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Russia's rearmament programme

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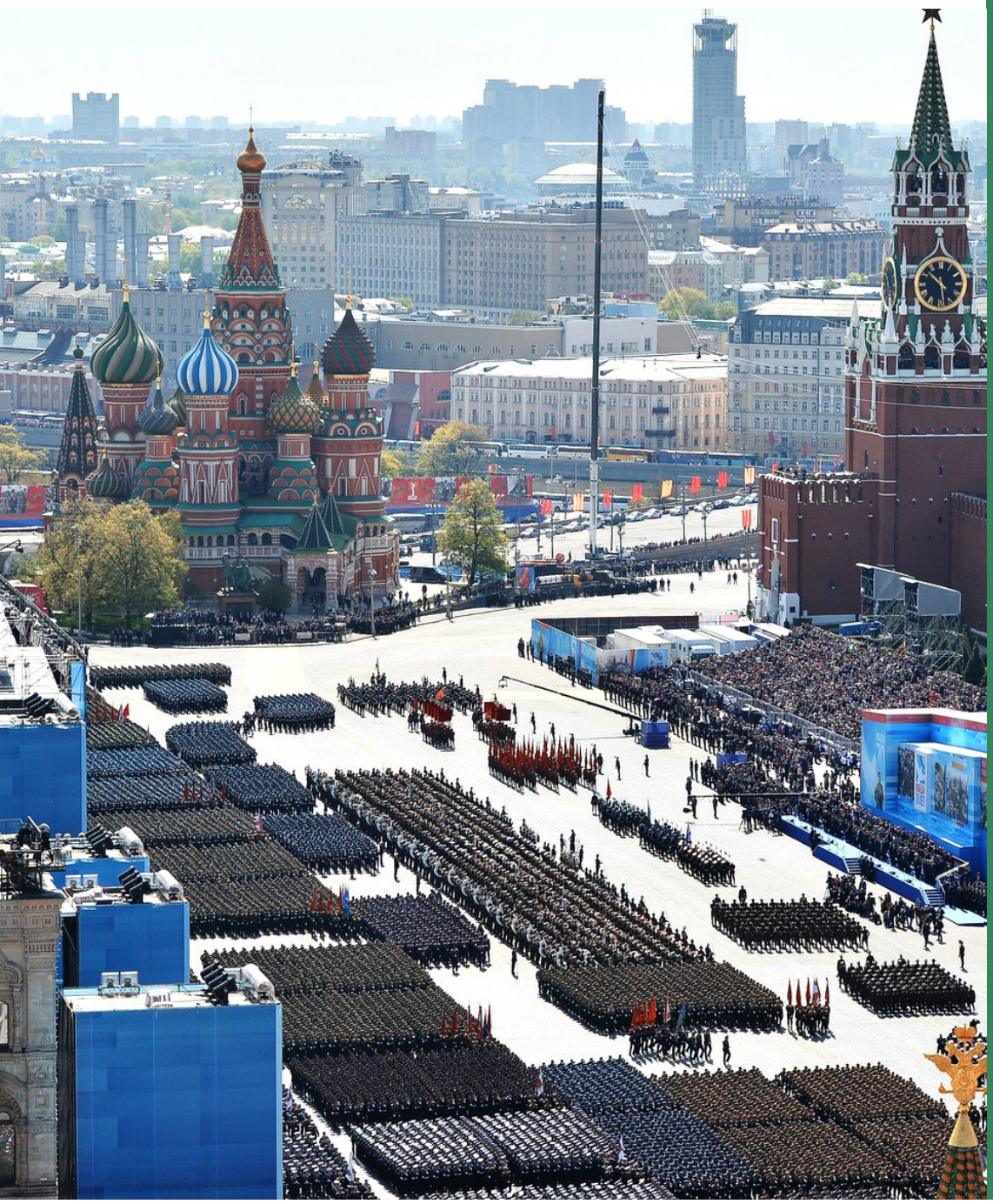

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Summary

The decline of the Russian military during the 1990s was regarded as a natural consequence of the fall of the Soviet Union, a crippled Russian economy and a political leadership searching for identity. Many of Russia's military assets were allowed to fall into disrepair; while the modernisation of capabilities, or attempts at reform, were minimal. Of what military industry remained in Russia, inefficiency and corruption were rife and it suffered from over-capacity and a lack of research and development investment in advanced weapons systems.

Vladimir Putin's election as President in 2000 precipitated a fundamental shift in Russian society, its politics, its economy and ultimately within its military. Under his leadership there has been a revival of national self-confidence and pride, a renewed sense of strategic entitlement with regard to Russia's 'near abroad', and belief in Russia's right to be a great power globally. The military, and in particular its strategic nuclear deterrent, has consistently been viewed as the ultimate symbol of that status. An extensive rearmament programme has been the consequence.

Russian defence expenditure since 2001

In the early years of Putin's Presidency a buoyant Russian economy, due in large part to high oil and gas prices, resulted in large real terms increases for defence.

The 2008 global economic crisis did precipitate a reduction in defence spending, although this proved to be short-lived and the upward trajectory in defence spending continued after 2009. By 2015 the Russian defence budget was R3.1 trillion (4.2% of GDP). More than triple that of a decade earlier.

Increasing economic uncertainty in 2016 resulted in a 2% fall in the defence budget to R3 trillion. However, the Russian government pledged that the State Armament Plan (SAP) would be protected from cuts. For now the Kremlin appears committed to the modernisation of its military forces, regardless of its economic situation.

Programme of military modernisation

In the early years Putin's modernisation agenda focused on increasing the professionalisation of the armed forces and improving the terms and conditions of personnel. The Putin administration also pushed for reform and consolidation within the military-industrial complex, which had suffered in the post-Soviet period. The majority of funding for rearmament was channelled into research and development, as opposed to the acquisition of new capabilities.

- **State Armament Plan 2007-2015**

In 2007 the Russian government set out its rearmament agenda. It outlined plans to spend approximately R5 trillion on a weapons modernisation programme that would replace 45% of its entire arsenal by 2015. 70% of that funding would be spent on the procurement of new capabilities and the maintenance of existing assets, while the remaining 30% would be earmarked for military research and development.

Russia's nuclear triad was one of the biggest beneficiaries of this ambitious modernisation programme, along with the Russian navy. The aim was to achieve "the world's second largest [navy] by 2027". Efforts to revitalise the Russian shipbuilding industry were considered fundamental to this plan.

- **2008 programme of military reform**

In October 2008 the government announced a wide ranging programme of military reform which was intended to establish a more efficient and combat ready forces by 2020. As part of that plan the rearmament programme was to be speeded up. Enabled by large real term increases in the defence budget, the objective was to achieve a level of advanced weaponry equating to 30% of Russia's total military assets by 2015 and 70% by 2020. Russia's strategic nuclear forces, the revitalisation of the Navy and addressing the capability weaknesses identified by the Georgia conflict were identified as priorities.

- **State Armament Plan 2011-2020**

In 2011 a new plan for the period 2011-2020 was announced. Building on the previous State Armament Programme, it allocated R19 trillion over the entire period, an almost four-fold increase on the previous armament plan. The aim of bringing the level of advanced weaponry to 70% by 2020 was still a key objective, with nuclear forces and the Russian Navy the largest recipients. The significant levels of additional spending, however, allowed the rearmament plan to be expanded.

Progress against the State Armament Plan

While the priorities of the State Armament Plan have not radically altered over the last decade, arguably the pace of rearmament has not, in reality, reflected aspirations.

The overriding conclusion of many analysts is that the rearmament programme is unlikely to achieve all of its goals within its stated timeframe of 2020. However, it has also been acknowledged that there is no accepted definition of "modern" technologies and Russia may simply move the goalposts in order to achieve its goals.

- **Complicating issues**

The pace of rearmament has been affected by a number of factors:

  - The longstanding inability of the military-industrial complex to meet the demands of the rearmament programme, particularly in the shipbuilding sector.
  - The impact of defence inflation and corruption on a defence budget already affected by low oil prices and an unpredictable economy.
  - The imposition of sanctions following Russia's annexation of Crimea in 2014 which has impacted Russia's ability to source Western hardware and components. Ukraine had previously also been a major supplier to the Russian armed forces, playing a significant role in the manufacture of transport aircraft, power propulsion units for ships and strategic missiles.

A programme of import substitution measures, aimed at offsetting the impact of Western sanctions, was adopted by the Military-Industrial Commission in May 2014. The cost of the programme has not been revealed but its aim is to substitute 90% of components that were previously sourced from NATO and EU countries, by 2018.

- **How far has rearmament progressed?**

Given the problems in defence budgeting and the domestic military-industrial complex, it is only within the last few years that the rearmament programme is considered to have begun showing tangible results.

In December 2015 the Russian Defence Ministry suggested its target of 30% modernised weaponry by 2015 had been met. By December 2016, 58.3% of Russian military equipment was categorised as modern.

Nuclear forces - In December 2016 Russia's nuclear forces were equipped with 60% modern armaments. In the last decade Soviet-era ICBM have gradually been phased out and replaced with the Topol-M ICBM and the RS-24 Yars ICBM which has MIRV (multiple target) capability. While 57% of ICBM remain Soviet-era capabilities, estimates have put delivery of the Topol-M and RS-24 Yars ICBM at 40 per year. The replacement programme is thus scheduled for completion by 2022. A new rail-based ICBM, has reportedly been delayed until at least 2020 due to budgetary pressures.

Modernisation of the Russian Navy's SSBN fleet has also been a priority since 2008. Acquisition of a new class of 8-10 SSBN, equipped with a new submarine-launched ballistic missile, is currently ongoing. The programme is several years behind schedule, however, due to initial problems with the missile system. Three *Borei* class SSBN had subsequently entered service by early 2016. The remaining SSBN of the class are expected to have some modifications and have been designated the *Borei-A*. The programme is expected to be completed in the mid-late 2020s.

Modernisation of the Tu-160 and Tu-95 strategic bomber fleet is also currently underway which will allow them to remain in service until the late 2020s-early 2030s.

Revitalisation of the Navy - Alongside the refurbishment and modernisation of legacy platforms, the aspiration is to achieve a new general purpose force comprising 50 major surface ships (including six aircraft carrier), and a fleet of 20 multi-purpose submarines. 50% of the Navy's allocation of funding under the SAP 2011-2020 was intended for new construction.

Yet, it is widely acknowledged that the Navy's modernisation ambitions will take time to come to fruition. The naval shipbuilding industry has suffered from years of neglect and under investment; while the Ukraine crisis and the imposition of sanctions is starting to have an effect. The refurbishment of existing naval vessels is progressing, albeit at a slower, and more expensive, pace than originally envisaged. Although several new frigates, corvettes and submarines have already entered service, delivery of new vessels is behind schedule.

The timeframe for the aircraft carrier programme has also proven to be completely unrealistic. Despite initial suggestions work on the future carrier programme is yet to start. Design work is now expected to be completed by 2020, with construction and entry into service planned for 2021-2030.

In December 2016 the Minister for Defence suggested that the level of modern armaments in the naval fleet was 47%.

Aerospace Forces - In December 2016 modern equipment in the Aerospace Force was estimated to account for 66% of assets, a rise of 14% on the previous year. Priorities have been the delivery of new and modernised aircraft and the equipping of missile defence regiments with the S-400 missile defence system.

Effort to modernise Russia's fast jet capabilities have centred round the large scale procurement of tactical aircraft such as the Su-30, Su-34 and Su-35, and the development of a fifth generation fighter, the T-50, which is intended to be a competitor to the US F-22 Raptor and the F-35. That programme is behind schedule due to problems in the aircraft's development and testing programme. It is now expected to be accepted into service in 2017, with deliveries of the aircraft commencing in 2018. However, only 12 aircraft of the planned 56 are expected to be procured by 2020.

In the last five years Russia has also made huge leaps in unmanned technologies. In 2011 Russia possessed only 180 UAV systems. That figure now stands at 2,000. The majority of

those platforms have been assigned to land and airborne forces with Aerospace Force capabilities limited to intelligence, surveillance and reconnaissance. It currently has no combat UAV capability, although €9 billion has been earmarked for combat UAV programmes by 2020.

Ground forces- Modernisation of Russian ground forces in the last few years has largely focused on organisational changes and efforts to increase readiness, professionalisation, manning and leadership. As a result there has been little qualitative or quantitative improvement to equipment. Significant progress in these other areas has, however, allowed for a change in tactics, most recently demonstrated by Russia's 'hybrid' operation in Ukraine in 2014.

Much of the 'modernised' equipment that the Army has received has been upgraded versions of older models. In December 2016 approximately 42% of assets operated by Russian ground forces were considered to be modern. However, a number of substantial upgrade and acquisition programmes are now starting to come to fruition, and in particular with regard to armoured fighting vehicles. Russia aims to reduce the number of variants in service and field an entirely new generation of armoured fighting vehicles, including new tanks, within the timeframe of the SAP.

Looking forward – the State Armament Plan 2018-2025

The next State Armament Plan had been expected to cover the period 2016-2025. Given the ongoing uncertainty in Russia's economy, it is now expected to be published in 2017 and will cover the period 2018 to 2025.

- **Defence expenditure**

The Russian Ministry of Defence has requested approximately R24 trillion for its 2018-2025 State Armament Plan. That funding is currently under negotiation, however, as the Ministry of Finance seeks to make 12% cuts in government spending by 2018.

Given President Putin's commitment to rearmament it is widely expected that funding for the SAP will be ring fenced within the context of these cuts, however, and that the MOD will receive the majority of its funding request.

- **Expectations for the 2018-2025 SAP**

The SAP has always been regarded as ambitious, given Russia's prevailing economic and domestic circumstances, and expectations for SAP 2018-2025 are no different. The current SAP has already seen many programmes delayed or scaled down and this trend is expected to continue. Should the reality fail to match aspirations, the predominance of nuclear forces is deemed likely to continue and the question then becomes which conventional programmes or areas of capability will be prioritised?

Nuclear forces- The modernisation of Russia's nuclear forces has long been identified as a priority within the SAP and that is not expected to change. Beyond existing upgrade and rearmament programmes work has already begun on a next generation long-range strategic nuclear bomber (PAK-DA). A prototype is expected in the early 2020s, with production scheduled to begin in 2023 and entry into service around 2030.

However, suggestions that the Ministry of Defence could re-establish the Tu-160 production line has led many to speculate over the future of the PAK-DA programme and whether, given its expense, the Ministry of Defence will be forced prioritise one of the two programmes. Given the importance of nuclear forces in Russian strategic thinking, others have argued that the air force's nuclear programmes are more likely to stay intact, albeit

delayed, at the expense of conventional air force projects such as the T-50 future combat aircraft.

Further vessels of the *Borei-A* class SSBN are expected within the 2020-2030 timeframe. Work is also expected to begin post-2020 on a fifth-generation SSBN, and equivalent SLBM. Production and entry into service of that next generation SSBN has been earmarked for 2031-2050.

Navy next steps - Revitalisation of the Navy has been a key priority in the last two SAP and, thus far, there has been little indication that this will change. Construction of a new destroyer with advanced strike, air defence and missile defence capabilities and a new fleet of multi-role combat ships have been identified as priorities in the 2021-2030 timeframe. Russia has also recently indicated its intent to construct its own amphibious assault ships, after the French Mistral programme was cancelled in 2015.

Construction on a new fifth-generation multi-purpose submarine is also expected to begin in the next few years. Equipped with an air independent propulsion system, these new submarines will be capable of submerging for weeks at a time and will be much stealthier than existing submarines in the Russian fleet.

Whether the Navy will sustain its current level of funding, however, has started to be questioned by many commentators.

Aerospace Force - Serious delays in the T-50 future combat aircraft programme have already led to speculation that the full complement of aircraft will not be achieved within the 2020 timeframe. Over the period of the next SAP the scope of the programme could feasibly be scaled back, particularly if the decision is taken to prioritise the strategic role.

Ground forces - The main task for the next SAP is to continue the roll-out of the armoured fighting vehicles replacement programme. Production of the new T-14 main battle tank has been extended out to 2025; while other variants of AFV, based on the Armata platform, are also expected to be prioritised. Mass production of the T-15 heavy infantry fighting vehicle will continue; the Kurganets system is expected to enter production in 2019; while large-scale delivery of the Bumerang is scheduled to begin at the same time, ensuring that all of these new armoured vehicle programmes continue well into the next decade.

1. Background

The decline of the Russian military during the 1990s was regarded as a natural consequence of the fall of the Soviet Union, a crippled Russian economy and a political leadership searching for identity. Many of Russia's military assets were allowed to fall into disrepair; while the modernisation of capabilities, or attempts at reform, were minimal. Of what military industry remained in Russia, inefficiency and corruption were rife and it suffered from over-capacity and a lack of research and development investment in advanced weapons systems. The result was a military-industrial complex incapable, with the exception of some niche areas such as air defence missile systems, to keep pace with the technological change witnessed in the west and indeed in other countries such as China who were increasingly embracing what has been termed the "revolution in military affairs".[1] As many analysts noted Russia had become adept at developing prototype advanced capabilities such as next generation fighter aircraft and unmanned aerial vehicles but the ability of industry to mass produce those capabilities was severely lacking. Consequently, Russia's military capability was dominated by increasingly ageing and obsolete equipment which led to a reliance on Russia's nuclear deterrent as a means of power projection and of offsetting its conventional military weaknesses, despite apparent weaknesses of its own.[2]

The election of Vladimir Putin as President in 2000 precipitated a fundamental shift in Russian society, its politics, its economy and ultimately within its military. Putin once lamented that the collapse of the Soviet Union was the greatest geopolitical disaster in history. Subsequently under his leadership, and briefly that of President Dmitry Medvedev,[3] Russia has, over the last 15 years, sought to carve out its place in the world. As reflected in Russia's 2014 *Military Doctrine,*[4] and 2015 *National Security Strategy*,[5] there has been a revival of national self-confidence and pride, a renewed sense of strategic entitlement with regard to Russia's 'near abroad', and belief in Russia's right to be a great power globally. The military, and in particular its strategic nuclear

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1 A discussion of RMA and its impact is set out in Library Research Paper, RP08/58, *British defence policy since 1997: background issues*, 27 June 2008

2 Russia's nuclear forces did not escape the military decline of the post-Soviet years. Many of Russia's nuclear weapons and their delivery systems had exceeded their design life, with some estimates suggesting that, by 2008, increasingly obsolete capabilities formed some 62% of the Russian strategic missile force.

3 Dmitry Medvedev was President between 2008 and 2012. Vladimir Putin was Prime Minister at the time and succeeded Medvedev as President once again in May 2012. Medvedev was subsequently appointed Prime Minister, a post he continues to hold.

4 An English version is available online at: http://rusemb.org.uk/press/2029. It replaced an earlier version of the Military Doctrine published in 2010, and among the 12 main external risks to Russian security it identified the build-up and expansion of NATO; the deployment of foreign forces near to Russia's borders, and the deployment of strategic missile defence systems as key concerns. It also emphasised the changing nature of warfare.

5 An English version is available online at: http://www.ieee.es/Galerias/fichero/OtrasPublicaciones/Internacional/2016/Russian-National-Security-Strategy-31Dec2015.pdf

deterrent, has consistently been viewed as the ultimate symbol of that status.

Thus, the dilemma for Russia over the last decade has been how to rebuild a cohesive and advanced military out of the remaining parts of the former Soviet force; within an unpredictable Russian economy dependent upon global oil and gas prices; while at the same time defending a diverse set of global interests.

The purpose of this briefing paper is to provide an overview of Russia's ongoing rearmament programme, which is just one aspect of Russia's overall military posture. As such, it does not examine in any detail the structure and organisation of the military or the effectiveness of the armed forces. Nor does it examine Russia's broader military doctrine, recent military activity and posturing.

Related Library briefings include:

- CBP7646, Russian foreign and security policy, July 2016
- CBP7276, *NATO's military response to Russia: November 2016 update*

1.1 Brief outline of current military assets[6]

Since the end of the Cold War, Russia has indicated a preference to rely on its nuclear arsenal, and ICBM capabilities specifically, as a means of power projection and, some have argued, as a means of making up for the increasing obsolescence and inferiority of its conventional arsenal.

However, it has been widely acknowledged that what small amounts of advanced weaponry the Russian military does possess, is state-of-the-art.

Manpower

Russia has 798,000 active personnel[7] and a further 2 million personnel in reserve, a reflection of the importance of compulsory military service within Russian society.[8] With respect to active personnel, the Russian military is currently the fifth largest in the world, exceeded only by China, the US, India and North Korea. However, if Russia's reserve contingent is taken into account, Russia's military becomes the second largest, after China.

However demographic pressures, combined with changes to the terms of conscription (now 12 months) and ongoing challenges in the recruitment and retention of professional Service personnel have all presented problems for maintaining required manpower levels.

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6 A more detailed account of Russian military assets is available in the International Institute of Strategic Studies publication *The Military Balance 2016*.

7 Including 240,000 Army personnel; 148,000 Navy; 145,000 Aerospace Forces (formerly the Russian Air Force and the Aerospace Defence Force); 80,000 Strategic Deterrent forces and 1,000 Special Operations.

8 Conscription is for a period of 12 months.

Capabilities

In summary Russia possesses:

- **Nuclear forces** – the largest nuclear arsenal in the world, (estimated at 7,300 warheads, of which 4,500 are operational),[9] capable of being delivered from land, sea and air.[10]

  The Strategic Missile Force has 332 ICBM at its disposal, capable of carrying 1,092 warheads. Over half (192) are Soviet-era ICBM.

  The Russian Navy currently has 13 ballistic submarines (SSBN), each equipped with 16 sea-launched ballistic missiles (SLBM), at its disposal. The majority of those SSBN are Soviet-era platforms, dominated by the six vessels of the Delta IV class.

  Long-Range Aviation Command consists of four squadrons operating 76 bomber aircraft (Tu-160 'Blackjack' and Tu-95MS 'Bear H' aircraft) equipped with nuclear air-launched cruise missiles (ALCM). Both platforms can also be equipped with nuclear-armed free-fall bombs. The air force also operates a medium-range bomber, the Tu-22M, which is capable of deploying with nuclear-armed cruise missiles.[11]

- **Army** – 2,700 main battle tanks; in excess of 1,200 reconnaissance vehicles; 5,400 armoured infantry fighting vehicles; in excess of 4,180 artillery; anti-tank missiles, surface-to-air missiles; short-range ballistic missiles and unmanned air vehicles (UAV).

- **Navy** – Almost all of the Navy's surface fleet are Soviet-era legacy capabilities, or were completed in the early 1990s and are, therefore, ageing. The surface fleet currently comprises 35 warships (including 1 aircraft carrier, 18 destroyers, 10 frigates and 6 missile cruisers); 89 patrol vessels, including 46 corvettes; 45 mine warfare/mine countermeasures vessels; 19 amphibious landing ships; 28 amphibious landing craft and 625 support vessels. Russia also possesses 49 tactical submarines, including the new *Yasen* class attack submarine.

- **Naval Aviation** – 186 combat capable aircraft (including fighter aircraft, anti-submarine warfare aircraft, maritime patrol aircraft, intelligence, surveillance and reconnaissance aircraft and transport aircraft); anti-submarine warfare and airborne early warning helicopters.

- **Naval infantry** – 35,000 marines equipped with tanks, reconnaissance and armoured vehicles, artillery and anti-tank and air defence missiles.

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9 Arms Control Association, *Nuclear weapons: who has what at a glance*, October 2016

10 Both strategic and non-strategic (tactical) warheads. As of September 2016 Russia possessed 1,796 strategic nuclear warheads (US Department of State, *New START treaty aggregate numbers of strategic offensive arms*, 1 January 2017

11 An assessment of Russia's nuclear forces is available in Library Briefing Paper CBP7566, *Nuclear weapons – country comparisons*

- **Aerospace Forces** (formerly the Air force and Aerospace Defence Force)[12] – 1,090 combat capable aircraft (including 139 long-range bombers, 320 fighters, 357 forward ground attack aircraft, 195 attack aircraft, 85 intelligence, surveillance and reconnaissance aircraft, 432 transport aircraft); in excess of 271 attack helicopters, 332 transport helicopters, and a small number of light UAV for intelligence, surveillance and reconnaissance.
- **Airborne Forces** – 34,000 Special Forces and Air Manoeuvre personnel.

[12] The Aerospace was formed in August 2015 from the merger of the Air Force and the Aerospace Defence Force.

2. Russian defence expenditure since 2001[13]

Russian defence spending has tripled over the last decade (in US dollars)

In the early years of Putin's presidency a buoyant Russian economy, due in large part to high oil and gas prices,[14] resulted in large real terms increases for defence. According to the International Institute for Strategic Studies, between 2001 and 2008 the defence budget accounted for 2.4% to 2.6% of GDP (or 3.7% to 5% of GDP if one considers estimated actual defence expenditure).[15] Despite being significantly lower than the defence budget of the Soviet era, and only a fraction of the US military budget,[16] the growth of the Russian economy enabled the Russian government to focus on rebuilding Russia's Armed Forces.

However, the 2008 global economic crisis left many speculating as to whether Russia's defence expenditure was realistic in the longer term. While the 2009 Budget allocated considerably more to national defence in 2009 (R1.2 trillion) than had been previously been allocated in the 2007 budget (R0.8 trillion), analysts concurred that the budget had been devised before the effects of the global economic crisis were truly felt in Russia. Indeed, following a sharp fall in oil prices in the second half of 2008 and falls in the Russian stock market, in February 2009 the then Russian Defence Minister and Chief of Staff General Makarov announced that a "temporary reduction" in military spending of about 15% would be made.[17]

This fall in spending was indeed temporary and the upward trajectory in defence spending continued after 2009. By 2015 the Russian defence budget, in US dollars, was more than triple that of a decade earlier.

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13 It should be noted that there is a significant difference between the published Russian defence budget and what analysts consider actual Russian defence expenditure to be. The official budget, for example, excludes funds made available for pensions, the 419,000 paramilitary forces in Russia, defence industry subsidies and the export revenue from state-owned defence industries. In 2005 changes to the presentation of budget data were also made. Federal budget classifications were revised and defence was broadened to include certain military-related expenditures that had previously been allocated elsewhere. In 2006 details of the State Defence Order were then classified, providing little transparency of defence spending. Multi-year budget planning was also introduced in 2007.

14 Hydrocarbons are estimated to account for around two thirds of Russia's exports, half of government revenues and around a third of GDP (Edward Lucas, *The New Cold War*, Bloomsbury, 2008, p.114)

15 IISS, *Military Balance 2009*, p.213

16 In 2008 for example, the Russian defence budget was only 6.3% of the US military budget which was $574.9 billion, and only 4.1% of total NATO defence expenditure which was $895.2 billion (IISS, *Military Balance 2009)*

17 "Russia cuts defence spending 15 per cent amid revenues crunch", *Trend News Agency,* 12 February 2009

Table 1: Russian defence spending 2005-2015

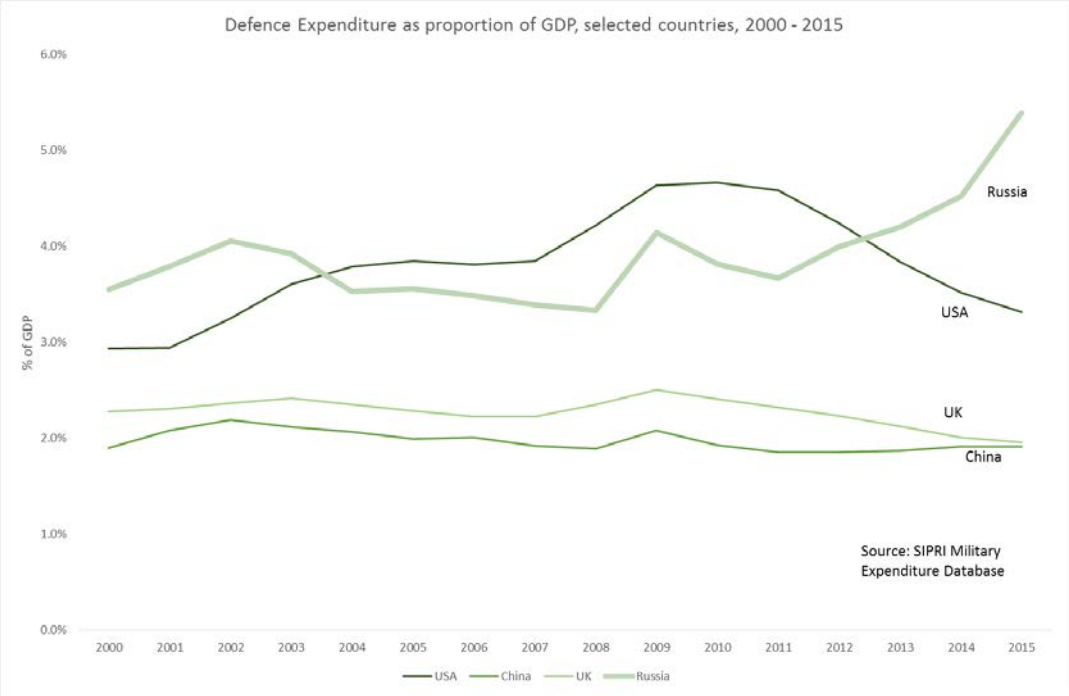
	Official defence budget		Estimated defence expenditure	
	RUB (tr)	USD (bn)	RUB (tr)	USD (bn)
2005	0.5	18.8	0.8	27.3
2006	0.7	24.5	0.9	34.5
2007	0.8	32.1	1.1	43.5
2008	1.0	40.2	1.4	56.2
2009	1.2	38.1	1.6	51.5
2010	2.0	65.2	1.8	58.7
2011	1.5	51.7	2.1	70.2
2012	1.8	58.7	2.5	81.5
2013	2.1	66.0	2.8	88.4
2014	2.5	64.3	3.3	84.7
2015	3.1	51.2	4.0	66.4

Source: IISS, Military Balance (various years) for official defence budget; SIPRI for estimated defence expenditure. Estimated defence expenditure figures for 2012 and earlier are SIPRI estimates.

Government spending plans for 2015 had initially been expected to increase to R3.3 trillion. However, projections for defence spending in 2015 had been set when oil prices were relatively high and the economic outlook for Russia was considered favourable. In March 2015 the defence budget was subsequently amended to reflect a large decline in the oil price, depreciation of the Rouble and a forecast decline in Russian GDP. International financial sanctions imposed as a result of Russian actions in Ukraine in 2014 were also starting to have an impact. Accordingly the defence budget for 2015 was revised downwards to R3.1 trillion (approximately $51.2 billion), or 4.2% of GDP.

However, as the IISS noted in the 2016 *Military Balance*, "accounting for defence related expenditures elsewhere in the budget, total military spending according to the NATO definition rose to a forecast 5.4% of GDP, placing Russia – for 2015 at least – among a very small group of countries to spend in excess of 5% of GDP on defence". R3.1 trillion also remained a significant increase on 2014 spending.

Table 2: Comparison of Russian defence expenditure (% GDP) with selected countries 2005-2015



2.1 Spending in 2016

Amid increasing economic uncertainty a one-year defence budget was drawn up for 2016, as opposed to a three-year plan. According to figures published by the Russian Ministry of Defence in October 2015, the national defence budget would fall by approximately 2% in 2016 to R3 trillion. However, the Russian government pledged that the State Armament Plan (SAP) would be protected from proposed cuts in the defence budget.

Although analysts had expected further downward revisions during the course of the year, further cuts for 2016 spending have failed to materialise. Indeed it has been suggested, on the basis of recent government spending announcements, that total defence spending for 2016 could reach R3.88 trillion, 25.5% higher than the currently approved budget for the year.[18] For now the Kremlin appears committed to the modernisation of its military forces, regardless of its economic situation.

Funding for the next State Armament Plan (2018-2025), which is currently being discussed, is widely expected to fall slightly, at least in the first few years, in line with expected cuts to government spending of 6% between 2017 and 2019. [19] Even then Russia's defence budget is expected to remain one of the highest in the world, as a proportion of GDP (See section 5.1).

A R3 trillion defence budget was approved for 2016, a slight fall on previous years.

President Putin pledged that the State Armament Plan (SAP) would be protected from cuts.

18 "Russian defence budget set to drop by 12%", *Jane's Defence Weekly,* 2 November 2016

19 "Russian defence committee head condemns spending cuts", *Jane's Aerospace, Defence and Security*, 12 September 2016

3. Programme of military modernisation

In order to reverse the decline of the previous decade, in the initial years of the Putin presidency there was an acknowledgement that, rather than spend large quantities of the defence budget on purchasing new equipment, the majority of funds should be diverted into an extensive research and development programme. Investment in procurement should thus come at a later stage, around 2008-2010. Early reform efforts also attempted to increase the professionalisation of the armed forces by reducing conscription and improving the terms and conditions of personnel. In order to support the military modernisation agenda, the Putin administration also pushed for reform and consolidation within the military-industrial complex, which had suffered in the post-Soviet period.

The progress of reform, at least in the early years was, however, met with a degree of scepticism. Despite reductions in manpower levels and conscription,[20] the overall structure and configuration of the armed forces remained the same as during the Soviet-era, with continued emphasis upon large divisional formations, low readiness levels and conscription. The biggest detriment to achieving change was regarded as the longstanding and ingrained opposition to reform within the military establishment itself. As Roger McDermott, writing in *RUSI Newsbrief* commented in August 2004:

> Putin's priorities for military reform have been hampered by the in-fighting between the MOD and the General Staff, having set the task of reforming the army, its structure, size and modernizing and maintaining its equipment to meet threats to national security. Kvashnin [a former Chief of the General Staff] personally and the General Staff institutionally, proved incapable of responding to these challenges. [21]

Corruption within the military establishment also invariably led to allegations that a significant proportion of defence expenditure was either embezzled or misspent, thereby denying the modernisation programme the requisite level of funds needed to achieve its goals.[22]

Nevertheless some degree of modernisation was achieved, albeit slowly, and attributable in large part to Putin's appointment of a civilian defence minister for the first time in 2001. The number of serving personnel in the Armed Forces was cut, although reductions in the senior ranks continued to be resisted.

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20 Both in terms of the length of military service and in the ratio of conscripted personnel to professional, or contract, personnel

21 "Russian President Putin fires Chief of General Staff Anatoliy Kvashnin", *RUSI Newsbrief,* August 2004

22 "Advancing, blindly", *The Economist,* 18 September 2008

3.1 State Armament Plan 2007-2015

Details of the State Armament Programme are classified. However, during a February 2007 speech to the Russian Duma the then Defence Minister, Sergei Ivanov, set out Russia's military spending priorities. He indicated that between 2007 and 2015 the Russian government intended to spend approximately R5 trillion[23] on a weapons modernisation programme that would replace 45% of its entire arsenal. 70% would be spent on the procurement of new capabilities and the maintenance of existing assets, while the remaining 30% would be earmarked for military research and development.

Russia's ballistic missile programme would be one of the biggest beneficiaries of this ambitious modernisation programme. In his speech Mr Ivanov outlined that the military would receive 17 new Topol-M intercontinental ballistic missiles (ICBM) during the course of 2007, compared to an average of four per annum in previous years.[24] A new ICBM, the RS-24,[25] which was undertaking a programme of testing at the time would also replace the ageing RS-18 and RS-20 systems, in the longer term.

Other priorities included modernisation of the other elements of Russia's "nuclear triad" including the procurement of a fleet of eight *Borei* class nuclear submarines equipped with a new generation of submarine-launched ballistic missiles (SLBM); and the modernisation of its fleet of Tu-160 and Tu-95 b long-range strategic bombers, including giving the Tu-160 the ability to deploy conventional precision guided munitions and dumb bombs.

In addition to the *Borei* class submarine programme, efforts to revitalise the Russian shipbuilding industry were considered fundamental to the planned revival of Russia's naval capabilities. At the beginning of 2008 the first new surface platform to be constructed indigenously in the post-Soviet era, the *Steregushciy* class Corvette, intended for littoral protection duties along Russia's Black Sea and Baltic coasts, completed sea trials. Shortly afterwards the Commander in Chief of the Russian Navy, Admiral Vladimir Masorin, announced plans to procure a further 23 naval vessels that would centre around two carrier strike groups, based in the north and the far east, thereby providing the Russian Navy with a truly blue water fleet and a vastly improved expeditionary capability. Those plans envisaged the construction of six new aircraft

23 Approximately US$190 billion at the time
24 The Topol-M has a payload of around 1,200 kg and a range of 10,500km.
25 The RS-24 is an improved version of the Topol-M with MIRV capability, deploying up to 10 warheads.

carriers[26] with the aim of achieving "the world's second largest [navy] by 2027".[27]

The State Armament programme to 2015 also identified the continued procurement of the S-400 air defence system, with a total of 18 operational battalions by 2015; capabilities aimed at revamping Russia's early warning radar system, including the purchase of a network of early warning radar stations on Russian territory[28], the first of which was commissioned in Krasnodar in February 2009;[29] and four new satellites and launch vehicles. Launch pads would also be built on Russian territory, thereby reducing dependence upon Kazakhstan for launching rockets into space.

Russia's intention to develop a fifth-generation fighter aircraft to counter Western fifth-generation platforms, such as the Joint Strike Fighter and the US F-22 Raptor, was also highlighted. Tests on a new aircraft prototype were considered likely to commence in 2009 and commissioned into service in 2015. Urgent investment in Russia's fleet of transport aircraft and aerial refuelling aircraft was also called for, with acquisition plans for as many as 30 new refuelling aircraft based on the Il-96 thought to be in progress at the time.[30]

Between 2009 and 2015 the Russian armed forces were also expected to procure more than 700 tanks, largely the modern T-90 main battle tank; 1,500 armoured personnel carriers; 116 combat aircraft and 156 helicopters. During this period approximately 400 combat aircraft and 372 helicopters would also be modernised.[31] Measures to improve the combat readiness of Russian forces were also set out.

3.2 2008 programme of military reform

Following the Russian Presidential Elections in March 2008, President Dmitry Medvedev indicated that he intended to continue implementing all of the arms production plans inherited from his predecessor, including the ambitious plans for the Russian Navy. An article in *Jane's Defence Weekly* at the time quoted President Medvedev as stating that "we [Russia] have to become a fully-fledged naval power – a maritime nation, in general terms, and naval power in particular".[32]

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26 As Smith and Giles have noted it had been considered that the only Russian shipyard capable of carrier construction would be the Baltiyskiy Zavod yard in St Petersburg, although more recently the possibility of the new construction taking place at the new dock at the Zvezdochka yard in Severodvinsk, which was intended to replace the Nikolayev yard in Ukraine, could also be used for the carrier programme.

27 Dr Mark Smith & Keir Giles, "Russia and the Arctic: the last dash north", Defence Academy of the United Kingdom, September 2007

28 At present much of Russia's early warning radar capability is based in the former soviet republics

29 "Russia seeks new lease of Azerbaijani radar site", *Defence Aerospace,* 12 March 2009

30 "A resurgent Russia is flattering to deceive", *Jane's Defence Weekly,* 10 December 2008

31 "Moscow to accelerate defence modernisation plans", *Jane's Defence Weekly,* 3 July 2008

32 "Medvedev pledges to uphold Putin's legacy", *Jane's Defence Weekly,* 5 March 2008

In July 2008 the Russian government announced that the modernisation plan was thus to be speeded up and that around 70% of the national defence budget was to be diverted to weapons procurement, the repair of existing systems, R&D and testing and evaluation procedures by 2015, two years ahead of the original target date.[33] That aim was to form part of an ambitious, and wide-ranging, reform agenda that was announced in October of that year.

Despite having largely been drawn up prior to the onset of hostilities with Georgia in August 2008[34] the reform plans were considered to have been influenced by the lessons learnt from that conflict. Despite the achievement of Russian military objectives within only five days, Russian forces had been found to be severely lacking in modern military systems among ground and air forces; and in the types of advanced capabilities required to conduct warfare in the modern age such as secure communications; intelligence, surveillance and reconnaissance systems; and electronic countermeasures. Indeed, the Russian military's own internal review of its performance during the Georgian conflict reportedly highlighted three major operational shortcomings: the weak interaction of air and land forces, unstable communications and the unsatisfactory nature of its surveillance capabilities.[35]

Addressing these issues became a key part of the military reform programme announced on 14 October 2008. Regarded by many as controversial, it represented the first full-scale overhaul of the Russian military since the end of the Cold War. The plan had six main objectives for modernisation:

- Restructuring and reorganisation of the armed forces. Including reducing the number of units, formations and bases; reorganising the ground forces into a brigade system and establishing a three-link command and control structure.[36] The intention was for each military district to have command responsibility for all units and be able to conduct small campaigns in its own area of responsibility. Airborne troops would also be reorganised. Divisions would be eliminated and each military district would have one or two airborne brigades as part of their force structure.
- Central organisations would be reorganised and downsized.[37]

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33 IISS, *The Military Balance 2009*, p.214

34 The Russian military campaign in Georgia in August 2008 was the first conventional state-on-state operation conducted by Russia since the end of the Cold War, indeed its first military offensive beyond Russia's borders since the Soviet invasion of Afghanistan in 1979. The effectiveness of the Russian military during that campaign is examined in Commons Library Briefing 09/35, *Russia's military posture*, April 2009

35 "Georgia campaign smokes out Russian shortcomings", *Jane's Defence Weekly*, 1 October 2008

36 Military district, operational command and brigade instead of the four-link command and control structure (military district, army, division and regiment) that existed at the time.

37 From 22,000 personnel in the central apparatus of the Ministry of Defence and the military command bodies of the ministry to 8,500 personnel including 3,500 in the Ministry of Defence. Personnel at the General Staff would also be reduced by 50% by 1 March 2009.

- All units and formations would be transformed to a fully manned and permanent readiness status.[38]
- Reforming the system of military education.[39]
- Modernisation of capabilities as set out in the State Armament Plan.
- Improving the terms and conditions of military personnel.
- Limiting the size of the military's peacetime strength to one million personnel by 2012.[40] Conscription would be retained although all service personnel serving in southern Russia would be fully professional forces, serving on contract.

The intention was to establish more efficient and combat ready forces by 2020.

Enabled by large real term increases in the Russian defence budget at the time,[41] rearmament, as already set out under the *State Armament Plan 2007-2015*, was singled out as a key priority. The objective was to achieve a level of advanced weaponry equating to 30% of Russia's total military assets by 2015 and 70% by 2020. Russia's strategic nuclear forces, the revitalisation of the Navy and addressing the capability weaknesses identified by the Georgia conflict were top priorities. Indeed, President Medvedev ordered that the aircraft carrier construction programme be accelerated so that construction on the first of class could begin within two years, with the fruits of that labour evident between 2013 and 2015.[42]

Almost immediately the reform programme was met with opposition, largely from within the military. A number of senior military figures resigned over the proposals including General Valentin Korabelnikov, Head of the General Staff's Intelligence Division.[43] Several retired Russian generals also argued that the proposals would destroy Russia's military capabilities and called for the Russian Defence Minister to be sacked and prosecuted.[44] Former Defence Ministry Press Secretary, Viktor Baranets, was reported to have likened the military reform plans to "some kind of Bolshevik adventurous scheme" while other retired

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38 As a result all non-fully manned units would be disbanded and personnel transferred to other units to meet their manpower targets.

39 A non-commissioned officer corps would be established in order to provide for soldier training and military discipline. The officer training systems would be centralised and rationalised; while the existing 65 military institutions of higher learning would be reduced to 10.

40 Including the loss of 200,000 officer positions from across the military. The number of officers across all three services would be reduced from 355,000 to 150,000. The number of Generals and Admirals would be reduced from 1,107 to 877 ("Russian CGS outlines military reform plans", *Jane's Defence Weekly,* 19 December 2008)

41 See Section 2

42 "Medvedev orders construction of aircraft carriers for Russian Navy", *Jane's Defence Weekly,* 14October 2008

43 "Russian military reform: still on track?", *Institute for the Study of Conflict, Ideology and Policy,* 18 December 2008

44 "Opposition to Russian military reforms grows", *USA Today,* 18 November 2008

senior officers warned of an "open revolt" within the military if the reforms were not altered.[45]

The global economic crisis of 2008 also left many analysts speculating as to whether the ambitious nature of the reform programme was affordable or realistic. Concerns were raised over the costs of capability modernisation; investment in the infrastructure and training requirements of a vastly re-structured force; and the associated costs of improving the terms and conditions of service for an increasingly professionalised force, in particular with respect to wages and pensions. The loss of nearly 200,000 officer positions and the exodus of experienced generals into civil society at a time of economic downturn was also noted with concern. As one commentator observed at the time: "the financial crisis has come at the worst possible time for Russian military reform".[46]

Indeed, in February 2009 the then Russian Defence Minister and Chief of Staff General Makarov announced that a "temporary reduction" in military spending of about 15% would be made during 2009. However, in a meeting with four committees of the Duma on the same day General Makarov stated that despite these cuts in the military budget the timetable for reform remained on track with the majority of intended transformations to be complete by 2012.[47]

However, many analysts expressed concern at the time that financial constraints could result in a focus on re-armament at the expense of structural reform and the necessary improvements in the social welfare of Service personnel. Indeed an assessment of Putin's previous reform plans for the period 2004-07 by *Jane's Defence Industry*, had suggested just that:

> In reality it appears that Russia's government has refocused itself on equipment recapitalisation and that the professionalisation and streamlining of personnel has been relegated to a far lower priority. This would perhaps explain why despite the large nominal increases in funding, actual military reform has been slow.[48]

3.3 State Armament Plan 2011-2020

In 2011 a new plan for the period 2011-2020 was announced. Building on the previous State Armaments programme, it allocated R19 trillion to the Russian Ministry of Defence over the entire period, an almost four-fold increase on the previous armament plan.[49] The aim of bringing the

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45 "Russian military reform: still on track?", *Institute for the Study of Conflict, Ideology and Policy,* 18 December 2008

46 "Russian military reform delayed by financial crisis", *Eurasia Daily monitor,* 27 January 2009

47 "Russian CGS discusses military reform with Duma committees", *BBC Monitoring Former Soviet Union,* 12 February 2009

48 "Analysis: Russia's defence spending and defence industrial base", *Jane's Defence Industry,* 11 August 2008

49 Approximately $512bn

level of advanced weaponry to 70% of total Russian military assets by 2020 is still a key objective of the new plan.

The priorities for rearmament also remain the same with the nuclear and ballistic missile programme and the Russian navy the largest recipients. However, the significant levels of additional spending allowed the rearmament plan to expand on its predecessor. In comments to the media in 2012 President Putin suggested that the rearmament plan would now allow for the procurement of 400 ICBM and SLBM, 8 new SSBN and a fleet of 20 multi-purpose submarines, 50 major surface ships (including the six new aircraft carrier), 100 military satellites, 600 fixed-wing fast jet aircraft, 1,000 helicopters, 2,300 tanks and 56 S-400 air defence system battalions (approximately 450 launch vehicles and 1,800 missiles) and 10 Iskander tactical ballistic missile brigades (approximately 60 launch vehicles and 120 missiles).[50]

Given the continued emphasis on the revival of Russia's Navy, in July 2015 the Russian Ministry of Defense also published a new version of its *Maritime Doctrine* to 2020.[51] Published in response to NATO's "inadmissible" expansion and "plans to move military infrastructure towards its borders" the revised doctrine specifically sets targets for "developing infrastructures" for Russia's fleet in Crimea and also calls for "accelerated reconstitution and completion of strategic Russian positions" in the Black Sea. It also puts a renewed emphasis upon the Atlantic and the Arctic. With respect to the Atlantic it sets the aim of "guaranteeing an adequate military naval presence for Russia". The doctrine also establishes the same target for Russia's presence in the Mediterranean with deployment of "a permanent manner". In the Arctic the doctrine specifically foresees improvements to the Northern Fleet. The doctrine sets out a new long-term shipbuilding strategy for the Russian Navy out to 2050 with priority being given to supporting Russia's nuclear SSBN fleet, attack submarines, unmanned systems, and the creation of a general purpose marine force able to provide a long-range, high precision strike, non-nuclear deterrent capability.

The aim of the 2011-2020 State Armament Plan is to achieve a level of advanced weaponry equating to 30% of Russia's total military assets by 2015 and 70% by 2020.

R19 trillion has been allocated to it.

Russia's nuclear forces and the Russian Navy have been identified as the biggest recipients.

50 "Rearming Russia", *Jane's Defence Weekly,* 5 August 2014

51 http://static.kremlin.ru/media/events/files/ru/uAFi5nvux2twaqjftS5yrIZUVTJan77L.pdf (in Russian). The last Russian maritime doctrine was published in 2001

4. Progress against the State Armament Plan

Capabilities modernisation within the Russian armed forces has been a rolling brief over the last decade. While the priorities of the State Armament Plan have not radically altered in that time, arguably the pace of rearmament has not, in reality, reflected aspirations.

The two biggest setbacks have been the longstanding inability of the military-industrial complex to meet the demands of the rearmament programme, particularly in the shipbuilding sector; and the impact that defence inflation and corruption in the defence procurement sector is having on a defence budget already affected by low oil prices and an unpredictable economy. Sanctions imposed on Russia following its annexation of Crimea in 2014 are also starting to have an effect.

The result has been an ambitious rearmament programme that is only slowly realising its objectives. Many of the new systems procured, thus far, have been based on older, proven designs; whereas new generation systems are mostly behind schedule.[52]

The current State Armament Plan is considered unlikely to achieve its stated goals by 2020.

However, it has also been acknowledged that Russia may simply move the goalposts in order to claim the success of its rearmament programme.

The overriding conclusion of many analysts is that the rearmament programme is unlikely to achieve all of its goals within its stated timeframe of 2020. Yet, as an article in *Jane's Defence Weekly* in August 2014 observed:

> Moscow may simply manipulate the number of new arms in the numerator or adjust the denominator to claim it has reached its 70% target.
>
> It is also possible, in fact likely, that 2020 will never come. A new and 'improved' arms programme typically arrives before its predecessor is halfway complete. SAP 2011-2020 may be superseded at some point…[53]

A report by the NATO Parliamentary Assembly Science and Technology Committee in October 2015 also noted that while Russia's overall goal is for modernisation of 70% of armaments by 2020: "no clear definition of 'modern' is publicly available, making it difficult to establish baselines and gauge progress".[54] The report also makes the point that "what Russia says is being purchased or will be delivered, is not what will definitively be acquired".[55]

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52 Gudrun Persson, *Russian military capability in a ten-year perspective*, FOI-R-4326—SE, December 2016

53 "Rearming Russia", *Jane's Defence Weekly,* 5 August 2014

54 *Russian military modernization,* NATO Parliamentary Assembly Science and Technology Committee, October 2015, p.2

55 ibid

4.1 Complicating issues

The impact of defence inflation

As outlined above the Russian defence budget has been on an upward trajectory over the last decade, despite the prevailing economic effects of the global financial crisis and the imposition of Western sanctions since 2014.

Defence inflation has significantly eroded the true value of the Russian defence budget.

However, as many analysts have noted, while the defence budget has increased significantly over this period the true value of Russian defence spending has been much lower due to the impact of defence inflation. As the International Institute for Strategic Studies pointed out in 2009:

> Possibly the biggest threat to the future development of the armed forces, is posed not by industrial or organisational problems but by the impact of inflation on the real value of the defence budget. The Russian economy has struggled to absorb the huge growth in revenues from oil and gas exports and the substantial increase in domestic credit and capital inflows from abroad, with the result that consumer price inflation (CPI) rose to 9.0% in 2006 and 9.7% in 2007. On the face of it, the official defence budget has risen ninefold since the year Putin became president, from R143bn in 2000 to R1,278bn in 2009. However, once inflation is taken into account, the increase is… less spectacular…and Putin has suggested that the negative impact of inflation is a factor in the relatively low level of new weapons procurement.[56]

An analysis by Jane's in 2008 also concluded that despite the dramatic increases in Russian defence spending, substantial inflation had eroded the military spending power of the government and subsequently raised questions over the ability of Russia to meet its modernisation objectives. That assessment concluded:

> Dig below the surface of the official figures and it quickly becomes apparent that [Russia's] spending bonanza is far from the full story. In fact, Russia's inability to control its oil and credit-fuelled inflationary problems has seen defence spending growth falter in real terms […] the high levels of inflation in the Russian economy have eroded the real-terms buying power of the Ministry of Defence […] Russia's strong macroeconomic growth has led to the appreciation of the rouble, which would usually help to offset some cost increases by making imports cheaper. However, this is not much use to the MOD, because it imports very little: personnel costs, procurement and maintenance are all subject to domestic price rises.
>
> The predominantly state-owned nature of the defence industry also hampers Russia's ability to become more productive and efficient as the foreign private investment available to other sectors of the economy cannot flow into defence enterprises. Private sector-style productivity improvements are also difficult to implement. It is therefore likely that defence-specific inflation is even higher than that in the wider economy […]
>
> With this in mind, it appears that far from being an emerging behemoth, Russia is in fact more constrained in its ability to regenerate and modernise its armed forces than is immediately obvious. The real cost of this lack of real-terms investment

[56] IISS, *The Military Balance 2009,* p.215

> therefore has important implications for Russia's military as it hinders the development of a modern and professional armed forces and casts doubt on the overall achievability of the defence modernisation plan.[57]

Konstantin Makienko of the Center for Analysis of Strategies and Technologies also concluded in 2008:

> Any increase in the defense procurement budget below 25% means the military is just marking time, as that doesn't even cover inflation.[58]

Other analysts have also expressed concern over the levels of corruption within the military establishment which has invariably led to allegations that a significant proportion of defence expenditure is either embezzled or misspent, thereby denying the modernisation programme the requisite level of funds needed to achieve its goals.[59] The NATO Parliamentary Assembly report of October 2015 suggested:

> Russia's top military prosecutor estimates that 20% of money allocated to the state defence order is stolen. Other high-ranking officials believe that as much as 50% of funds are siphoned off.[60]

The military-industrial complex

Questions over the ability of Russia's military-industrial complex to match the technological demands of the modernisation programme have continued to be questioned, despite the progress in consolidation and reform achieved under Putin.

One of the biggest problems has been the fact that Soviet-era industries in some of the areas that currently make up the bulk of the modernisation programme, specifically naval vessels and ICBM, were dispersed among the former Soviet states following the dissolution of the USSR, and in particular in Ukraine.[61] Of what military industry remained in Russia, inefficiency and corruption were rife and it suffered from over-capacity. The financial crisis faced by Russia in the 1990s also meant sweeping cuts in defence expenditure which allowed Russian military capabilities to fall into disuse and disrepair and modernisation and reform plans to be either shelved or pursued with minimal effort. The Russian military industrial complex consequently stagnated, suffering from a lack of investment in research and development, a lack of investment in modern machine tools and a loss of skills and technological know-how. As a result Russia has not relied upon its industrial base to design or mass manufacture much modern, technologically advanced equipment for nearly 20 years.

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57 "Analysis: Russian budget suffers corrosive effects of inflation", *Jane's Defence Industry,* 8 August 2008

58 "Bear market: Russia ponders how much is enough for defense", *Defense Technology International,* November 2008

59 See "Advancing, blindly", *The Economist,* 18 September 2008 and "Rearming Russia", *Jane's Defence Weekly,* 5 August 2014

60 *Russian military modernization,* NATO Parliamentary Assembly Science and Technology Committee, October 2015, p.3

61 The Soviet war machine was vast but in contrast while Russia inherited approximately 85% of the union's military infrastructure, including manpower and equipment; it inherited only 60% of the economic capacity necessary to support it (US Library of Congress Country Study, *Russia,* July 1996)

Reforming the military-industrial base to the extent that it can satisfy the demanding timeframe of the rearmament programme has subsequently been a challenge. Raising investment to fund modernisation in a largely state-owned sector has been acknowledged as problematic given the current economic climate and the fact that the defence industry relies heavily on overseas export. The ability to attract foreign private investment has been questioned after the Strategic Industries Law, passed in May 2008, limited or prohibited foreign direct investment in 42 sectors of the Russian economy classed as strategic, although many of those sectors have been considered as having little relevance to national security.[62] Indeed an article in *Jane's Defence Weekly* in November 2008 suggested that in the short to medium term the result may be "greater government involvement in an already heavily state-controlled and subsidised sector".[63]

In October 2008 the Russian Defence Minister suggested that hi-tech military manufacturers could receive advance payments under domestic defence contracts and five year tax breaks, in addition to state guarantees for loans in order to keep reform of the defence industrial base, and subsequently the government's modernisation plans, on track. That aid package to the defence industry has been estimated at approximately $5.4bn with the United Aircraft Corporation and Russian Technologies the principal beneficiaries.

Reform efforts have also focused on diversification, with a push toward defence firms being able to work on civilian and commercial orders, in addition to military orders, so as to avoid over-reliance on the Russian State Defence Order.

Ukraine and the imposition of sanctions

Following the imposition of sanctions against Russia in 2014, its ability to source Western military hardware and components, in order to make up for shortfalls in domestic industrial capability, has also presented challenges to the rearmament agenda. In 2015 France, for example, cancelled the sale to Russia of two Mistral-class amphibious vessels which were considered key elements of the plans to revitalise the Russian Navy (see below).

Sanctions imposed against Russia in 2014 have affected its ability to source Western military hardware and components for incorporation into its military programmes.

Ukraine's defence industry had also been a major supplier to the Russian armed forces, playing a significant role in the manufacture of transport aircraft, power propulsion units for ships and some types of missiles, including the SS-18 ICBM in service with the Strategic Missile Force. In 2015 the Russian Defence Ministry acknowledged that it would take at least two or three years for Russian industry to being domestically manufacturing gas-turbine propulsion plants for its shipbuilding programme.[64] At the time it was also estimated that more than 700 components, used in 186 different Russian weapon systems and pieces of military hardware, that had previously been produced in collaboration

62 International Institute for Strategic Studies, *Strategic Survey 2008*
63 "Solving Russia's industry reform funding shortage", *Jane's Defence Weekly,* 19 November 2008
64 "Russia's naval modernisation will take time", *Strategic Comments,* November 2015

with Ukraine would now need to be substituted by the Russian defence industry. Establishing a domestic supply of components, previously manufactured in Ukraine is, however, regarded as a short term problem. In the longer term, substituting components from European states, and in particular electronic components, is viewed as a significant concern.[65]

A programme of import substitution measures, aimed at offsetting the impact of Western sanctions, was adopted by the Military-Industrial Commission in May 2014. The cost of the programme has not been revealed but its aim is to substitute 90% of components that were previously sourced from NATO and EU countries, by 2018. Many of the those components will be manufactured in Russia but some, at least in the first few years, are being sourced from Belarus and East Asia, in particular China. In August 2015 a new government commission for import substitution was established in order to coordinate long term policy, specifically with respect to delivery of the State Armament Plan. This policy of import substitution has, however, been criticised in some quarters with some analysts arguing that, in the longer term, it will "protect domestic producers from competition and will generate lower quality and rising prices".[66]

Since the annexation of Crimea in 2014, Russia has also been making significant effort to incorporate the Crimean defence industry into its own domestic military-industrial complex, in order to offset some of the supply issues it now faces.[67] Notable progress has been made in the shipbuilding sector, with the region's shipyards now fully integrated into the Russian defence industrial base. As a result Russia has gained key naval assets in ship manufacture and repair, naval services, and naval propulsion systems. In May 2016 the Russian government announced that it had begun work on its first naval vessel (a Project 22800 class guided missile corvette) to be constructed in Crimea.[68]

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65 "Russian modernisation challenged by lost imports", *Jane's Defence Weekly,* 28 January 2015

66 Susanne Oxenstierna in *Russian military capability in a ten-year perspective – 2016*, Swedish Defence Research Agency, December 2016

67 There are 21 defence industrial companies operating in Crimea: 14 involved in shipbuilding and support, 3 in aircraft manufacturing, 2 in radio electronics and 2 in conventional arms production. (see "Progress on Crimean defence integration reported to Putin, *Jane's Aerospace, Defence & Security,* 17 February 2016)

68 The programme is replacing the *Admiral Grigorovich* class frigate programme, which was halted after Ukraine refused to export its naval engines for the programme following the annexation of Crimea. Work on the first two vessels of the class began at the Pella shipyard near Leningrad in December 2015. A total of 18 corvettes of this class are planned for the Russian Navy.

4.2 How far has rearmament progressed?

Given the problems in defence budgeting and the domestic military-industrial complex, it is only within the last few years that the rearmament programme is considered to have begun showing tangible results. As an article in *Jane's Defence Weekly in August 2014* suggested:

> the government devotes enormous sums to the task – and new weapons are reaching the armed forces in meaningful numbers for the first time in many years…[69]

The stated ambition had been to achieve a level of advanced weaponry equating to 30% of Russia's total military assets by 2015, and 70% by 2020. As part of that aim 45% of the nuclear arsenal would be replaced by 2015; a new class of 8 SSBN equipped with a new SLBM and new ICBM would be procured; and the air force's strategic bomber fleet would be upgraded. The Navy would be revitalised and focus around the acquisition of 6 new aircraft carriers. Further fighter aircraft, including a new fifth generation fighter aircraft would be brought into service, while Russia's fleet of transport and air-to-air refuelling aircraft would be upgraded. New tanks, helicopters, air defence systems, early warning radar would also be procured.

In December 2015 the Russian Defence Minister provided an update to the Russian Defence Ministry Board on the progress of the rearmament plan, and laid the groundwork for the next phase of the State armament plan (2016-2020). In that statement he suggested that the target for 2015 had been met, and exceeded, with 47% of Russian military equipment now categorised as modern.[70] In December 2016 that figure was upgraded to 58.3%, with serviceability of military assets at 94%.[71]

In December 2015 the Russian Defence Ministry suggested its target of 30% modernised weaponry by 2015 had been met, and exceeded.

In December 2016 58.3% of Russian military equipment was categorised as modern.

Nuclear forces

Between 2012 and 2015 Russia spent approximately £401 million on the modernisation of its nuclear weapons.[72]

In the annual update to the Russian Defence Ministry Board in December 2016, it was stated that Russia's nuclear forces were equipped with 60% modern armaments.[73]

Land-based nuclear capabilities

In the last decade Soviet-era land-based ballistic missile capabilities (ICBM) have gradually been phased out and replaced with the Topol-M single warhead ICBM (both silo-based and road mobile) and the RS-24

69 "Rearming Russia", *Jane's Defence Weekly,* 5 August 2014
70 *Key points of report of the Russian Defence Minister at extended session of the Russian Defence Ministry Board*, December 2015
71 Statement to Extended Board Session of the Russian Defence Ministry, 22 December 2016
72 "Nuclear weapons financing, and Russia's armed forces reform", BASIC Blog, 17 February 2015
73 Statement to Extended Board Session of the Russian Defence Ministry, 22 December 2016

Yars ICBM which has MIRV (multiple target) capability.[74] In 2016 the IISS *Military Balance* estimated that 57% of ICBM were still Soviet-era capabilities.

Improvements to Russia's land-based ballistic missile capabilities continue, although a new rail-based ICBM programme is thought to be on hold.

In June 2015 President Putin announced that Russia would increase the size of its ICBM force by 40, in response to the deployment of ballistic missile defence systems near Russia's borders. By 2020 around 200 RS-24 Yars ICBM are expected to be procured. Estimates have put delivery of new Topol-M and RS-24 Yars ICBM systems at 40 per year.[75] The replacement programme is scheduled for completion by 2022.

Work is also ongoing on a new silo-based ICBM, the Sarmat, which can carry up to 10 warheads. The first prototype was due to be completed in March 2016, with entry into service expected in 2019/2020. A total complement of 46 Sarmat missiles is expected.

In 2015 the Russian Ministry of Defence also announced that a new rail-based ICBM, based on the RS-24 Yars missile, would be developed. This would not be an entirely new capability as an extensive Combat Railway Missile Complex was in place during the Cold War. Regarded as a survivable and highly evasive platform, the revival of this asset has been viewed with some concern.[76] Design work is already thought to have begun and operational capability was initially expected to be achieved in 2019. However, budgetary pressures have reportedly delayed the programme until at least 2020. An article in *Jane's Aerospace, Defence and Security* has suggested that a final feasibility report on the project is due to be submitted to President Putin in 2017 leading to speculation that the programme could eventually be cut if Russia's economy does not improve and further pressure is placed on the defence budget.[77]

Deployment of the Iskander-M short-range ballistic missile system, which is nuclear capable, has also continued. Over the last few years Iskander-M brigades have reportedly been stationed close to NATO territory, for example around St Petersburg. In October 2016 President Putin also suggested that nuclear-tipped Iskander-M missiles had been deployed to the Russian enclave of Kaliningrad, between Poland and Lithuania.

In 2014 the US also accused Russia of testing a new ground-launched, nuclear-capable cruise missile, in violation of the Intermediate Nuclear Forces (INF) treaty.[78] This has, however, been disputed by the Russian government. In its national report to the NPT review conference in April 2015 the Russian government stated:

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74 Deployment of the RS-24 began in 2010. The RS-24 is reportedly a modified Topol-M but was given a new designation in order to avoid potentially violating the obligations of the START treaty, or its successor, which prohibited increasing the number of warheads on existing missiles, but did not preclude building new missiles.

75 In 2016 strategic ground forces received 41 new ballistic missiles (Statement to Extended Board Session of the Russian Defence Ministry, 22 December 2016)

76 See "Railing against the West", *RUSI Defence Systems,* 20 March 2015

77 "Russian rail-mobile ICBM project set to be axed", *Jane's Aerospace, Defence & Security*, 2015

78 See "Russia breaches INF treaty, US says", *Arms Control Today,* 2014

> The Treaty is still in force. It remains an important factor of maintaining international security and strategic stability. The Russian Federation remains committed to the Treaty and fully complies with its obligations.[79]

Naval nuclear capabilities

Modernisation of Russia's SSBN fleet has also been a priority since 2008. The Navy's six Soviet-era Delta IV SSBN have been upgraded to deploy with a modified SS-N-23 SLBM, codenamed Sineva, which carries up to four warheads.

> The acquisition of a new class of 8 SSBN equipped with a new submarine-launched ballistic missile continues to be a priority.

In 2010 the first vessel of the *Borei* class strategic deterrent fleet (SSBN), intended to replace the ageing Delta III SSBN, completed its sea trials.[80] It did not enter service, however, until 2014 due to concerns over the operational capability of the new Bulava submarine-launched ballistic missile (SLBM) that would be deployed aboard.[81] The delay in the introduction of the *Borei* class SSBN has subsequently forced Moscow to extend the life of several of its ageing Delta III SSBN in order to maintain its numbers of sea-based deployed strategic warheads. The Delta IV-class SSBN which are currently in service are not expected to be decommissioned from service until well into the 2020s.

Three *Borei* class SSBN, each equipped with 16 Bulava missiles had entered service by early 2016. A total class of between eight and ten boats is anticipated. The boats currently under construction are expected to have some modifications and have been designated the *Borei-A*. The programme is expected to be completed in the mid-late 2020s.

Russia's non-strategic naval capabilities have also been the focus of modernisation, with the expected introduction into service of a new class of attack submarine, the *Yasen*, equipped with a new type of long-range sea-launched cruise missile which is nuclear capable. The *Yasen* class will also be able to deliver nuclear armed anti-submarine rockets, as well as nuclear torpedoes.

Air-launched nuclear capabilities

Modernisation of the Tu-160 and Tu-95 strategic bomber fleets is currently underway which will allow them to remain in service until the late 2020s-early 2030s. In 2015 10 modernised aircraft were delivered, followed by a further 4 aircraft in 2016. The number of aircraft delivered in 2016 fell significantly short of expectations however. In December 2015 the Russian Defence Ministry had identified the delivery of 9 aircraft as a priority for 2016.[82]

A new longer range air-launched cruise missile, designated the Kh-102 is also currently under development for deployment on both the Tu-160

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79 *National Report submitted by the Russian Federation*, April 2015

80 The *Borei* class is the first Russian SSBN to be constructed since the end of the Cold War.

81 The Bulava has an operational range of 8-9,000 km and is capable of carrying 6 warheads apiece.

82 *Key points of report of the Russian Defence Minister at extended session of the Russian Defence Ministry Board*, December 2015 and Statement to Extended Board Session of the Russian Defence Ministry, 22 December 2016

and Tu-95MS. It has an estimated range of 5,000km, which is double that of the AS-15A.

Since March 2015 there has been some discussion over the possibility of Russia re-establishing the Tu-160 production line (which had ended in 1992) after the Russian Defence Minister suggested it was under consideration. However, a number of analysts have questioned the rationale of restarting Tu-160 production, suggesting that "defence ministry and industry may lack the resources to support such a project".[83] It may also become irrelevant if a decision is made to progress the PAK-DA programme, as a successor to both the Tu-160 and the Tu-95 (see Section 5.2 below).

The air force is also currently working to replace its Su-24M aircraft, which can be deployed in a tactical nuclear role, with the new Su-34. Deployment of the Su-34 has already begun. A total of 120 Su-34s are planned through to 2020.

Revitalisation of the Navy

Under the SAP re-establishing Russia as a 'naval power' by 2027 is a key objective. Alongside the refurbishment and modernisation of legacy platforms, initial procurement plans centred round the acquisition of 23 new naval vessels, including six new aircraft carriers, deployed as part of two carrier strike groups in the north and Far East.[84] In order to achieve this vision, in October 2008 the government announced the acceleration of the carrier programme, with work expected to begin within two years. In the 2011-2020 SAP those aspirations for the Navy were subsequently expanded to the creation of a new general purpose force comprising 50 major surface ships, six aircraft carrier, and a fleet of 20 multi-purpose submarines. 50% of the Navy's allocation of funding under the SAP 2011-2020 was intended for new construction.[85]

Establishing Russia as a 'naval power' by 2027 is a key objective.

Realising that ambition is recognised as a challenge as the Russian shipbuilding industry has struggled to keep pace with the rearmament programme.

Yet, it is widely acknowledged that the Navy's modernisation ambitions will take time to come to fruition.[86] As identified above the naval shipbuilding industry has suffered from years of neglect and under investment; while the Ukraine crisis and the imposition of sanctions is starting to have an effect. Industry is subsequently struggling to keep pace with the rearmament programme. As such the refurbishment of existing naval vessels is progressing, albeit at a slower, and more expensive, pace than originally envisaged. In December 2016 the Minister for Defence suggested that the level of modern armaments in the naval fleet was 47%.[87] However, Dmitry Gorenburg of Harvard

83 "Russian air patrols: long range ambitions", *Strategic Comments,* June 2015

84 The northern fleet has been placed at the centre of the new Arctic Joint Strategic Command, which was stood up in December 2015, in recognition of the increasing strategic importance of Russia's polar region.

85 "The long and the short of it: Russia balances naval intentions and shipbuilding investment", *Jane's Navy International,* 5 August 2016

86 See for example, "Russia's naval modernisation will take time", *Strategic Comments,* November 2015

87 Statement to Extended Board Session of the Russian Defence Ministry, 22 December 2016

University has argued that "Russia's shipbuilding industry is likely to only build an estimated 50% to 70% of the vessels that the MOD wants to acquire by 2020".[88]

Surface Fleet

The acquisition of new vessels is progressing, although, again, arguably at a slower pace than anticipated. Work is underway on the *Admiral Grigorovich*[89] and *Admiral Gorshkov*[90] classes of frigate; a new class of corvette (*Steregushchiy* class)[91]; and the *Buyan-M* class of guided missile corvette,[92] all of which will form the core of the surface fleet in the near term. Although several frigates and corvettes of the new classes have already entered service, deliveries have been behind schedule. Undelivered orders for 2015 included a *Steregushchiy class* corvette, two *Admiral Grigorovich* class frigates,[93] an *Admiral Gorshkov* class frigate and the first vessel of the *Ivan Gren* class landing ships.[94] A decision on a second batch of *Admiral Grigorovich* class frigates was expected to be made by the end of 2016, although problems remain in sourcing propulsion units for those vessels, and the remaining vessels of the *Admiral Gorshkov* class, which originally came from Ukraine.

The timeframe for the aircraft carrier programme has also proven to be completely unrealistic. Despite initial suggestions work on the future carrier programme is yet to start. The 2015 *Maritime Doctrine* subsequently revised the timeframe for the aircraft carrier programme. Design work is now expected to be completed by 2020, with construction and entry into service planned for 2021-2030.[95] Russia's only aircraft carrier, the *Admiral Kuznetsov*, is due to enter an extended period of maintenance and modernisation in early 2017.[96] However, due to changes in the carrier procurement programme, pressures to return the carrier to the fleet as soon as possible are considered likely to result in an overhaul of the *Admiral Kuznetsov*'s most critical elements at the expense of significant modernisation, including the upgrade of its major systems and armaments.[97] Even then the carrier will be out of operational service for at least three years. Some analysts have

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88 Cited in *Russian military modernization,* NATO Parliamentary Assembly Science and Technology Committee, October 2015, p.5

89 Also referred to as Project 11356. The first vessel of the class was delivered in March 2016.

90 Also referred to as Project 22350

91 Also referred to as Project 20380

92 Project 21631. To date 5 vessels have been delivered to the Black Sea Fleet and the Caspian Flotilla. A further 4 vessels are currently on order and in September 2016 the Russian Ministry of Defence signed a contract worth R27 billion for an additional 3 vessels.

93 One of those frigates was delivered in June 2016, with the other expected by the end of 2016.

94 "The long and the short of it: Russia balances naval intentions and shipbuilding investment", *Jane's Navy International,* 5 August 2016

95 "Russian naval doctrine looks to the future", *Jane's Defence Weekly,* 19 August 2015

96 The carrier is currently returning from a deployment in the Mediterranean as part of operations in Syria. Renovation work will begin upon the carrier's return to its home port.

97 "Kuznetsov overhaul designed to maintain carrier capability while Russia considers future carrier options", *Jane's Navy International,* 30 June 2016

questioned whether any of the Russian shipyards have the ability to carry out a major overhaul of the *Admiral Kuznetsov* without suffering from delays and cost overruns. As an analysis in *Jane's Defence Weekly* points out "Both this carrier and its sister ship, Varyag[98]… were built at the Nikolayev shipyards in Ukraine. No Russian shipyard has first order experience with these ships".[99] Russia's only attempt to undertake a project of this magnitude was the refit of the *Admiral Gorshkov* for the Indian Navy. Agreed in 2004 that programme was blighted by severe delays and cost overruns and the ship only entered service with the Indian Navy in November 2013, 6 years after the originally agreed handover date, and for double the agreed price.

The purchase of two French Mistral class amphibious assault vessels was also cancelled in August 2015 as a result of Russia's actions in Ukraine. The ships had been intended to fill gaps in Russia's surface warship fleet, but also, and potentially more importantly, the contract had included licensed production of a further two vessels in Russia. Such work could have significantly improved Russia's shipbuilding capabilities.

Submarine Fleet

The Navy's submarine fleet has benefitted from delivery of a number of *Improved Kilo* class submarines, and in September 2016 the Russian Ministry of Defence signed a contract for 6 *Improved Kilo* class submarines for the Pacific Fleet. Further vessels are also expected to be ordered for the Navy's Northern and Baltic Fleets.[100] Introduction of the new *Yasen* class attack submarine continues, although as an article in *Jane's Navy International* noted in May 2016:

> It appears that the construction pace on the Severodvinsk [Yasen] class has not been fast enough to allow the Russian Navy to maintain an adequate general purpose submarine order of battle.[101]

Indeed, the first of class *Severodvinsk* only reportedly achieved combat ready status in March 2016, despite having being laid down in 1993.[102] As such recently announced plans to commence a multi-year plan to modernise the existing Oscar II guided missile submarine fleet (SSGN) is regarded as "critical in filling this gap, especially for keeping boats at sea in both home and more distant waters".[103]

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98 Later sold to China.

99 "Russia to modernise sole aircraft carrier in 2017", *Jane's Defence Weekly,* 26 May 2016

100 "Russian MOD places USD2 billion in orders, with focus on shipbuilding", *Jane's Defence Weekly,* 21 September 2016

101 "Russia initiates multiyear plan to modernise Oscar II SSGNs", *Jane's Navy International,* 20 May 2016

102 "Russia modernises its northern fleet", *Jane's Intelligence Review,* 4 July 2016

103 ibid

Modernisation of the Aerospace Force

In December 2016 modern equipment in the Aerospace Force was estimated to account for 66% of assets, a rise of 14% on the previous year. [104]

Priorities for 2016 had included the delivery of over 200 new and modernised aircraft and the re-equipping of five missile regiments with the S-400.[105] Again, the Russian Defence Ministry confirmed in December 2016 that targets had fallen short with the delivery of 139 modernised aircraft and four air defence regiments armed with the S-400. 62% of aerospace assets were also considered to be serviceable.[106]

Fast jet fleet

The effort to modernise Russia's fast jet capabilities has centred round the large scale procurement of tactical aircraft such as the Su-30, Su-34 and Su-35,[107] and the development of a fifth generation fighter, the T-50 future combat aircraft.[108]

Development of the T-50 5th generation fighter aircraft is behind schedule. Only 12 of the 56 planned production aircraft are expected in service by 2020.

In late 2013 the air force completed the acquisition of 32 Su-34 fighter aircraft. A further 92 aircraft are expected to be delivered by 2020.

The T-50 is intended to be a competitor to the US F-22 Raptor and the F-35, featuring "new aerodynamics, long supersonic flight, super manoeuvrability and stealth to ensure air superiority; highly integrated multifunctional on-board equipment; multifunctional automatic attack and defence capabilities; and accuracy against ground and sea targets".[109] Despite being earmarked for entry into service in 2013, due to delays in the aircraft's development and testing programme a prototype of the T-50 only made its maiden flight in August of that year. The T-50 is now expected to be accepted into service in 2017, with deliveries of the aircraft commencing in 2018. However, acquisition of the full complement of 56 planned production aircraft by 2020 has been questioned. Some analysts have suggested that only a fraction of that production run (12 aircraft in total) is now expected within the 2020 timeframe.[110]

The delays in the T-50 programme have resulted in more Su-35 being procured than originally planned. Initially aimed exclusively at the export market, the Russian Defence Ministry has since used the Su-35 to provide an interim capability ahead of the entry into service of the T-50.

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104 *Key points of report of the Russian Defence Minister at extended session of the Russian Defence Ministry Board*, December 2015 and Statement to Extended Board Session of the Russian Defence Ministry, 22 December 2016

105 *Key points of report of the Russian Defence Minister at extended session of the Russian Defence Ministry Board*, December 2015

106 Statement to Extended Board Session of the Russian Defence Ministry, 22 December 2016

107 All upgraded variants of the Su-27.

108 The T-50 is the result of a Indo-Russian joint venture to develop a fifth generation fighter aircraft comparable to Western aircraft

109 "Russia brings forward testing of its fifth-generation fighter", *Jane's Defence Weekly,* 23 January 2009

110 "Russian air patrols: long range ambitions", *Strategic Comments,* June 2015

Forty eight aircraft were ordered in 2009.[111] A further 50 aircraft were ordered in December 2015, in a deal thought to be worth approximately R60- R75 billion.[112]

While the upgrade and acquisition of new aircraft is well underway, the delivery of precision guided weapons for those aircraft is considered to have fallen behind. As *RUSI Newsbrief* has noted:

> One conventional area where SAP-2020 has been unable to deliver, however, is that of precision guided weapons, because the Russian defence industry has been unable to meet the technical requirements specified. As a result, these will be the top priority for the next State Armament Programme, SAP-2025.[113]

Refuelling/transport fleet

The Air Force is also faced with the need to modernise and/or replace its modest air-to-air refuelling fleet. In 2014 the Russian defence ministry ordered two Il-96 tanker aircraft and is currently in the process of acquiring a number of new Il-78M-90A aircraft. However, the bulk of the fleet is now expected to be replaced by an improved version of the Il-76 aircraft, which is estimated to cost about one third of the cost of a new airframe.[114] Flight testing of the upgraded Il-76MDM aircraft had been due to begin in late 2015 but was delayed for several months due to "technical problems in adapting new systems and equipment to the current IL-76MD airframe". The first upgraded aircraft subsequently flew in February 2016. Thirty Il-76MDM aircraft are now expected to be delivered by 2020.

Prior to Russia's actions in Ukraine the Russian air force had also planned to procure a number of Ukrainian Antonov An-124 and An-70 transport aircraft to upgrade its fleet. However, those plans have now been shelved, with the modernisation programme now focused on the procurement of the Il-476 aircraft, an upgraded variant in itself of the Il-76.

Air defence systems[115]

The overall aim of reform efforts is to fully integrate all air and missile defence systems into one command and control system between 2016 and 2020. Russia is also investing approximately €40 billion in new weapons and upgrades to its surface-to-air systems.[116]

The focus in the last few years has been on the acquisition of the S-400 air defence system. The first operational unit was established in the Moscow Military District in 2007, with the second unit achieving operational status in 2009. By 2015 7 S-400 units were operational,[117]

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111 By 2014 34 of the 48 aircraft had been delivered with the remaining aircraft delivered in 2015.

112 "Russia orders 50 Su-35S multi-role fighters", *IHS Aerospace, Defence and Security*, 17 February 2016

113 "Russian rearmament: Putin's key priorities", *RUSI Newsbrief,* 1 May 2015

114 "Russia's IL-76MDM programme back on schedule, for now", *HIS Aerospace, Defence and Security,* 18 August 2016

115 Missile defence is formally the task of the Aerospace Defence Force, which was amalgamated with the Air Force in August 2015.

116 NATO Parliamentary Assembly Science and Technology Committee, *Russian Military Modernization,* October 2015

117 IISS *Military Balance 2015*, Ch5

with a further 6 delivered that year. An additional four missile defence regiments were armed with the S-400 over the course of 2016. By 2020, 56 S-400 battalions are expected to be in service. Whether that is achievable has been questioned given the rate of adoption thus far. It is not considered to be completely unrealistic however,

Delivery of the S-400 missile defence system remains a priority, although it remains to be seen whether the goal of 56 regiments in service by 2020 will be achieved.

Introduction into service of the new S-500 air defence system had also been earmarked for beginning of 2018, although this is now thought to be under threat given that production facilities are still under construction.[118] The intention had been to field 10 systems by 2020.

The S-500 programme is behind schedule.

Russia has also developed a new short-to-medium range surface-to-air missile, the Pantsir-S1. The system entered service in 2012 and approximately 42 systems are estimated to have been built thus far. Naval and arctic variants of the system are also thought to be under development.

Unmanned technologies

In the last five years Russia has made huge leaps in unmanned technologies. In December 2015 the Russian Defence Minister stated that "in 2011 there were only 180 UAV complexes in the Russian Armed Forces, there are 1720 modern ones now".[119] In December 2016 that figure was put at 2,000.[120] However, the majority of those platforms have been assigned to land and airborne forces.

It is only in the last few years that the Aerospace Force has attained a UAV capability, and then it is limited to intelligence, surveillance and reconnaissance. It currently has no combat UAV capability. However, in 2014 the Russian defence minister outlined plans to spend approximately €9 billion on unmanned combat aerial vehicle programmes by 2020. Russia has subsequently launched three UAV programmes with the aim of developing a light, medium and heavy combat UAV capability within this timeframe. The first 20-tonne UAV, which has been compared to a manned strike aircraft, is earmarked to fly by 2018. [121] However, as Professor Julian Cooper has noted:

The Aerospace Force plans to spend €9 billion on unmanned combat aerial vehicles by 2020.

> It remains to be seen whether new UAV development programmes will be affected by the breakdown of links with Ukraine, which manufactures power units for UAVs, and sanctions, which may limit access to electronic components essential for guidance and control systems in an advanced technology field in which Russia lags behind the USA, Israel and other leaders.[122]

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118 IISS, *Military Balance 2014*, p.163

119 *Key points of report of the Russian Defence Minister at extended session of the Russian Defence Ministry Board*, December 2015

120 Statement to Extended Board Session of the Russian Defence Ministry, 22 December 2016

121 *Russian military modernization,* NATO Parliamentary Assembly Science and Technology Committee, October 2015, p.12

122 Julian Cooper, *Russia's state armament programme to 2020: a quantitative assessment of implementation 2011-2015,* FOI-R—4239—SE, March 2016

Tomas Malmlöf has also argued that "the sheer number of projects signals a possible lack of focus due to technological shortcomings".[123]

Ground forces

Russian ground forces have been subject, over the last few years, to their own programme of modernisation. Much of that programme, however, has focused on organisational changes[124] and efforts to increase readiness, professionalisation, manning and leadership.[125] As a result there has been little qualitative or quantitative improvement to equipment[126] but significant progress in these other areas has allowed for a change in tactics, most recently demonstrated by Russia's 'hybrid' operation in Ukraine in 2014.

Much of the 'modernised' equipment that the Army has been receiving over the last few years has been upgraded versions of older models. By December 2015 approximately 35% of assets operated by Russian ground forces were considered by the Russian Ministry of Defence to be modern.[127] By the end of 2016 that figure had risen to 42%.[128]

However, a number of substantial upgrade and acquisition programmes are now starting to come to fruition.

Armoured fighting vehicles

Efforts to replace Russia's ageing main battle tanks (MBT) and infantry fighting vehicles have been one of the main focuses for the Army under the SAP. Described by one analyst as "the most ambitious programme of its type in the world", Russia aims to reduce the number of variants in service[129] and field an entirely new generation of armoured fighting vehicles, including new tanks, within the timeframe of the SAP.

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123 Tomas Malmlöf in *Russian military capability in a ten-year perspective – 2016*, Swedish Defence Research Agency, December 2016 , ch.6

124 The initial decision in 2008 to move from a divisional structure, to more mobile and flexible brigades has, in the last few years, been partially reversed. There has been a partial return to larger divisional formations geared towards major conflict, emphasised by the creation, in 2016, of two new divisions within the army to counter NATO. Further detail is set out in "Russia's new divisions", *RUSI Newsbrief,* March 2016

125 The size of the armed forces has been cut to approximately 798,000 personnel, with a further 2 million in reserve. The majority of those cuts have been made within the Army which has seen its strength decrease to 240,000 personnel (a loss of approx. 150,000 personnel in 7 years). Conscription still makes up a significant part of that force although plans still remain in place for professional forces to total approximately two-thirds of overall manpower strength by 2020. In November 2015 the Russian Ministry of Defence reported that for the first time the number of professional service personnel exceeded the number of conscripts. Further detail of the social aspects of reform is set out in Gudrun Persson, *Russian military capability in a ten-year perspective*, FOI-R-4326—SE, December 2016

126 With the exception of elite forces which have historically been better manned, funded and equipped.

127 *Key points of report of the Russian Defence Minister at extended session of the Russian Defence Ministry Board*, December 2015

128 Statement to Extended Board Session of the Russian Defence Ministry, 22 December 2016

129 Ground forces are currently equipped with ten different variations of four MBTs (the T-64, T-72, T-80 and T-90), and 7 different types of armoured personnel carrier and infantry fighting vehicle, all of which differ significantly in their characteristics and capabilities.

One of the programme's main aims is to replace all Russian T-72, T-80 and T-90 main battle tanks with the T-14 Armata MBT. The T-14 will be the first MBT produced by Russia in the post-Soviet era and has been portrayed as "the world's first third-generation MBT".[130] In September 2016 a contract was signed for the first 'pilot' batch of 100 T-14s, although the total contract is expected to run to approximately 2,300 units. Mass production of the T-14 was expected to begin by the end of the year, although it has been acknowledged that the production programme is now likely to be extended to 2025,[131] and therefore beyond the timeframe of the current SAP.

Other priorities include bringing into service the T-15 heavy infantry fighting vehicle (also based on the Armata platform and the first of its kind in the Russian army); the Kurganets armoured vehicle which will replace the BMP family of armoured fighting vehicles; the Bumerang wheeled combat vehicle; and a new variant of self-propelled artillery (the Koalitsiya-SV).

In 2015 alone, ground forces were equipped with 1,172 new tanks and other armoured vehicles; while priorities for 2016 included the re-equipping of a further 6 battalions with modern armaments.[132]

However a number of analysts have questioned whether Russia's armoured fighting vehicle project is actually deliverable under the current SAP. Christopher Foss has argued:

> Given the size of this ambitious Russian AFV programme, the current state of Russia's economy, and the effect of Western sanctions, it remains to be seen whether this programme remains on track and if it can deliver the required number of new platforms in the next five years.[133]

The NATO Parliamentary Assembly report of October 2015 also noted:

> Analysts expect that the larger, heavier, more complex and more expensive designs of the new vehicles may significantly challenge Russia's domestic industrial base and slow down Russia's rearmament if they are put into full-scale production.[134]

Special Forces

Russia's 'Spetsnaz' Special Forces have been expanded and enhanced with the addition of two new brigades. The Spetsnaz now consists of 15,000 -17,000 very well trained light infantry and intervention forces.

Recognising the need to develop what have been described as "tier one" special forces, able to operate in small teams and complex

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130 "Russia signs initial contract for 100 Armata MBTs", *Jane's Defence Weekly*, 12 September 2016. An excellent summary of the MBTs technical specifications is set out in "Russian revolution: new generation AFVs emerge", *IHS Aerospace, Defence and Security*

131 ibid

132 *Key points of report of the Russian Defence Minister at extended session of the Russian Defence Ministry Board*, December 2015

133 "Russian revolution: new generation AFVs emerge", *IHS Aerospace, Defence and Security*

134 *Russian military modernization,* NATO Parliamentary Assembly Science and Technology Committee, October 2015, p.9

environments, in 2010 a new Special Operations Command (KSO) was also created. Thought to number approximately 500 personnel with integral airlift and close support assets, it became fully operational in 2013 and was operationally deployed in Crimea in 2014. It is considered "a genuine enhancement of Russian capabilities".[135]

While many analysts have sought to make clear that the use of such elite special forces units in Crimea, is in no way representative of the capabilities of Russia's ground forces as a whole;[136] it has also been noted that "the Crimea operation demonstrated that Russia is already willing to use the most capable parts of its military while the main force is still developing".[137] As Bettina Renz, writing in *Survival* in summer 2014, argued:

> Despite the defence industry's major problems, the ease with which Russian forces acted in Crimea indicates that a lack of advanced equipment is not as significant an obstacle to Russia's strategic ambitions as was previously suggested.[138]

[135] "The belligerent bear", *Jane's Defence Weekly,* 11 February 2015
[136] See for example the IISS assessment of Russia in its *Military Balance 2015*.
[137] Keir Giles in Giles, Hanson, Lyne, Nixey, Sherr and Wood, *The Russian Challenge*, Chatham House Report, June 2015
[138] Bettina Renz, "Russian military capabilities after 20 years of reform", *Survival*, June-July 2014

5. Looking forward – the State Armament Plan 2018-2025

The next State Armament Plan had been expected to cover the period 2016-2025. However, given the ongoing uncertainty in Russia's economy, it is now expected to be published in 2017 and will cover the period 2018 to 2025. Like its predecessors the majority of detail in the SAP will be classified.

5.1 Projected spending

Over the whole period of the 2018-2025 State Armament Plan, the Russian Ministry of Defence has requested approximately R24 trillion,[139] while the Ministry of Finance is understood to have suggested half that figure. Funding for the next State Armament Plan is therefore currently under negotiation.

In October 2016 the Ministry of Finance announced the requirement for 12% cuts in government spending by 2018. As such, the Ministry of Finance's *Basic directions of budgetary policy for 2017 and the planning period of 2018 and 2019*, stated that, on current projections, defence expenditure will fall by 8.5% in 2017 to R2.8 trillion, followed by a further 3.8% reduction in 2018 to R2.7 trillion. Spending is then expected to rise once again in 2019 to R2.8 trillion.[140]

Given President Putin's commitment to rearmament as a key policy priority it is widely expected that funding for the SAP will be ring fenced within the context of these cuts and the Russian MOD is likely to receive the majority of its funding request for the SAP.

However, some impact is still considered likely, with many programmes expected to be delayed until after 2019 in the hope that a period of economic certainty may follow.

Yet, even with initial projected cuts in expenditure, the official defence budget for this period will still be higher than in 2014 and Russia's defence budget will still remain among the world's highest, as a proportion of GDP.

Funding for the 2018-2025 State Armament Plan is currently under negotiation, although the Russian Defence Ministry has requested R24 trillion.

Economic uncertainty is thought likely to impact on a number of programmes with delays and possibly even cancellations of some rearmament projects.

5.2 Expectations for the next SAP

While President Putin is politically committed to the long-term goal of rearmament the SAP has always been regarded as ambitious, given Russia's prevailing economic and domestic circumstances. And expectations for SAP 2018-2025 are no different. It is widely considered that the level of ambition for the rearmament programme going forward continues to be unrealistic within the context of expected defence spending and the ongoing challenges in Russia's defence

139 Susanne Oxenstierna in *Russian military capability in a ten-year perspective – 2016*, Swedish Defence Research Agency, December 2016

140 "Russian defence budget set to drop by 12%", *Jane's Defence Weekly*, 2 November 2016

industrial base. As an assessment in the 2016 *Military Balance* has observed:

> Given the current economic back-drop, funding the SAP to its full extent would require either defence expenditure as a proportion of GDP rises to around 6-7% of GDP […] or that economic growth soars to 7-8% between 2017 and 2020. Both scenarios are unlikely…

The current SAP has already seen many programmes delayed or scaled down and this trend is expected to continue. Should the reality fail to match aspirations, the predominance of nuclear forces is deemed likely to continue and the question then becomes which conventional programmes or areas of capability will be prioritised?

One view is that it does not matter. As a NATO Parliamentary Assembly report in October 2015 observed:

> Even if Russia's economic situation forces curbs in military spending and modifications of the SAP, Russian aggression has relied heavily on asymmetric tools such cyber and hybrid warfare tactics, which are not likely to be heavily influenced by Russia's economy.[141]

This is a view shared by Keir Giles:

> Crimea demonstrated that Russia does not have to wait until its military transformation is complete to use military force successfully. This is due to two key force multipliers: first, Russia's political will to resort to force when necessary, entirely absent in Europe; and second, the successful integration of other strategic tools such as information warfare, reflecting the new doctrinal emphasis on influence rather than destruction.[142]

Nuclear forces

Russia's nuclear forces and the revitalisation of the navy are expected to continue to take priority.

The modernisation of Russia's nuclear forces has long been identified as a priority within the SAP and that is not expected to change. Beyond existing upgrade and rearmament programmes (see above), work has already begun on a next generation long-range strategic nuclear bomber (PAK-DA), which will replace the Air Force's fleet of Tu-160 and Tu-95 aircraft. Initial design work began in 2011 and development contracts were signed in 2014. A prototype is expected in the early 2020s, although some estimates have suggested that flight testing could begin in 2019. Production is scheduled to begin in 2023, with full entry into service around 2030.

However, suggestions that the Ministry of Defence could re-establish the Tu-160 production line has led many to speculate over the future of the PAK-DA programme and whether, given its expense, the Ministry of Defence will be forced prioritise one of the two programmes, but not both. Given the importance of nuclear forces in Russian strategic thinking, others have argued that the air force's nuclear programmes are more likely to stay intact, albeit delayed, at the expense of

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141 *Russian military modernization,* NATO Parliamentary Assembly Science and Technology Committee, October 2015

142 Keir Giles in Giles, Hanson, Lyne, Nixey, Sherr and Wood, *The Russian Challenge*, Chatham House Report, June 2015, p.48

conventional air force projects such as the T-50 future combat aircraft, which could instead be scaled back.

Within the Russian Navy, further vessels of the *Borei-A* class SSBN, and its complement of Bulava SLBM are expected within the 2020-2030 timeframe. Work is also expected to begin post-2020 on a fifth-generation SSBN, and equivalent SLBM. Production and entry into service of that next generation SSBN has been earmarked for 2031-2050.[143]

Navy next steps

Revitalisation of the Navy has been a key priority in the last two SAP and, thus far, there has been little indication that this will change. Russia's 2015 *Maritime Doctrine* has identified construction of a new destroyer (the *Lider* class) with advanced strike, air defence and missile defence capabilities and a new fleet of multi-role combat ships, to succeed the *Admiral Gorshkov* class and the *Steregushchiy* class, as priorities in the 2021-2030 timeframe. However some analysts have questioned where the funding for a full complement of 12 new destroyers will come from, given that significant investment is also required in the Severnaya Verf shipyard, which has been earmarked to build these ships. An article in *Jane's Intelligence Review* has suggested that "the Severnaya Verf shipyard needs to build a new complex, which is unlikely to be ready before the end of 2017. This would suggest an in-service date of 2023 at the earliest".[144]

Russia has also recently indicated its intent to construct its own amphibious assault ships, after the French Mistral programme was cancelled in 2015.[145]

Construction on a new fifth-generation multi-purpose submarine (the *Kalina* class) is also expected to begin in the next few years. Equipped with an air independent propulsion (AIP) system, these new submarines will be capable of submerging for weeks at a time and will be much stealthier than existing submarines in the Russian fleet.

Whether the Navy will sustain its current level of funding, however, has started to be questioned by many commentators. On the prospects for Russian shipbuilding going forward, *Jane's Navy International* commented in August 2016:

> Russia's naval shipbuilding industry still faces the risk of falling behind wider international construction standards. With the lack of long term investment in infrastructure, the current pace of new-build work threatens to impact on the ability to meet the navy's desire to increase force levels in the short term – and would also undercut Russia's drive to re-establish itself as a significant naval power in the coming years.[146]

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143 Russian *Maritime Doctrine* 2015
144 "Russia modernises its northern fleet", *jane's Intelligence Review,* 4 July 2016
145 Tomas Malmlöf in *Russian military capability in a ten-year perspective – 2016*, Swedish Defence Research Agency, December 2016 , ch.6
146 "The long and the short of it: Russia balances naval intentions and shipbuilding investment", *Jane's Navy International,* 5 August 2016

Professor Geoffrey Till of King's College, London has also observed:

> The fortunes of the navy have always waxed and waned to an extraordinary degree according to the whims of the country's political leaders. The navy may well be the fashion of the day, but how long will this continue, given the continental stress of Russia's way of war and the country's enduring political and economic problems?[147]

In contrast, Tomas Malmlöf recently argued:

> Russia's naval shipbuilding programme gives a clear impression of a learning-by-doing philosophy. While building smaller corvettes and frigates, its shipbuilding industry gathers useful knowledge to put into shipyard renovation and new designs for larger ships, facilitating a smooth transition to the anticipated scaled-up production during the next decade. Assuming further state financing and support, it is likely that we will see a more capable shipbuilding industry to support Russia's naval ambitions in the 2020s.[148]

Air Forces

Serious delays in the T-50 future combat aircraft programme have already led to speculation that the full complement of aircraft will not be achieved within the 2020 timeframe. Over the period of the next SAP the scope of the programme could feasibly be scaled back, particularly if the decision is taken to prioritise the air force's strategic role. As an assessment in Strategic Comments in June 2015 highlighted:

> It remains to be seen whether the air force can keep up the momentum of modernisation seen over the past few years in the face of growing funding pressure. If confronted with a choice, it is not clear whether it would attempt to sustain its strategic role at the cost of reining in its tactical combat aircraft projects. For instance, the future bomber project is an ambitious programme that will place a considerable burden on air force coffers at a time when Moscow may well be forces to tighten defence spending.[149]

Ground forces

The main task for the next SAP is to continue the roll-out of the armoured fighting vehicles (AFV) replacement programme. Production of the new T-14 MBT has been extended out to 2025; while other variants of AFV, based on the Armata platform, are also expected to be prioritised. Mass production of the T-15 heavy infantry fighting vehicle will continue; the Kurganets system is expected to enter production in 2019; while large-scale delivery of the Bumerang is scheduled to begin at the same time, ensuring that all of these new armoured vehicle programmes continue well into the next decade.

The bulk of Koalitsiya-SV self-propelled artillery systems are also expected to enter service after 2019.

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147 "Future conditional: naval power sits at centre of Russian strategy", *IHS Aerospace, Defence and Security,* 20 July 2016

148 Tomas Malmlöf in *Russian military capability in a ten-year perspective – 2016*, Swedish Defence Research Agency, December 2016 , ch.6

149 "Russian air patrols: long-range ambitions", *Strategic Comments,* June 2015

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