual Russian doctrine during the period 2000–2010, on the basis of open sources, reveals seven further areas in which a role is ascribed to nuclear weapons. First, sub-strategic nuclear weapons have a security policy role in the maintenance of strategic deterrence. They compensate for Russia's weak conventional capability because small numbers of sub-strategic nuclear weapons could be used for the purpose of de-escalating a military conflict. Second, nuclear weapons, particularly sub-strategic weapons, play a different security policy role in their capacity as negotiating chips. Initiatives about reductions in the nuclear arsenal and threats to deploy forward-based weapon systems serve as carrots and sticks in the international security dialogue.

The importance of sub-strategic nuclear weapons

Third, sub-strategic nuclear weapons also have a defence policy role, through the capability of the Army and the Air Force for nuclear warfare operations against superior conventional attack on Russia. Fourth, the nuclear arsenal moreover plays a part in the reform of the Armed Forces' conventional units. In terms of both security and defence policy, the existence of the nuclear deterrent makes it possible to accept a temporary weakening of conventional military capability.

Nuclear weapons play a manifest part in Russian foreign policy. Fifth, the possession of nuclear weapons gives Russia a special position in the world and, through bilateral arms control treaties, a special relationship with the US superpower (see the section 'Russia, the US and NATO' in Chapter 2, p. 30). Sixth, the possession of nuclar weapons give Russia greater freedom to shape

and conduct an independent foreign policy. Like, for example, France, Russia can allow itself a more ambitious foreign policy than other countries with comparable economic and conventional military strength can.

The seventh area in which strategic nuclear weapons play a part is in Russian domestic policy. During the 2000s, the nuclear weapon arsenal constituted a tool for the regime to maintain its grip on power, as Daniel Goure, an American researcher on Russia, has indicated: 'The current Russian leadership needs the aura provided by nuclear weapons […] as means of holding onto power both internationally and domestically.'[7] In summary, the role of nuclear weapons in Russian policy is greater than is immediately apparent from official documents. This applies not least to sub-strategic nuclear weapons.

It should also be pointed out that the importance the Russian leadership attaches to nuclear weapons is the result of a traditional, highly geopolitical view of security. If it took a different view of the threat and national security, nuclear weapons would have a less central role.[8]

6.1.3 Nuclear forces, the nuclear arsenal and acquisition plans

Minor changes in the nuclear triad

The Russian strategic nuclear forces are divided organisationally into ground, air and naval units, the 'nuclear triad', which in 2011 comprised approximately 8 000 service personnel.[9] By 2011 the reform of the Armed Forces had not entailed major changes for the strategic nuclear weapon units. The ground elements are the Strategic Missile Forces, which are an Arm of the Armed Forces in their own right, alongside the other Branches of Arms and of Service.[10] In 2010, the Strategic Missile Forces comprised three missile armies, with a total of eleven divisions, but it was planned that by 2016 they should be reduced to two armies with eight divisions. The Long-Range Aviation constitutes the Air Force component and consists of two main bases, with strategic and long-range bombers. The naval element is the strategic missile submarines, which are divided between the Northern Fleet and the Pacific Fleet. Organisationally, the naval and air units belong to their respective services (the Air Force and the Navy).[11]

Strategic nuclear weapons reduced more slowly

The Russian nuclear arsenal continues to diminish, but at a slower pace. Despite reductions Russia and the US still have by far the largest total arsenals (see Table 6-1).

The number of strategic nuclear weapons in service fell substantially up to 2010, but the rate of decommissioning is expected to be slower during the coming years (see Figures 6-1 a and b). Russia was estimated in 2010 to have 2 430 warheads distributed among 531 launchers, a reduction since 2007 by almost 700 warheads and 154 launchers. The reduction consists primarily of older land-based ICBMs with multiple warheads being phased out at a higher rate than new missiles have been supplied.

Table 6-1 World nuclear forces (warheads), January 2011

Country	Deployed warheads	Stored or retired warheads	Total inventory
Russian Federation	~2 427	8 570*	~11 000
United States	2 150	6 350	~8 500**
France	290	10	~300
United Kingdom	160	65	225
China	?	200	~240
Pakistan	?	90–110	90–110
India	?	80–100	80–100
Israel	?	~80	~80
North Korea	?	?	?

Source: SIPRI (2011) *SIPRI Yearbook 2011: Armaments, disarmament and international security* (Oxford: Oxford University Press for SIPRI), p. 320, Table 7.1.
Note: * This total includes up to 5 400 sub-strategic warheads as well as some 3 000 retired warheads awaiting dismantlement.
** Of these approximately 5 000 are deployed or stored (of which some 500 are sub-strategic (tactical) warheads), while approximately 3 500 retired warheads await dismantlement (of which some 260 are sub-strategic warheads).

Figure 6-1a Trend diagram for Russian strategic nuclear weapon launchers 2000–2010 and forecast to 2025

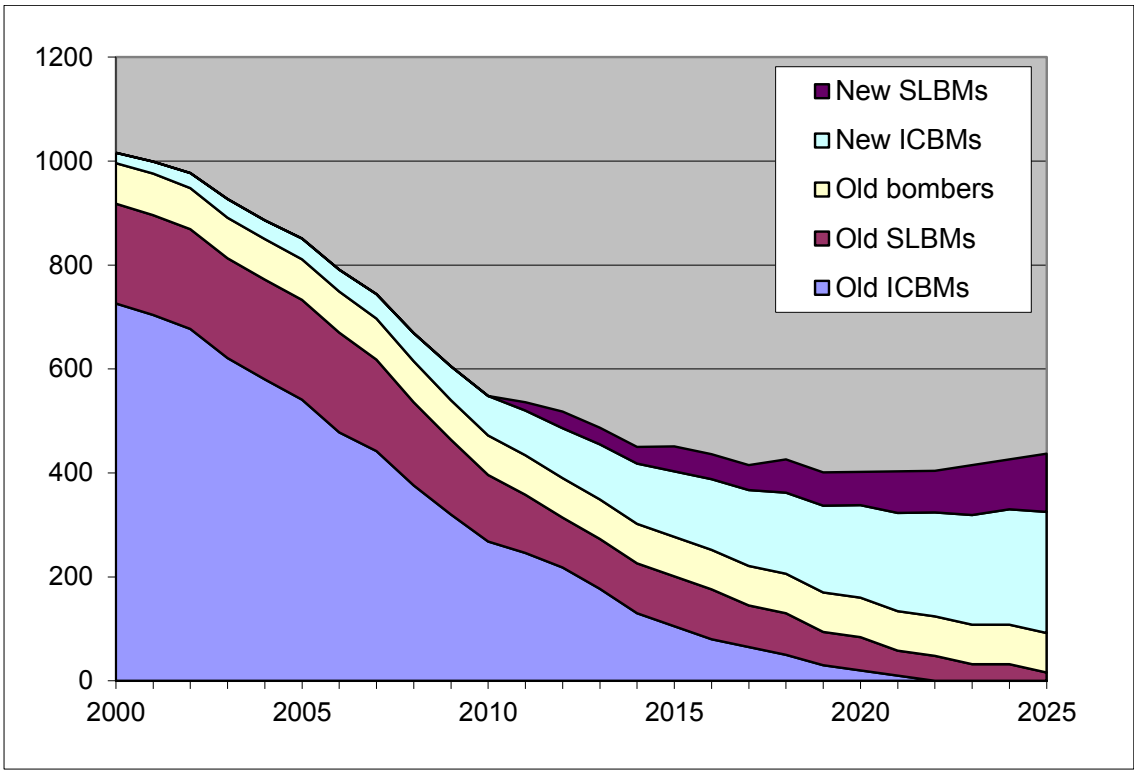
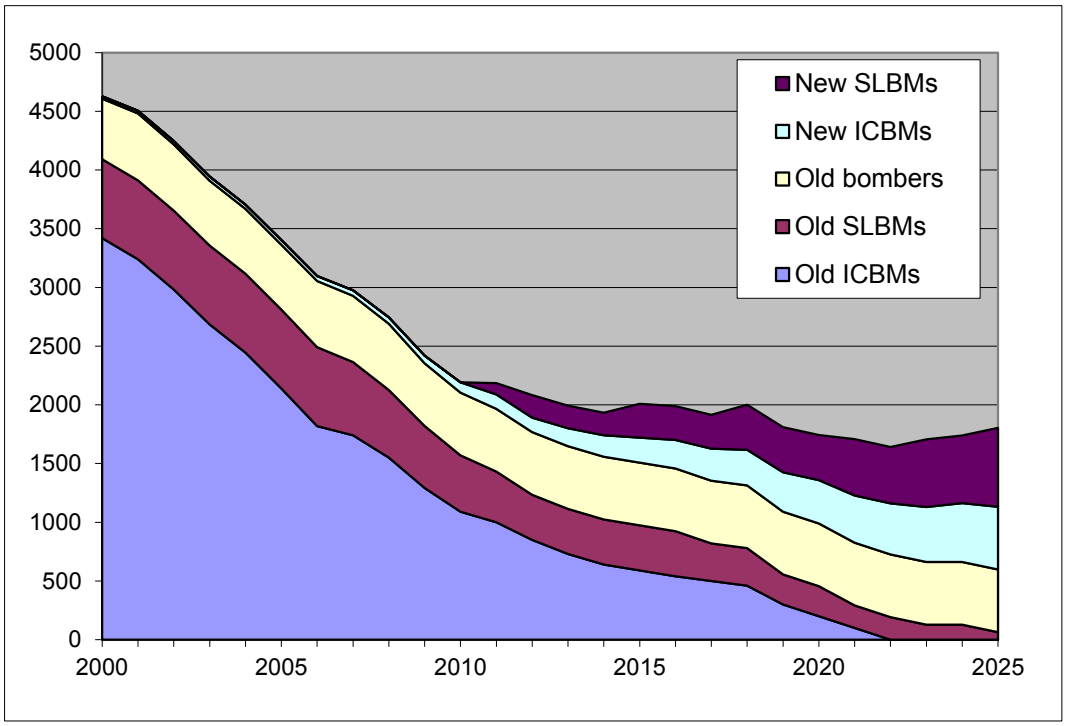


Figure 6-1b Trend diagram for Russian strategic nuclear warheads (deployed) 2000–2010 and forecast to 2025



Source: Podvig, Pavel (2011) 'Russian Nuclear Forces Project' (unpublished) September 2011.
Note: The number of deployed warheads has been calculated according to the rules in START I, i.e. it represents the actual number of warheads the bombers can carry.

Older submarine-launched ballistic missiles (SLBMs) have also been phased out. They have partly been compensated for by delivery of the modernised Sineva SLBM. If delivery of the newly developed Bulava missile and its carrier (the Borei class submarine) had been carried out according to plan, the number of submarine-launched warheads would have increased. For the number of launchers of the respective types and the distribution of the warheads, see Table 6-2. Up to 2020, the number of launchers in service is expected to fall below 450. These can then carry fewer than 1 300 warheads under the accounting rules in New START.[12]

Still many sub-strategic nuclear weapons

The information available about Russia's sub-strategic nuclear weapons is limited. All assessments of the size of the arsenal and its composition must be regarded as uncertain. According to a composite assessment, in 2010 Russia had approximately 2 000 warheads in service and a further 3 000–4 500 stockpiled or at destruction sites.[13] Warheads in service are assessed as being kept in nuclear weapon stocks, separate from their launchers.[14]

Table 6-2 Russian strategic nuclear forces 2010 (*2007 in brackets*)

	NATO designation	Russian designation	Launchers	Year deployed	Warheads * yield (kilotons)	Total no. of warheads
ICBMs	SS-18-M6 Satan	RS-20V	50 (75)	1988	10* 500/800 (MIRVs)	**500** (750)
	SS-19-M3 Stiletto	RS-18	50 (100)	1980	6* 400 (MIRVs)	**300** (600)
	SS-25 Sickle	RS-12M Topol	120 (201)	1985	1* 800	**120** (201)
	SS-27-Mod1 (silo-based)	RS-12M2 Topol-M	51 (48)	1997	1* 800	**51** (48)
	SS-27-Mod1 (mobile)	RS-12M1 Topol-M	18 (6)	2006	1* 800	**18** (6)
	SS-27-Mod2	RS-24	6 (0)	2010	3* 400 (MIRVs)	**18** (0)
			295 (430)			**1 007** (1,605)
SLBMs	SS-N-18 M1 Stingray	RSM-50	4/64 (5/80)	1978	3* 50 (MIRVs)	**192** (240)
	SS-N-23 Skiff	R-29RM	1/16 (6/96)	1986	4* 100 (MIRVs)	**64** (384)
	SS-N-23 M1	RSM-54 Sineva	5/80 (2/32)	2007	4* 100 (MIRVs)	**320** (48)
	SS-N-32	RSM-56 Bulava	[1/16]	2011?	6* 100 (MIRVs)	[96]
			10/160 (11/176)			**576** (624)
Bombers	Bear H6	Tu-95 MS6	32 (32)	1984	6* AS-15A ALCMs or bombs	**192** (192)
	Bear H16	Tu-95 MS16	31 (32)	1984	16* AS-15A ALCMs or bombs	**496** (512)
	Blackjack	Tu-160	13 (15)	1987	12* AS-15B ALCMs, AS-16 SRAMs or bombs	**156** (180)
			76 (79)			**844** (884)
Total						**~2 430*** (~3 113)

Source: Kristensen, Hans M. and Norris, Robert S. (2011) 'Russian Nuclear Forces, 2011', *Bulletin of the Atomic Scientists*, Vol. 67, No. 3, May–June 2011, p. 68; and Norris, Robert S. and Kristensen, Hans M. (2008) 'Russian Nuclear Forces, 2008', *Bulletin of the Atomic Scientists*, Vol. 64, No. 2, May–June 2008, p. 55.

Note: Some additional 3 000 retired strategic warheads were estimated to be awaiting dismantlement in January 2011. This is the same number as for 2007, which indicates that dismantlement has kept the same pace as retirement of warheads during this period.

Abbreviations: ALCM = air-launched cruise missile; ICBM = intercontinental ballistic missile; MIRV = multiple independently targetable re-entry vehicle; SLBM = submarine-launched ballistic missile; SRAM = short-range attack missile.

Table 6-3 Russian sub-strategic nuclear forces 2010 (*2007 in brackets*)

	NATO designation	Russian designation	Launchers	Year	Warheads * yield (kilotons)	Total warheads
Air and ballistic missile defence SAM systems	SA-10 Grumble [SA-21 Growler]	S-300 [S-400]	1 900 (1 900)	1980 2007	1* low	**~630** (633)
	ABM-3 Gazelle	53T6	68 (68)	1986	1* 10	**68** (68)
	ABM-4 Gorgon	51T6	0 (32)	1989	1* 1 000	**0** (32)
Land-based aircraft	Backfire C Fencer [Fullback]	Tu-22M3 Su-24 [Su-34]	~682 (~524)	1983 1975 2010	ASMs, bombs	**~800** (648)
Ground-based Short-range ballistic missiles	[SS-21 Scarab B] [SS-26 Stone]	[Tochka-U] [Iskander]	? (0)	1989 2007	1* ?	**?** (0)
Naval Submarines, surface ships, air defence, aircraft					SLCMs, ASWs, SAMs, ASMs, depth bombs and torpedoes	**~590** (698)
Total						**~2 080*** (~2 079)

Source: Kristensen, Hans M. and Norris, Robert S. (2011) 'Russian Nuclear Forces, 2011', *Bulletin of the Atomic Scientists*, Vol. 67, No. 3, May–June 2011, pp. 68 and 72; and Norris, Robert S. and Kristensen, Hans M. (2008) 'Russian Nuclear Forces, 2008', *Bulletin of the Atomic Scientists*, Vol. 64, No. 2, May–June 2008, p. 55.
Note: An additional 3 310 sub-strategic nuclear warheads were estimated to be to awaiting dismantlement in January 2011.
Abbreviations: ASM = air-to-surface missile; ASW = anti-submarine weapon; SAM = surface-to-air missile; SLCM = submarine-launched cruise missile.

The fitness for military use of the nuclear weapons systems within the Navy and the Air Defence Forces has been questioned.[15] The attack-aircraft units of the Air Force nevertheless have a considerable number of sub-strategic warheads (see Table 6-3). Open-source information has also suggested that the Army still has tactical nuclear weapons, which has led nuclear weapons researchers to revise earlier assessments that they had been disposed of.[16] In 2011, it was stated on the website of the Defence Ministry that the Rocket Troops and Artillery, which form part of the Army, have nuclear weapons at their disposal.[17] By that is probably meant that the short-range missile units can be supplied with nuclear warheads. In sum, Russia probably has enough suitable sub-strategic nuclear weapons for them to be able to play a part in defence and security policy.

Nuclear weapons prioritised in the State Armament Programmes

Nuclear weapons have had priority in the State Armament Programmes, but the delivery of newly developed missiles and platforms has been slower than planned. Up to at least 2020, new deliveries will proceed more slowly than the phasing out of older systems. Certain successes have nevertheless been achieved during 2010–2011 within the framework of the 2015 State Armament Programme. In August 2011, the first regiment armed with the new mobile ICBM system

RS-24 Yars achieved combat readiness. This regiment consists of three battalions each with three missiles. The RS-24 is a version of the Topol-M which, after the expiry of START I, was fitted with multiple warheads.[18] Manufacture of the mobile version of the Topol-M has been discontinued in favour of the RS-24.

In June and August 2011, the first successful test firings of Bulava missiles (the fifteenth and sixteenth test firings) were carried out from the strategic submarine *Yurii Dolgorukii*. This submarine is the first of the new Borei class (Project 955) and the test constituted an important step, fielding an entirely new system.[19] The modernisation of the older Delta IV class submarine (Project 667BDRM) has been the only ship maintenance programme that has been adequately financed during the 2000s.[20] The priority given to strategic submarines is nevertheless regarded as having reduced the availability of escort vessels, which limits the survival capability of submarines in the event of war.[21]

As regards strategic heavy bombers, in 2008 delivery took place of a newly built Tu-160. During 2008–2010, approximately twelve more Tu-95MSs and four more Tu-160s were modernised, principally with direction-finding, navigation equipment and conventional weapon carrying-capability.[22] Development of the new advanced nuclear warhead-carrying cruise missile (Ch-102), which began during the 1990s, has still not been completed.[23] Shortages of necessary support systems, such as aerial refuelling, radar surveillance and remote combat aircraft, also limit the capability of the Long-Range Aviation.[24]

The 2020 State Armament Programme puts a high priority on nuclear systems. The new manufacture of up to 300 ICBMs (silo-based Topol-Ms and RS-24s) and SLBMs is planned, as is the continued modernisation of the strategic bombers. New acquisition of six further submarines in the Borei class is also planned; of these four will be in a modernised version. Possibly, a new heavy ICBM, with more warheads and a version of the Sineva SLBM with up to ten warheads, is being planned. Furthermore, a prototype for the next generation of strategic bombers (the PAK-DA) is being developed.[25] That is intended from the second half of the 2020s to replace the Tu-160 and Tu-95MS strategic bombers, as well as the long-range bomber Tu-22M3.[26]

The sub-strategic nuclear weapon arsenal will probably shrink, and several carrier systems are nearing the end of their service life.[27] However, newly developed systems linked to sub-strategic nuclear weapons are included in the latest State Armament Programmes. The Iskander short-range ballistic missile system began to be supplied to the Army during 2007 and it is possible that the missiles can carry nuclear warheads.[28] In early 2011, the missile brigade at Luga outside St Petersburg was armed with Iskander. The Navy is expected to be equipped with the attack submarine *Severodvinsk* of the Yasen class (Project 885) at the end of 2011. The submarine was launched in 2010 and sea trials were then started.[29] The *Severodvinsk* can also carry nuclear-armed cruise missiles intended for use against ground targets. Delivery to the Air Force of the Su-34 attack aircraft has begun, but at a slow pace. The Su-34 is intended to replace the Su-24 and to a certain extent also the Tu-22M3, and is regarded as a possible

candidate for the sub-strategic nuclear weapon role. The 2020 State Armament Programme comprises ten Iskander brigades (120 missile systems), up to 100 Su-34s and a further Yasen class attack submarine.[30]

Taken as a whole, the 2011 arsenal of strategic and sub-strategic nuclear weapons, together with planned acquisitions, satisfied the preconditions for a sufficient nuclear capability during the period up to 2020.

6.1.4 Nuclear weapon unit exercises

Exercise activities in the nuclear weapon units, as within the Armed Forces as a whole, have continued to increase in scope. This is a result of a continued rise in resource allocation. The more detailed scope of the nuclear weapon triad's exercises is not known.

Increases in exercise activities

The number of observed patrol missions with strategic submarines has increased from none or very few at the beginning of the 2000s (see Table 6-4). Readiness and the preconditions for maintaining second-strike capability have been improved as a result. With about ten missions per year, constant patrols can probably be maintained.[31]

The 'patrol flights' with the Tu-95MS and Tu-160, which were resumed during 2007, have continued. A score of air operations have been carried out annually over the Pacific, North Atlantic and Arctic oceans, chiefly along Soviet-period routes. Strategic bombers have also appeared over the Indian Ocean and visited Venezuela during 2009. The exercises do improve the capability of the personnel to conduct long-range air missions, but the purpose is probably primarily political: to show a Russian presence in the northern hemisphere. American, British, Norwegian, Canadian and Japanese fighters responded and carried out scrambling missions.[32]

Sub-strategic nuclear weapons have been included in operational-strategic exercise scenarios. A NATO assessment is that the Zapad-2009 exercise in western Russia may have included simulated operations with sub-strategic nuclear-armed missiles.[33] According to a Russian newspaper, the final phase of the Vostok-2010 exercise in eastern Russia included the simulated use of a nuclear mine.[34] Here it should be noted that an earlier exercise of a similar kind, Zapad-1999, concluded with the simulated use of a single nuclear-armed cruise missile to halt a superior NATO attack.[35] The inclusion of nuclear weapons in the scenario for these large-scale exercises suggests some Russian anxiety about the adequacy of their conventional forces.

Table 6-4 Russian ballistic missile submarine deterrent patrol missions 2006–2010

	2006	2007	2008	2009	2010
Number of missions	4	7	10	9	7

Source: Kristensen, Hans M. and Norris, Robert S. (2011) 'Russian Nuclear Forces, 2011', *Bulletin of the Atomic Scientists*, Vol. 67, No. 3, May–June 2011, p. 71; Norris, Robert S. and Kristensen, Hans M. (2009) 'Russian Nuclear Forces, 2009', *Bulletin of the Atomic Scientists*, Vol. 65, No. 3, May–June 2009, p. 59; and Norris, Robert S. and Kristensen, Hans M. (2008) 'Russian Nuclear Forces, 2008', *Bulletin of the Atomic Scientists*, Vol. 64, No. 2, May–June 2008, p. 57.

6.1.5 Strategic early warning

The strategic early-warning system was formerly part of the Space Forces, a Branch of Arm in its own right within the Armed Forces. On 1 December 2011 a new independent Arm, the Aerospace Defence Forces, was established on the basis of the Space Forces. Until 2016 the air defence units of the Air Force are to be integrated in the new organisation, making it significantly larger (see Chapter 5, Section 5.2.4, p. 115). Probably all military-strategic defence systems will be included in the new organisation. They include, in addition to the early-warning system, the ballistic missile defence around Moscow, the space surveillance system and the anti-satellite system, which were all under the Space Forces 3rd Space and Missile Defence Army. A new uniform command and control system, including for the early-warning system, is also to be introduced.[36]

The early-warning system is being improved

The task of the strategic early-warning system is to detect incoming ballistic missiles and it consists primarily of satellites and ground-based radar and observation sites. The satellite system was long inadequate, which increased the risk that Russia would perceive a peaceful rocket launch as a nuclear attack. The addition of two further satellites during 2008 and 2010 has improved the situation. Since the autumn of 2010, Russia has had coverage of the territory of the US virtually round the clock. On the other hand, there is no capability to detect space launches from other areas.[37]

The ground-based radar systems within the early-warning system consist of nine radar stations, five of which are sited outside the territory of Russia. Modernisation, by transition to Voronezh-type radar stations, began in 2006 and has continued. In addition to the stations in Leechtusi (east of St. Petersburg) and Armavir (near the Black Sea), a Voronezh radar is under construction in the Kaliningrad Oblast and possibly two in Mishelevka (near Lake Baikal). Another is planned at Barnaul (south of Novosibirsk).[38] Taken as a whole, the introduction of Voronezh stations will improve Russia's capability to detect both ballistic and cruise missiles.

The early-warning system, like the Space Forces as a whole, enjoyed priority in the 2015 State Armament Programme and has a prominent place in the 2020 Armament Programme. A further early-warning satellite and two Voronezh radarstations are included in the latter.[39]

6.2 Compliance with the Chemical Weapons Convention and the destruction of chemical weapons

Russia has been a party to the CWC since 1997. In 2011, there were 188 parties, while five states remained outside the convention.[40] As of 30 May 2011, Russia had destroyed more than 50 per cent, or 20 018 tons, of its stored chemical weapons (CW).[41] The US and Russia have the biggest stockpiles and destruction has proved to be technically more difficult and more expensive than expected.

Gaps in Russia's chemical weapon declarations

In 2010 it was the assessment of the US that Russian declarations of its chemical weapons had been incomplete as regards chemical materials and stockpiled weapons. There were also additional sites that Russia should possibly have declared.[42] Russia, in its declaration, criticised the US for not observing the terms it had itself defined when signing the convention. The US was also criticised for shortcomings in its information about the CW it had found and destroyed in Iraq.[43]

As regards chemical defence research and development (R&D) conducted in 2011, little apart from the main directions is known, but there were no major changes. The areas of activities have been adapted to take into account the threat from the possible use of chemical warfare agents by terrorists. Within the CWC framework, R&D programmes in chemical defence have of course been declared, but the declaration is not detailed. There is still uncertainty about their direction and overall extent and about whether activities are going on that could be challenged under the convention on the grounds of inadequate transparency. One such area is gases for law enforcement purposes, or 'riot control agents', which were used during the hostage drama at the Duvbrovka Theatre in Moscow in 2002, and some spraying equipment, namely grenade launchers and aerial bombs, which can be questioned if they are for law enforcement purposes only – as the convention allows.[44]

In 2008 it seemed unlikely that Russia would succeed in destroying all its chemical weapons by 2012.[45] And in 2011 Russia requested an extension of the time limit, to 2015. Since then, good progress has been made in the destruction work. FOI also noted in 2009 that there were shortcomings as regards transparency and credibility in the Russian attitude to the CW area, and no change has taken place here.[46]

In 2011, stockpiles of chemical weapons remained at five sites in Russia: Kizner (Udmurtia), Maradikovskii (Kirov), Pochep (Briansk Oblast), Leonidovka (Penza Oblast) and Shchuchye (Kurgan Oblast). Destruction had been completed at Kambarka (Udmurtia) and Gornii (Saratov Oblast). At the destruction site

at Pochep, destruction was started in 2010 of 7 498 tons of nerve gas (18.8 per cent of Russia's declared chemical weapons, including bombers with nerve gas). Destruction began in Shchuchye in 2009.[47] The start of destruction at the site in Kizner was postponed to 2013 because of the economic crisis in 2011.[48] In 2011, destruction of bombs with nerve gas agent was begun at the sites in Maradikovskii. Security at the Russian stockpiles is considered to be satisfactory and measures have been taken to improve it. Since 2007, the rate of implementation of destruction of CW has increased.[49]

Russia has destroyed 50 per cent of its chemical weapons

Although Russia has destroyed more than 50 per cent of its stockpiled chemical weapons, there remain severe problems in removing the chemical agent from certain types of ammunition and subsequently destroying them. The stipulated time limit by which destruction was to be concluded was 9 April 2007, but this deadline was extended, for both the US and Russia, by a maximum of five years to 29 April 2012.[50] Russia was also unable to observe that deadline and requested a further extension, to 2015.[51] It is now conducting the fourth and final stage of destruction in the period up to 2015.[52]

During his previous term as president, Vladimir Putin stated that one of Russia's most important international tasks was to carry out its undertakings under the CWC. At the same time he emphasised the importance of other parties, in plain language the US, fulfilling their obligations, particularly since the convention does not permit any postponement of the deadline for destruction. The whole Russian destruction programme will cost USD 9 billion.[53] Several forums have been established to coordinate the foreign aid from donor countries. Regular meetings take place within the Group of Eight (G8)'s Global Partnership against the Spread of Materials and Weapons of Mass Destruction and reports are presented there about destruction work.[54]

Chemical weapons in 2015

It is difficult but not impossible for Russia to achieve the target of complete destruction by 2015. As regards the US, however, it is said that destruction will not be completed before 2021 at the earliest. It may be assumed that if the US continues destruction after 2015, Russia will also do so. There are two important factors here, the first being domestic political developments and the other the rate of destruction of the large quantity of artillery pieces with chemical warfare agent. This entails technical challenges. Another aspect is how the Organisation for the Prohibition of Chemical Weapons (OPCW) in The Hague will handle a postponement of the final deadline, possibly to after 2015, and whether that will be interpreted as a purely technical question or as a breach of the terms of the convention.

In August 2011, the US had destroyed 89 per cent of its CW stockpile and the VX nerve gas at the Blue Grass Army Depot remained to be destroyed by 2021. It is reasonable to assume that there is a link between the two countries, without forgetting that there are real technical problems for both of them. If Russia and the US do not succeed in complete destruction by 2015, much will depend on how this is perceived politically and how the member states choose to handle the question. It is considered important for the credibility of the convention and

its implementation to persuade both Russia and the US to continue to work actively and constructively on the destruction of chemical weapons and for the OPCW to continue to follow the work.

6.3 Compliance with the Biological and Toxin Weapons Convention

The Russian view of the BTWC

In 2011 a total of 165 states were parties to the 1972 BTWC and a further twelve states had signed the convention but not yet ratified it. A total of eighteen states are still outside the convention.[55] In 2011, regular negotiations to strengthen the convention with some form of verification or control mechanism seemed to be a distant prospect. The parties instead worked to increase the number of parties to the convention by persuasion, by reinforcing the national legislation of individual states to fulfil their obligations under the convention, and to re-examine control of infectious disease agents.[56] The Seventh Review Conference of the Convention was held in December 2011. At the previous Review Conference in 2006, Russian documentation on technological developments emphasised the rapid development taking place within biotechnology and the risk that genetically modified biological weapons (BW) will come into use.[57] One challenge for the BTWC and the CWC is that the rapid technological developments in synthetic biology mean that the dividing line between the sectors of the two conventions regarding implementation is becoming increasingly blurred.

At expert and signatory meetings within the convention in 2010, there was discussion about how alleged use of biological weapons should be handled. The Russian side maintained that the UN secretary-general's mechanism[58] for investigating alleged use of biological or chemical weapons only extends to the BTWC, the CWC and the Geneva Protocol of 1925[59] and only applies to states if they use such weapons. The Russian disarmament ambassador pointed out in 2010 in a speech to the parties to the BTWC that the mechanism could only be used if a state suspects the use of biological weapons against its own territory, that is to say, a state party could not invoke the mechanism on suspicion of use in another state. The reason for this standpoint was to avoid abuse of the secretary-general's mechanism.[60] In another statement the ambassador repeated that Russia wished to resume negotiations about a verification protocol to the BTWC.[61] At the Seventh Review Conference in 2011, Russia declared that it was observing all its obligations under the convention and that no activity was being conducted in contravention of it.[62] The Russian disarmament ambassador pointed to the importance for the BTWC of effective international control and verification.[63] In connection with discussions within the framework of the convention about the utility of ethical codes to prevent breaches of the convention, he explained that ethical codes for researchers within the military BW defence research programme were not necessary in Russia.[64]

In an earlier Russian official document about non-proliferation it was emphasised that, because there was no reliable information about states having discontinued their former BW programmes, and because a number of states have still not

joined the BTWC, the biological threat seemed to be of particular concern as regards internal conflict within states. Two disturbing aspects, according to this document, were the existence of covert military BW programmes and the difficulty of distinguishing between offensive and defensive R&D. Another issue was that many states lacked adequate security for their biological facilities and effective export controls on equipment and infectious disease agents.[65] Russia once again tried in 2010 to become a member of the Australia Group export control regime, but certain states still opposed this. In general, it can be noted that there have been no changes in the Russian position on the work connected with the BTWC during the last five years and that it is not likely that there will be any major changes within a ten-year period.

Uncertainty about activity in contravention of the BTWC

During the 1980s, information emerged through a defector that the Soviet Union was continuing to develop biological weapons, in breach of the BTWC. It was not until 1992 that then President Boris Yeltsin acknowledged that the Soviet Union had not observed the requirements of the BTWC and also announced that activity that conflicted with the convention would be discontinued.[66]

As regards Russian compliance with the BTWC, it was the US's assessment in 2011 that biological research was being carried out in dual-use areas, but it was uncertain whether it contravened the obligations included in the convention.[67] There was also still some uncertainty as to whether the terms of the BTWC had been met as regards the BW programme that had been inherited from the Soviet Union, as well as the requirements for the destruction or transfer to peaceful uses of former biological weapons, material or activity.[68] This differed little from the Russian assessment in 2010.

In August 2010, the Russian Ministry for Foreign Affairs presented its assessment of how far the US was observing its obligations under the disarmament and non-proliferation treaties. It stated that the US belittled the importance of the BTWC and was conducting questionable biological defence research, including experimental threat assessments with genetically modified organisms, as well as omitting elements from its declaration within the framework of the BTWC's confidence-building measures.[69] In September 2011, the Russian Ministry for Foreign Affairs handed over a response to the US's document of 2011. It pointed out that all questions as regards observance of the convention's obligations that had been put forward by the American side could have been cleared up if the US had not put a stop to ten years of negotiations to create a verification regime under the BTWC.[70]

As Russian president in the early 2000s, Putin indicated that terrorism was a reality and a genuine threat.[71] Special programmes to improve and develop biological defence methods against bio-terrorism had thus been implemented. Furthermore, in 2010 the Russian disarmament ambassador, Valerii Loshchinin, pointed out that Russia had legislation and administrative routines for the full implementation of the BTWC and was supporting states in the region, including within the Commonwealth of Independent States (CIS), in their work related to meeting their obligations under the convention.[72]

Uncertainty about activity in contravention of the BTWC

The Russian biological weapons defence programme within the framework of the Ministry of Defence was carried out in 2011 by the Institute for Microbiology at three sites, at Kirov, Sergiev Posad and Yekaterinburg. The programme was still the second largest in the world after the American programme. The number of people involved in it had not greatly changed and remained about 2 500.[73] As in other countries, defence-related R&D is carried out in biotechnology that deals with detectors for chemical and biological warfare agents or seeks to develop a defence against particularly dangerous infectious diseases or chemical agents. A special 2009–2013 programme for biological and chemical security was adopted in 2008 with a budget of RUR 28.7 billion. It included the modernisation and reconstruction of thirty chemical and biological facilities and the setting up of twelve educational centres.[74]

Information about Russian R&D in the period 2010–2011 devoted to defence against biological weapons and bio-terrorism is still very sparse. It is based primarily on the information that Russia submits annually through the agreed confidence-building information exchange within the BTWC. It may also be noted that very little has been published in the Russian-language literature about the biological defence research that has been carried out in Russia.

In early 2011, there was again discussion about the World Health Organization (WHO) taking a decision during the spring of that year on the destruction of all stored smallpox virus specimens. These are held only at one establishment in Russia, Vektor in Novosibirsk, and at the Center for Disease Control in Atlanta in the US. Smallpox had been declared eradicated as early as 1980 and since then the US and Russia have stated that there is a need for continued research to produce an improved vaccine.[75] On the basis of a report by an expert group, the WHO Executive Council gave its support in 2011 for continued research. The WHO decided to postpone the discussion on establishing a final date for destruction of the specimens for three years – until 2014 – when both the US and Russia opposed destruction.[76]

6.3.1 International support programmes

The purpose of the international support programmes that were initiated in the early 1990s was to redirect former weapons scientists into alternative civilian activities, to provide funders with an increased insight into biological, chemical and nuclear-related research, to prevent the disappearance of equipment and to improve security at facilities. Coordination took place mainly within the G8 Global Partnership.[77] The biological area was particularly sensitive and Russia consistently opposed its inclusion on the non-proliferation agenda at the G8 summits. Had the matter been discussed, it could have been seen to imply a Russian admission that there had been a BW programme and that its facilities and research staff needed to be converted to civilian activities.

During the more than fifteen years that have elapsed since these support programmes began, great efforts have been made as regards security in the nuclear area and the destruction of old chemical weapons. In the biological

area, much has been done within the former Soviet republics, with which good cooperation was established, whereas it was much more difficult to make much progress in Russia. One reason is that Russia has long been unwilling to admit or declare its Soviet-era activity as regards the extensive programme for the development of biological weapons.[78] Within the framework of a Joint Action, the European Union (EU) has continued to support work on improving safety and security at biological facilities in Russia.[79] There is nothing to suggest any greater transparency on the Russian side, indeed rather the contrary. This also explains why in BTWC confidence-building information exchange Russia has never submitted a satisfactory declaration of the earlier biological defence activity, and has omitted former weapons-related activities and described only defence research.

Russia withdraws from the cooperation within the framework of the ISTC

To facilitate international research cooperation and to channel support for it, two international centres were created, the International Science and Technology Centre (ISTC) and the Science and Technology Centre Ukraine (STCU). The support that has been given through these centres has been of great importance to Russian researchers.[80] During 2010–2011, these support programmes were reappraised and discussion took place on what role, if any, the international organisations – the ISTC and STCU – should have in the future. The EU carried out an analysis of the organisations and decided to reduce its financial support for this work in future. Russia has decided to leave the ISTC in 2015 and all parties to it will be informed six months in advance.[81] Approximately 60 per cent of the work in the ISTC has concerned Russia. The European Commission requested consultations in the light of the Russian decision.[82] Without Russia's cooperation with the ISTC, there will in future be diminishing insight into Russian biological and chemical research and development.

6.4 Weapons of mass destruction in a ten-year perspective

What is the situation as regards weapons of mass destruction in Russia in a ten-year perspective? What role do nuclear weapons play in Russian policy and how will Russian nuclear weapons and defence capability develop? What developments are taking place in Russia's military defence capability against chemical and biological weapons? What are the prospects that Russia will fulfil its obligations on the destruction of chemical weapons?

Nuclear weapons have played an important part in Russian security and defence policy. This is true for both strategic and sub-strategic weapons. Moreover, nuclear weapons, primarily strategic weapons, have played a part in foreign and domestic policy. These weapons systems have been of greater importance to Russia than could be inferred from a reading of published official documents.

The driving forces that shape the Russian view of nuclear weapons pull Russia in different directions. In 2011 the forces in favour of keeping the status quo seemed to be the strongest. This is primarily a matter of the military and defence industry establishment's conservative view of nuclear weapons and the political leadership's endeavour to retain power. Driving forces for change, such

as international arms control and military technological developments in the outside world, and economic developments in Russia, may lead to a revision of the view of nuclear weapons towards the end of the 2010s. Developments as regards NATO's missile defence will be important in this context.[83]

The dependence on nuclear weapons will remain

Russia will continue to be highly dependent on nuclear weapons. Given its inadequate conventional military capability, nuclear weapons, especially sub-strategic weapons, are important for national defence. Russia will probably also continue to rely largely on nuclear weapons in its ambition to be the regional great power to be reckoned with in international politics.

A sufficient nuclear capability will be maintained

The Armed Forces can maintain a sufficient nuclear capability up to 2020, even though the nuclear arsenal will be reduced as older systems are phased out. The manufacture and development of new strategic and potential sub-strategic launchers for all branches of the Armed Forces as well as training activity have increased.

Strategic warheads are now relatively evenly distributed among the three elements of the nuclear triad. The Strategic Missile Forces continue to constitute the backbone of the triad, since they can sustain a higher state of readiness than the other elements. Increased patrols with submarines and continuing delivery of Bulava-armed Borei class submarines may eventually reduce the dominance of the ground component, in particular if the delivery of new ground-based missiles is protracted.

The fall in sheer numbers of warheads means that the need for mobile platforms increases in order to maintain a credible second-strike capability. It is almost completely dependent on the strategic submarines, but it is doubtful whether the somewhat increased frequency of patrols is adequate. On the other hand, Russia can be said to have a credible ability to establish a second-strike capability when the arsenals of the Long-Range Aviation and the submarine fleet are taken into account.

As regards sub-strategic nuclear weapons, Russian attack aircraft and short-range ballistic missile units are probably adequate for their weapons also to be able to play a part in Russian defence and security policy up to 2020.

In summary, this means that Russia will continue to have the capability to maintain strategic deterrence and to defend itself against military attack with the aid of nuclear weapons. There continue to be deficiencies in the strategic early-warning system, but these are gradually being dealt with. A doubtful second-strike capability means that strategic readiness remains low. As was the case in 2008, nuclear tensions are currently sufficiently low for this not to constitute a problem.[84]

Defence capabilities against biological and chemical weapons

In international comparison, Russia's military capabilities to defend itself against chemical and biological weapons must be regarded as good, both now and in a longer-term perspective. Defence research will probably be reinforced

somewhat, thanks to increased defence budgets. There are no signs, either in the long or in the short term, of increased transparency in the biological and chemical sectors. In 2011, there were still problems regarding the credibility of the Russian attitudes in the field of biological defence research. Over a ten-year period, the number of personnel with direct knowledge and involvement in the former biological and chemical weapons programmes will fall as people age. It will not be easier to attract promising young research talent to defence research in competition with a more developed and successful civilian research and development, and industrial activity.

There are official assurances that all chemical weapons will be destroyed by 2015, which will be difficult but not impossible. Since the US will not manage to destroy its weapons by 2015, delays can also be expected from the Russian side. There is nothing to indicate that destruction will be halted in the future and for that reason all declared chemical weapons will probably have been destroyed within the next ten years.

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