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SEPTEMBER 2024 | THE RETURN OF GLOBAL RUSSIA

Russian Military Reconstitution: 2030 Pathways and Prospects

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This publication was funded by the Russia Strategic Initiative, U.S. European Command.

The views expressed in this publication do not necessarily represent the views of the Department of Defense, or the United States government.

The information in this study is current as of June 29, 2024.

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Summary

Russia is poised to begin a long-term military reconstitution program designed to restore losses from its full-scale invasion of Ukraine and to potentially expand the force beyond 2022 levels. While the Kremlin has not yet decided on the future force design of its military, this paper highlights the near-term policy choices, opportunities, and constraints that will likely shape Russia's military reconstitution process through 2030. As the Kremlin's antagonism toward Ukraine and the West sharpens, it will be critically important for policymakers and warfighters to anticipate, monitor, and respond to Russia's military reconstitution progress in the years ahead.

What is reconstitution, and how should it be thought of in practice? Broadly speaking, reconstitution is a process by which a military unit is restored to a sufficient level of combat capability after sustaining losses in combat. Reconstitution is accomplished through replenishing a unit with personnel, equipment, and other critical enabling components. Reconstitution begins during wartime and continues in the postwar period, as military and civilian leaders make procurement and recruiting investments to restore wartime losses.

Reconstitution should not be framed as a military force being in a binary state of "reconstituted" or "unreconstituted," and nor should reconstitution be measured only through the restoration of prewar numbers of personnel and equipment. Conceptualizing reconstitution in such a manner is too imprecise to be beneficial for strategists and planners. Reconstitution is a process of regaining combat functions, proficiency, and capabilities that will allow a force to execute various types of combat missions.

A more precise method of evaluating Russian reconstitution requirements and the Kremlin's progress toward those goals involves identifying requisite force structures and proficiency levels for Russian forces to accomplish different types of missions. Reconstitution requirements vary based on the specific conflict scenario, whether it is a limited power projection into another neighboring country that is not a member of the North Atlantic Treaty Organization (NATO), a second attempt at achieving 2022 maximalist invasion goals for Ukraine, or a war against NATO.

In the two years since Russia's full-scale invasion of Ukraine, the Kremlin has chosen to reconstitute its forces without setting the economy on a full war footing. It has done so through partial mobilization, repairing on-hand equipment, purchasing ammunition and weapons from abroad, offering lucrative financial incentives for volunteer soldiers, and maximizing production at existing defense factories. Yet, apart from drone production, equipment production capacities have plateaued as of early 2024. Russia could generate more efficiency in the system by reducing corruption on the margins and reemphasizing innovation for certain technologies, but this would not result in a dramatic increase in available resources.

For Russia to reach a fundamentally higher level of weapons production or manpower availability compared to early 2024 levels, the government would need to activate additional mobilization authorities that would likely affect its economy, labor market, and population's engagement with the war, putting the country on even more of a wartime footing than it is as of 2024. Thus far, the Kremlin's calculus and political will have constrained Russia from taking such a step.

While a precise vision of the future regenerated Russian military has not yet come into focus, it is clear from recent debates and actions that Russian leadership intends to enlarge the force. It is also likely that the acquisition of combat experience has raised the military's proficiency. Still, Russia faces multiple financial and demographic factors that will constrain how far it can grow qualitatively and quantitatively by 2030.

Key Findings

- Thus far, Russian leaders speak in euphemisms about their combat losses in Ukraine and cloak their considerable regeneration requirements by tying them to a need to counterbalance NATO expansion. This allows authorities to justify expenses and force expansion without admitting that these high requirements mostly stem from losses in Ukraine.

- Russia is reconstituting its force in the short term by refurbishing older equipment at sufficient rates, mobilizing personnel, and recruiting volunteers. The majority of Russia's equipment delivered to the front lines is refurbished equipment. It is suitable for soldiers' needs but is qualitatively worse than newer equipment. If early 2024 loss rates continue, Russia risks depleting available Soviet-era stockpiles for certain types of equipment possibly in 2026.

- Russian leaders have a few options for reconstituting the force in the medium term (through 2030), and the path they choose will be determined by the Kremlin's priorities. If reconstituting and expanding the force as quickly as possible is of paramount importance, Russia's current reconstitution efforts, which have plateaued, will be insufficient. In this case, Russian leaders will likely be forced to take steps that they have so far resisted—for example, activating additional mobilization authorities to move society and the economy to expand domestic production capacity.

- If managing domestic stability and economic concerns are more important than rapid reconstitution and force expansion, Russian leaders will likely continue to accept risk and produce equipment at the current 2024 capacity levels, or gradually expand production over time through the early 2030s. This pathway is probably only feasible for the Kremlin if the conflict in Ukraine freezes or ends and Russia is willing to temporarily rely on older Soviet equipment from reserves as it produces new equipment over time.

- Presently, several structural factors limit the rate at which new Russian military equipment can be produced. Space at Russian defense factories is in high demand for multiple purposes (new builds, repairs, and exports) and cannot easily be converted to increase new domestic production without resulting in tradeoffs. Further, Russia's production capacity cannot be expanded much beyond 2024 levels unless new factories are built or Russian leaders accept the risk in temporarily halting exports (which is unlikely) or halting production while factories can be retooled and updated (which is incompatible with production rates needed to sustain wartime demands).

- Other methods to expand defense industrial output include expanding powers to convert civilian factories into wartime production factories, which would be a signpost that mobilization is expanding in Russia. Russia could opt to import armored equipment from other countries, although doing so would be a major departure from historical norms. Such a departure would suggest that Russia is unwilling to accept risk in the short term and plans to continue offensive action against Ukraine.

- Reconstituting personnel and proficiency in the postwar years will also be a complex challenge for the Kremlin. Impacts of the war on military retention are currently masked due to wartime policies that prohibit servicemen from resigning. Russia is resorting to providing higher wages and social benefits to attract wartime recruits, but maintaining this high per capita spending in the postwar period would add more internal pressure on an already high defense budget.

- Some officials are requesting a larger force—up to 1.5 million personnel, but so far the force remains capped at an elevated 1.3 million. Expanding the force would require significant investment in the production of new equipment, the recruitment of additional professional soldiers in a society that has recently grown accustomed to high wages and expensive social entitlements and benefits, as well as the construction of new military base infrastructure. These expenses would coincide with procurement pressures on an already bloated defense budget and an already strained male labor force.

- Notably, Russia has large untapped human resources that so far have not been utilized to staff the war effort. Russia has not reached far into its large reserve officer cadre, and nor have they lifted restrictions on the types of positions Russian women can hold in the military or the defense industrial base. Instead, authorities have chosen other stopgap measures, such as condensing military training for new cadets or recruiting from prisons or abroad to fill its military billets and some defense industry jobs. Changes to these policies would be a signpost that Russia intends to expand the military or defense industry workforce.

- Excessive secrecy about casualties and equipment losses, along with expanded censorship laws that limit free speech on many topics related to the Russian military, are likely to hinder or distort reconstitution debates. Criticisms of the war effort, particularly of the high equipment and manpower costs, are increasingly taboo, criminalized, or classified. Such a closed environment limits the discourse on reconstitution and the future design of the Russian military. This secrecy, self-censorship, and censorship are also at odds with the Kremlin's directives to increase innovation in the private sector.

- Groups of junior officers and experienced noncommissioned officers (NCOs) have sustained the heaviest casualties in the war, but the survivors will have extended combat experience and compressed formal military education. This combination may lead to rapid transformational change in the Russian military in the future, if the survivors' experiences can be harnessed and introduced widely in the postwar years.

- Russia's preferences for a larger force may not be entirely compatible with its demographic and financial realities, and the Kremlin may find that it is unable or unwilling to finance a larger professional standing army. Balancing these preferences and constraints may lead once again to a mixed readiness system for the military, where a smaller and financially manageable active-duty force of 1 million is maintained along with an expansive (and now combat experienced) strategic reserve of personnel and equipment that could be mobilized if necessary. This path would allow Russia to maintain a larger force potential without incurring the significant financial costs and infrastructure requirements of maintaining a larger permanently ready force. Such a force would resemble the return of the mixed readiness system of the late-Soviet and immediate post-Soviet era and would be a significant departure from the last twenty years of force posture and military thought.

- The Russian military has historical experience with capturing lessons learned from wars and implementing them throughout the force. Specifically, the military may draw from experiences of the post–World War II learning period that rapidly ingested and disseminated lessons throughout the Soviet military. Formal learning organizations will likely be set up in the immediate postwar years to conduct analysis and disseminate the findings to influence concepts, operational art, and force design. This process will be impeded if the process is compromised due to political sensitivities or false reporting.

Introduction

Since its full-scale invasion of Ukraine in 2022, the Russian military has sustained severe losses that exceed 15,000 thousand pieces of equipment and well over 350,000 casualties (wounded and killed in action) as of early 2024.[1] The task of reconstituting the military will be a national challenge. Through words and deed, the Kremlin is signaling its intention to rebuild its military quickly and potentially even expand the force in the years to come. At the same time, Russia faces numerous structural challenges and domestic sensitivities that may impede lofty reconstitution goals. This paper evaluates Russia's opportunities and constraints in reconstituting its military through 2030. Because Russian leaders have neither presented a long-term vision for the Russian military's future, nor officially identified a course for Russian military reconstitution at the time of this paper's writing, the paper considers near-term obstacles and opportunities that will remain constant no matter the course the Kremlin opts to take.

What is military reconstitution, and how should it be thought of in practice? Broadly speaking, reconstitution is a process by which a military unit is restored to a sufficient level of combat capability after sustaining losses in combat. Reconstitution is achieved through replenishing a unit with personnel, equipment, and other critical enabling components. It is a process that begins during wartime and continues in the postwar period, as military and civilian leaders make procurement and recruiting investments to restore wartime losses. Military reconstitution should not be framed as being in a binary state of "reconstituted" or "unreconstituted," and nor should reconstitution be measured only through the restoration of prewar numbers of personnel and equipment—although those inputs are important. Reconstitution is a process of regaining sufficient combat functions and capabilities that will allow a force to execute various types of combat missions.

The reconstitution of the Russian military through 2030 and beyond will involve the restoration of capability and proficiency over time—not only the fulfillment of, for example, equipment and ammunition production quotas and personnel recruiting goals. While restoring sufficient tangible aspects of military capability like amounts of equipment, ammunition, and personnel is important for reconstitution, these are parts of a larger whole of combat capability and ability to execute missions. Thus, NATO planners should seek to answer a broader question: when will the Russian military reconstitute the capability to accomplish different types of missions, such as a limited power projection into another neighboring non-NATO country? A second attempt at achieving 2022 maximalist invasion goals for Ukraine? A large-scale war against NATO?

Some Russian military capabilities will be reconstituted faster than others for many reasons. Russian leaders may be willing to accept risk in certain capabilities or geographical areas while prioritizing others. They might prioritize the regeneration of forces in western Russia near NATO allies or the faster regeneration of Russia's traditional elite forces, the Special Forces and the Russian Airborne Forces (VDV), while forces elsewhere recover much more slowly.

No matter the route Russia chooses to reconstitute the military, the process will be shaped by the severity of losses of equipment and manpower, the challenges that sanctions impose on aspects of the Russian economy and defense industrial base, and other structural problems that constrain available funds and labor. However, there are several enabling factors that will support Russia's reconstitution process, namely historical experience with reconstitution, the institutional capture of lessons learned, and a track record of tailoring defense orders to requirements and strategy. Further, Moscow could accept risk and bring more of the economy onto a war footing, or it could reluctantly revise core policies to enable the military to reconstitute more quickly. For example, the Kremlin may borrow additional funds from abroad, import more major combat equipment, or allow more women in defense industrial and combat roles to fill labor shortfalls. This paper will assess the interaction between Russia's opportunities and constraints that will shape reconstitution.

At present, Russia is reconstituting its forces while still engaged in high-intensity combat in Ukraine. By early 2025, the Russian government claims it will unveil a new ten-year defense plan, which will allow for long-term reconstitution and the potential expansion of the force.[2] Russia's ability to reconstitute, and to what end, will have global implications and must be considered carefully. This paper will be useful to policymakers seeking to adjust their own countries' strategy and force posture in the years ahead.

Paper Structure and Scope

This paper explores Russia's ability to reconstitute its military through 2030, with a particular focus on key constraints and underappreciated aspects of the reconstitution process. The paper first defines what reconstitution is and is not, using U.S. terms and Russian terms, as there are some differences between how the two countries conceptualize reconstitution. The paper then briefly outlines losses of equipment and personnel from February 2022 to April 2024 (in other words, what must be regenerated). The third section outlines public conversations in Russia about strategy and future force posture for the Russian military. The paper addresses prospects and challenges for Russia as it replenishes and reconstitutes military personnel, equipment, and materiel. In doing so, the paper considers structural factors such as demography, domestic labor policies, wartime defense industrial capacity for repairs and new production, and financial investments. It also discusses the degree to which financial constraints may hamper reconstitution and whether sufficient defense-industrial capacity exists to sustain the required rate of production through 2030 and beyond. Through analysis of these subjects, the paper identifies enduring factors that Russian leadership will likely consider as it looks to the future task of rebuilding its military. The discussion ends with conclusions and signposts of change for Russian military reconstitution through 2030.

A roughly five-year analysis (through 2030) allows for the sufficient evaluation of current resources and near-term policy choices available to Russian leaders. The paper uses available open-source

information derived from Russian news media, officials, opposition media, and military science journals. It also uses Ukrainian materials and analysis of Russian military capabilities, as well as Western analysis on reconstitution. Of course, there are challenges inherent to using open-source information about Russia's operations in Ukraine, as released information is often intended to influence, not just inform. Where possible, commercial satellite imagery was used to identify regeneration areas and to corroborate other open-source information about the rate of equipment drawdowns from Russia's central storage.

As of this paper's writing, the war is ongoing, and Russian officials have not yet determined the military's future form. Data availability and the reliability of many primary sources on Russian military topics have declined over time, as more defense topics have become classified (or prohibited to discuss) within Russia. Given these limitations, it is not possible to identify a most likely course of action for Russian military reconstitution. However, by illuminating opportunities, constraints, and tradeoffs, it is possible to evaluate realistic options that the Kremlin might select, as well as unexpected deviations, that could shape the pace and extent of Russian military reconstitution through 2030.

Defining Military Reconstitution

Reconstitution is a process by which a military unit is restored to a sufficient level of combat capability after sustaining losses in combat. Reconstitution is achieved through replenishing a unit with personnel, equipment, and other critical enabling components. It is a process that begins during wartime and continues in the postwar period, as military and civilian leaders make procurement and recruiting investments to restore wartime losses. Reconstitution is not a binary state of reconstituted or unreconstituted; reconstitution is a process of regaining combat capabilities over time that will allow a force to execute various types of combat missions.

It is important to define what military reconstitution means to Russian officials, as the concept is used somewhat differently by Western officials. Because U.S. terms have more distinct definitions, this paper will use U.S. military doctrinal terms, while also including Russian terms and concepts for reference.

U.S. Definitions of Reconstitution

According to U.S. military doctrine, military reconstitution is defined as "actions taken to rapidly restore functionality to an acceptable level for a particular mission, operation, or contingency after severe degradation."[3] In other words, reconstitution is a process by which a military unit restores an acceptable level of combat effectiveness after being damaged in combat. Reconstitution in U.S.

military doctrine consists of two elements: *reorganization* (actions local commanders can take during combat to address losses or degradation, including reallocating forces within their own unit) and *regeneration* (a more intensive process that involves removing a damaged unit to a separate site area away from combat and replenishing it with personnel and equipment over time with external resources). Reorganization is used in lieu of unit rotation when the operational pace, mission, or time does not allow for a new unit to replace the damaged unit.[4] Regeneration can only be initiated by higher echelons of the command chain, such as removing a unit from combat for recovery at a regeneration site, assessing its remaining combat effectiveness, and making resources available to improve that effectiveness. Other regeneration activities range from reestablishing unit command, training for future operations, and reestablishing unit cohesion after it is replenished with personnel.

Reconstitution "involves actions taken to rapidly restore functionality to an acceptable level for a particular mission, operation, or contingency after severe degradation." Those actions include reorganization and regeneration, which "commanders plan and implement to restore units to a desired level of combat effectiveness, commensurate with mission requirements and available resources."[5]

Reorganization "includes actions that commanders take to restore degraded units to combat effectiveness commensurate with mission requirements and available resources."[6]

- ***Immediate reorganization*** is "the rapid and usually temporary restoration of attrited units to minimum levels of effectiveness," typically in the combat position or as close as possible to them. [7]

- ***Deliberate reorganization*** is done "when more time and resources are available," farther away from combat actions, and when more replenishment resources and repairs are available.[8] For example, a unit can be organized internally, a damaged army company can be replenished from other companies in the battalion or brigade, or two or more damaged units can be combined to form a single mission-capable unit.[9]

Regeneration is a more intensive and large-scale action taken to restore combat effectiveness of an attrited unit. It involves the "large-scale replacement of personnel, equipment, and supplies," possibly the chain of command, and essential training.[10] Regeneration occurs after a unit has been ordered to disengage from combat and occurs in a designated regeneration site away from hostilities. Regeneration requires assistance from higher command echelons, external resources, and typically large quantities of personnel and equipment; and it can take days, weeks, or longer.[11]

Force generation, in U.S. military doctrinal terms, "is the military force created from available resources and personnel to be projected and employed."[12] Peacetime force generation is the process by which a military recruits (or conscripts) personnel and trains them to create combat-ready units. In wartime, mobilization can be used to generate new units.

Recovery is action "taken to physically gain custody of isolated personnel and return them to friendly control," as well as action "taken to extricate damaged or disabled equipment for return to friendly control or repair at another location."[13]

Russian Definitions of Reconstitution

The Russian military uses different terms and concepts for what the U.S. military defines as reconstitution. In Russian military doctrine, the closest term to military reconstitution is *vosstanovleniye* (in Russian, Восстановление), which translates most directly in a military context as "recovery" (literally meaning rebuilding or restoration).[14] The meaning of *vosstanovleniye* often shifts based on context. It is most often used to mean restoring combat capability (*vosstanovleniye boyevoi sposobnosti*) to a level of readiness sufficient to conduct operations and carry out missions as needed. *Vosstanovleniye* can also mean the recovery, repair, and restoration of damaged combat equipment (*vosstanovleniye tekhniki*), and it can also be used in the context of regenerating personnel from some sort of reserves within a unit or elsewhere (*vosstanovleniye reserv*). The verb *vosstanovit'* (восстановить) translates in a military context as "to regenerate" (literally meaning rebuild or restore). Table 1 defines key Russian terms and lists the most direct U.S. military terminology equivalent.

Table 1. Comparison of Russian and U.S. Military Terminology for Reconstitution

Russian Term	Definition	U.S. Military Equivalent
Combat capability (Боевая Способность)	The state of forces characterizing their ability to successfully conduct combat operations in accordance with their intended purpose in any situation and to realize their combat capabilities. Levels are combat-capable (75 percent or more of organizational structure), limited combat capable (50–75 percent), partially combat-capable (30–50 percent), and noncombat-capable (<30 percent).	Combat effectiveness
Reconstitution or recovery (Восстановление)	Restoring of an object to an operational state, often accompanied by an estimate of time to restore to full operational status.	Recovery
Reconstitution of combat capability (Восстановление Боеспособности)	A set of measures to bring formations that have suffered heavy losses to a state of readiness to carry out combat missions. The set includes the identification of losses and remaining capabilities; withdrawal to a safe location to replenish personnel, weapons, and equipment; and maintenance of the psychological readiness of troops.	Reconstitution, regeneration

Reformation (переформирование)	A unit with severe loss of combat capability (more than 70 percent of unit strength) must be withdrawn from combat to an area of regeneration and rest. The chain of command will determine whether the unit will be regenerated, consolidated, or disbanded and whether remaining elements will be sent to other units.	Regroup
Area for restoration of combat capability (район восстановления боевой способности)	An area away from the front line where combat capability can be restored.	Regeneration site
Restoration of equipment (Восстановление Техники)	A set of measures to retrieve equipment and restore the combat effectiveness of weapons and military equipment. The process includes technical reconnaissance, evacuation or transportation, and repair and return of equipment to combat units or to field restoration points.	Recovery (equipment)
Reequipment (Переоснащение Воинских частей, or перевооружение)	Reequipment of forces with modern equipment; rearmament planned and implemented according to programs, research and development, and scientific development.	Rearmament
Regrouping of forces (перегруппировка войск (сил))	Redeployment or transfer of existing formations in a theater of operations elsewhere to strengthen offensive actions, closing gaps in defense, or restoring reserves. Can be strategic, operational, or tactical, depending on goals.	Redeployment
Relief, transfer of troops (смена; Перебросить)	Routine transfer or rotation of troops in combat.	Rotation, relief
Replenishment (пополнении)	Replenishment or resupply of a unit with needed supplies.	Replenishment

Sources:"Boyevaya sposobnost'," Encyclopedia of the Russian Ministry of Defense, 2024, https://encyclopedia.mil.ru/encyclopedia/dictionary/details.htm?id=3465@morfDictionary. A. Nazarenko, "Kak vosstanovit' boyesposobnost' batal'yona," Armeysky Sbornik 2017, No. 10, https://dlib-eastview-com.ceip.idm.oclc.org/browse/doc/49865202. Dmitry Semyonov, "Budushcheye, kotoroye my vybirali. I zashchishchayem," Ural'skiye voyennye vesti 2024, No. 13, https://dlib-eastview-com.ceip.idm.oclc.org/browse/doc/96591265. "Peregruppirovka voysk," Encyclopedia of the Russian Ministry of Defense, 2024, https://encyclopedia.mil.ru/encyclopedia/dictionary/details.htm?id=8647@morfDictionary. "Vosstanovleniye," Russian Ministry of Defense Handbook of Military Terminology, 2024, https://dictionary.mil.ru/dictionary/Terminy-po-tematike-svyazi/item/139617/.

There are many similarities between U.S. and Russian military doctrine on reconstitution. Like U.S. military doctrine, Russian military thought accounts for two aspects of reconstitution: reorganization and regeneration. U.S. and Russian tactical reorganization is also defined similarly: when combat losses are manageable, local commanders are expected to reorganize their units in place. Both U.S. and Russian unit commanders are expected to tactically reorganize with their own units' assets if combat loss rates are around 15–20 percent of personnel and equipment and if the unit is still

considered combat capable.[15] They will need higher echelon support for losses approaching 20–30 percent of a unit's structure.[16]

Both U.S. and Russian forces use regeneration sites located far from combat zones, where units are evaluated and regenerated over time. Both countries' systems require a higher command decision (typically two echelons higher) to regenerate a unit. Both systems determine when regeneration is sufficient based on the ability to restore combat effectiveness, not on the ability to restore capacity to a fixed prewar number of personnel, weapons, or equipment. In both systems, many factors determine whether a unit is ready to execute a given mission. For example, a regenerated unit can be considered combat effective if it can accomplish a mission even if has manpower or equipment shortfalls or is using older equipment. In the Russian system, if an artillery unit can achieve a certain rate of fire missions within a specific time range, it can still be considered combat capable, even if it has lost personnel and artillery pieces.[17]

There are a few significant differences between Russian and U.S. reconstitution concepts. One key difference is what combat loss ratio would trigger the regeneration process. Regeneration for an American unit begins when a damaged unit cannot meet mission requirements by reorganizing with available resources. While there is not always a specific threshold for triggering regeneration and it is often highly scenario-dependent, in general terms, when a U.S. Army unit has sustained a 40-percent loss of personnel and a 30-percent loss of major weapons systems, it typically must be regenerated before its next mission.[18]

By comparison, Russian units require higher-echelon regeneration support when they lose between 30 and 70 percent of their equipment and personnel.[19] Russia defines combat capability in four general bands: units are considered fully combat capable if they have 75 percent or more of their organizational structure, limited or partially combat capable at 50–75 percent strength, and partially combat capable at 30–50 percent strength, and noncombat capable if less than 30 percent of their unit remains.[20] The Russian military regenerates a unit by reorganizing and consolidating damaged subunits into one functional unit (for example, two understrength companies consolidate into one combat-capable company) or by replenishing from external sources.[21]

Other than casualties or equipment losses, a Russian unit can also lose combat capability if enough of its personnel experience battle fatigue or psychological distress and cannot properly fulfil their combat duties ("loss of moral-psychological readiness"). In this case, troops may be sent to other facilities to rest or receive interventions, or in doctrinal terms, to restore their moral-psychological readiness.[22]

Another difference between American and Russian doctrine on regeneration stems from Russia's experience (and the United States' recent inexperience) with destruction of units, or irrecoverable losses. According to U.S. doctrine, damaged units are expected to be moved to rear areas, where they

will eventually be regenerated. According to Russian doctrine, there is a third category for units that have been destroyed (defined at over 70 percent losses). Such units are classified as non-mission capable and withdrawn to regenerate sites when possible.[23] Higher echelons of Russian command either decide to regenerate them to their original structures, consolidate their assets into a smaller echelon, or disband the units and send their remaining assets to replenish other forces. This latter option is taken if the Russian command determines the losses are too great to be regenerated.[24] Russian units at times have faced these levels of attrition in Ukraine, and the Russian command has opted to regenerate them with mobilized or volunteer personnel.

What Must Be Reconstituted? Baselining Russian Losses From 2022 to 2024

Russian personnel and equipment losses from two years of full-scale war are severe and will require national-level policies and attention to restore. To evaluate the weight of the reconstitution task ahead of the Russian government, first it is necessary to baseline combat losses of manpower and equipment using available open-source information.

The Russian military has three categories for equipment losses: irrecoverable losses, recoverable losses, and "current repairs" (routine maintenance).[25] Irrecoverable losses are permanent or otherwise irreversible, such as destroyed or captured equipment. Recoverable losses refer to equipment that can be returned to combat duty after major, intermediate, or light repairs. Current repairs refer to equipment that is temporarily unavailable due to routine maintenance.

Russia has lost over 15,000 pieces of equipment according to open-source research; and, for now, the Kremlin is relying on its strategic reserves of Soviet-era equipment to sustain its war effort. Open-source information on the number of irrecoverable or permanent losses of Russian combat equipment—including information from Western governments—indicates that losses (as of April 2024) total up to around 3,000 tanks, over 5,000 armored vehicles, over 1,000 artillery systems, 100 fixed-wing aircraft, 130 helicopters, 350 unmanned aerial vehicles (UAVs), and over a dozen naval ships.[26] Open-source information further indicates the loss of over 3,000 specialized trucks, and engineering and transportation vehicles.[27] See Table 2 for a summary of major combat equipment losses from February 2022 to April 2024.

To put these figures in perspective, as of April 2024, Russia has lost more tanks than it had in its entire prewar active-duty tank force and over 30 percent of its most advanced self-propelled artillery and multiple rocket launcher systems. The Black Sea Fleet has lost over 20 percent of its prewar order of battle, and it cannot be augmented from fleets outside the Black Sea or Caspian Sea, as Turkey implemented Montreux Convention restrictions in 2022. The Russian Air Force has lost less than 10 percent of its prewar order of battle.

Table 2. Visually Confirmed Russian Equipment Losses, February 2022–April 2024

Equipment Type	Losses as of April 8, 2024	Prewar Number in Active Duty (Reserves)	Percentage of Total Losses, Active Duty (Active Duty Plus Reserves)
Main battle tanks	2,500–2,900	2,840 (10,200)	>100 percent active prewar (18–21 percent)
Armored personnel carriers and infantry fighting vehicles	4,800–5,400	14,280 (15,500)	34–35 percent active prewar (16–17 percent)
Self-propelled artillery and multiple rocket launchers	980–1,080	3,024 (7,480)	32–36 percent active prewar (9–10 percent)
Air defense systems	220–290	2,234	10–13 percent
Helicopters	94–135	821	11–16 percent
Fixed-wing tactical aircraft	71–99	1,172	6–8 percent
Ships (Black Sea Fleet)	13	58	22 percent

Sources: Jakub Janovsky, naalsio26, Aloha, Dan, Kemal and Alexander Black, "Attack On Europe: Documenting Russian Equipment Losses During The Russian Invasion Of Ukraine ," Oryx, February 24, 2022, https://www.oryxspioenkop.com/2022/02/attack-on-europe-documenting-equipment.html; Russo-Ukrainian Warspotting, https://web.archive.org/web/20240409070200/https://ukr.warspotting.net/; Ukraine Control Map [@UAControlMap], "Quick reference sheet for what's still floating in the Black Sea atm" X.com, March 5, 2024, https://twitter.com/uacontrolmap/status/1765007607096324122?s=46; IISS, Military Balance, Chapter 5, Russia and Eurasia, 2021.

Notes: Counts are current as of April 8, 2024. The air defense category includes tactical and strategic systems operated by the Russian Aerospace Forces and Russian Ground Forces. The ship losses refer to the Black Sea Fleet and its augmentation of four ships from the Caspian Flotilla only. Reserve numbers are a total count and do not account for serviceability rates, which vary.

Casualties

Like equipment losses, personnel losses in the Russian military fall into three categories: irrecoverable losses, recoverable losses, and sanitary losses.[28] Irrecoverable losses refer to personnel killed or who died from wounds, personnel missing in action or captured, or personnel who are permanently disabled and no longer able to serve. Recoverable losses refer to severely wounded personnel who can return to combat duty after recovery or can resume duties with reduced functions. Sanitary losses refer to mildly wounded personnel or sick personnel who are convalescing. Reliable information about recoverable losses (soldiers who are wounded in action but who can return) is not widely available.

Russian combat casualties from 2022 to 2024 are extensive; and as researchers note, Russia has lost more personnel from its war on Ukraine than were lost in all previous Russian conflicts since WWII combined.[29] Between February 2022 and April 2024, at least 50,000 and possibly as many as 85,000 Russian soldiers and paramilitary fighters were killed in Ukraine, a figure that is at least four times the number of combat deaths sustained by the Soviet Union from 1979–1989 during a lower-intensity war in Afghanistan.[30] When adding wounded personnel to the tally, total casualties as of June 2024 are estimated to be over 350,000.[31]

Officially however, Russia claims to only have lost 5,937 personnel (with the last update in September 2022).[32] Even though military cemeteries across Russia continue to expand with fresh graves, the Kremlin does not publicly acknowledge any deaths above the official total and has criminalized public discussion of combat deaths as either divulging state secrets or "discrediting the Armed Forces."[33]

In mid-April 2024, the British Broadcasting Corporation (BBC) and independent Russian media outlet Mediazona reported that over 50,000 Russian soldiers have been killed in Ukraine, with around 27,000 of them dying in the second year of war.[34] When considering cases in Russian probate court and unexplained growth in military cemeteries, personnel killed in action could be as high as 85,000.[35] This estimate is based on funeral or death announcements and increases in graves at military cemeteries in Russia. Ukrainian and Western open-source estimates of Russian casualties are summarized in Table 3.

Table 3. Estimated Russian Casualties February 2022–April 2024

	Losses, as of September 2022 (pre-mobilization)	Total Losses, February 2022–April 2024
Killed in action	20,000–25,000	50,000–85,000
Wounded in action	50,000–55,000	285,000–300,000
Total casualties	70,000–80,000	335,000–385,000

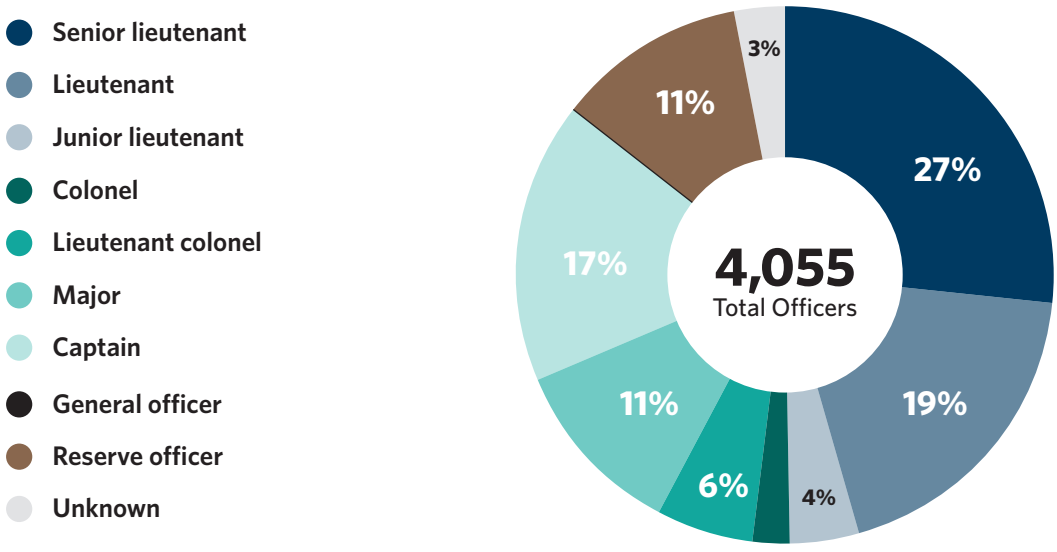
Sources: Olga Ivshina, Becky Dale and Kirstie Brewer, "Russia's meat grinder soldiers – 50,000 confirmed dead," BBC, April 17, 2024, https://www.bbc.com/news/world-68819853; Helene Cooper, "Heavy Losses Leave Russia Short of Its Goal, U.S. Officials Say," *New York Times*, August 11, 2022, https://www.nytimes.com/2022/08/11/us/politics/russian-casualties-ukraine.html; "Russian casualties in Ukraine," Mediazona, May 20, 2022, updated April 2024, https://en.zona.media/article/2022/05/20/casualties_eng; Sharon Braithwaite, "Russia has yet to achieve any of its strategic objectives in Ukraine's invasion, UK defense secretary says," CNN, September 5, 2022, Phil Stewart, "CIA director estimates 15,000 Russians killed in Ukraine war;" Reuters, July 20, 2022, https://www.reuters.com/world/europe/cia-director-says-some-15000-russians-killed-ukraine-war-2022-07-20/; Jim Garamone, "U.S. Will Not Back Down on Support for Ukraine," DOD News, March 19, 2024, https://www.defense.gov/News/News-Stories/Article/Article/3711625/us-will-not-back-down-on-support-for-ukraine/; Dmytro Basmat, "Stoltenberg: Russia has lost over 350,000 troops in Ukraine," Yahoo News, March 14, 2024; https://www.yahoo.com/news/stoltenberg-russia-lost-over-350-224514152.html.

Disproportionate numbers of wartime recruits and deaths have come from poorer regions of Russia, with particularly high combat deaths among those personnel from Atlai, Buryatia, North Ossetia, and Tuva.[36] An analysis of confirmed combat deaths by BBC also suggests that for the first six months of the war, non-Slavic Russians were dying at a rate disproportionate to their overall makeup of Russian society (25 percent of the total deaths, while making up 10–15 percent of the overall Russian population). However, after Russia's partial mobilization of 300,000 personnel in September 2022, and the joining of more volunteers, by spring 2023, Slavic Russians came to represent 85 percent of combat deaths (up from 75 percent), which is proportional to Russia's general population demographic trends.[37] In particular, the BBC investigation found that names of the dead from the North Caucasus region dropped from 11 percent of the total in the opening months of the war to around 2 percent in 2023.

It is not only the overall numbers of irrecoverable casualties and deaths that will have an impact on reconstitution, but how these losses are distributed across military ranks that will have long-lasting impacts on the Russian military moving forward. Most Russian combat deaths in Ukraine are among enlisted personnel—91 percent of confirmed deaths (41,000) from 2022 to April 2024, according to BBC analysis.[38] Given that officers make up over 25 percent of the Russian military, enlisted deaths are disproportionate but not unexpected for a war of this type.[39] Replenishing enlisted personnel has been the focus of Russia's wartime recruiting efforts.

Among Russian officer deaths in Ukraine, company-level leadership (lieutenants and captains) has been especially impacted. According to Mediazona, around 3,500 officers have been confirmed as killed in Ukraine (actual numbers may be higher) as of April 2024, with around 400 of those deaths at the rank of lieutenant colonel (O5) or above, which are typically brigade or regimental commanders or deputy commanders and above.[40] A separate research group found officer casualties to be over 4,000 as of April 2024, with nearly 44 percent of the losses to be junior officers (lieutenants and captains).[41] See Figure 1 for the breakdown of officer losses by rank from February 2022 to April 2024.

Figure 1. Russian Officers Killed in Action by Rank, February 2022–April 2024



Source: "KIU Russian Officers Killed in Ukraine — Public Full Data Sheet," available at https://docs.google.com/spreadsheets/d/1InyFVmu1LoSjqcWTHe4iD9cR8CNiL-5Ke5Jiz_Mlvwc/edit#gid=1093884946; and KIU Russian Officers killed in Ukraine [@KilledInUkraine]. "At least 4 041 Russian officers have been eliminated in Ukraine...," X.com, May 2, 2024, https://x.com/KilledInUkraine/status/1786020183842140299.

Combat deaths among Russian field-grade officers (such as majors) occurred most frequently in the opening months of the war, before declining by the fall of 2022, according to BBC analysis of published Russian funeral notices.[42] This pattern is consistent with Russian operations at the time. During this period, while Russian forces were on the offensive, field-grade and senior officers "led from the front" as they attempted to fight through coordination and communications problems that stemmed from the invasion plan being withheld from most of the force until a few days prior.[43] As Russia withdrew units and reconsolidated them into eastern Ukraine, senior officer casualty rates declined. By this time, they and their staffs were positioned in rear areas beyond the range of Ukrainian precision strikes, while their electronic warfare, logistics, and communications problems were being addressed. The leadership burden on the front line (and, as a result, casualties) began to fall increasingly on junior officers and NCOs—who continue to sustain comparitively heavier casualties today.

What impact do all these officer losses have on Russia's land combat forces, and how will Russia address this problem moving forward? It is possible to put these losses in the context of unit structure. A review of recovered Russian division and brigade rosters suggests that small Russian formations have been the most impacted by these losses. These small unit leadership losses are particularly consequential because it is these unit organizations (platoons, squads, and some companies) that are responsible for Russia's new approach to smaller assault squads on the offense. Russia is no longer able to mass large forces at the battalion or brigade level for attack in most cases, due to Ukraine's persistent surveillance and targeting. Ukraine also faces this challenge from Russian surveillance.

A review of recovered Russian personnel rosters from the war illustrates the sizeable junior officer losses from 2022 to 2024. For example, the roster of the 20th Guards Motorized Rifle Division (released by Ukraine as of March 2022) had over 500 officers. Of these officers, 190 were lieutenants or senior lieutenants who commanded platoons, 89 captains who commanded companies and filled headquarters staff, 55 majors who held battalion command or deputy regimental commands, 4 colonels who held regimental command and division command, and 19 lieutenant colonels.[44] Recovered rosters from a smaller unit, the 136th Motorized Rifle Brigade, show that as of March 2022 that it had 173 lieutenants (junior and senior lieutenants), 82 captains, 49 majors, and one commanding colonel.[45] Assuming these officer manning levels are consistent across the army, available public funeral notices suggest that in two years, Russia has lost, numerically, the equivalent of all lieutenants in 10 divisions or brigades.

Rather than pull junior reserve officers from the strategic reserves to replace these losses, Russia has opted to condense cadet training from four years to three years. The loss of junior leaders of the Ground Forces was not replenished with reserve officers in 2022, as only certain specialists from the reserves were included in the mobilization order.[46] Excluding reserve lieutenants from mobilization might seem counterintuitive, given Russia's circumstances, but there is a long-standing negative

military cultural bias against those junior officers who graduated from a university program (similar to the U.S. Reserve Officers' Training Corps (ROTC)), received a commission, and transferred immediately to the reserves without having held command.[47] Then, there is the matter of replacing the NCOs, which have suffered large losses in the war. In the past, there was flexibility in assigning junior lieutenants or NCOs to the role of platoon commander, depending on manning availability. The war and casualties at the platoon level have likely led to variability at platoon command levels, as both pools of small unit leaders are under strain.

Newly mobilized Russian troops in Rostov, October 2022. (Photo by Arkady Budnitsky/Anadolu Agency via Getty Images)

Russia does not release information on the number of its wounded personnel. Data that can be used to estimate numbers, such as payments to medically discharged personnel, have not been released since the summer of 2022.[48] Most public estimates of Russian casualties from various Western government and intelligence services do not describe subcategories of wounded personnel (recoverable or irrecoverable). Many wounded personnel are returned to service. Personnel with moderate to severe injuries are treated in military and civilian hospitals, as well as military sanitariums (vacation areas for military personnel that have very limited ability to provide care for complex medical or psychological needs).[49]

Russia's Reconstitution Plans Still In Flux

The future shape of Russia's military is being decided at the time of this paper's writing. Most details about future procurement plans or updates to military strategy are not occurring in public view due to secrecy and political sensitivity. Nevertheless, it is possible to infer strategy development based on available statements and the revealed preferences of actions taken. Multiple battlefield adaptations from the war in Ukraine will also inform the future military's posture.

This section highlights the findings of a literature review of ongoing strategy and force posture related to the Russian military's future, as discussed by senior Russian officials, strategists in military science organizations, defense industrial publications, and reactions and alternatives discussed by

think tanks or popular Russian military blogger social media accounts. Particular attention is paid to discussions of personnel strength, defense industrial strategy, and future force posture. A caveat is in order, however: whatever plans are indicated could change while the war is underway or after the war concludes, particularly given changes to Russia's defense minister and other senior defense staff in May 2024.

Cloaking Reconstitution in Euphemisms

Russian officials have thus far carefully avoided using words such as "reconstitution" or "regeneration" or "recovery" when discussing modifications to the Russian military in the years ahead. In fact, a review of officials' speeches, think tank publications, military science publications, and defense journalist pieces from 2022 to 2024 reveals an absence of the terms reconstitution or regeneration. The lack of public discourse on losses and damage is not unexpected, however, and can be attributed to three factors: First, it reflects Russia's policy to avoid publicly discussing the full extent of combat losses or other sensitive problems stemming from the war in Ukraine, partly to conceal them from domestic and foreign audiences. Second, the Kremlin is carefully managing public perceptions and engagement with the war and is legally penalizing those who critique the government's handling of the war as "disparaging of the Armed Forces." Changes to the legal code have contributed to censorship, media blackouts of certain topics, and other forms of self-censorship on losses.[50]

Instead, Russian officials try to accentuate the positive and focus on increased weapons deliveries, how many volunteers have joined the ranks, or plans to restore combat strength—without any discussion of why such urgent replenishment has been needed. When Russian officials speak about required changes to the force, the conversations are couched in euphemisms and sensitive topics are omitted.

President Vladimir Putin adheres closely to military terminology when discussing changes to the force, referring to, for example, the need to "increase defense capability" or "solve all problems related to the provision of Armed Forces involved in the special military operation." And he does so without mentioning losses of equipment or personnel.[51] Other officials express the need to "improve the combat and numerical strength" of the military to address emerging threats, instead of regeneration.[52] Former defense minister Sergei Shoigu has discussed needing to increase the pace of construction of weapons and ammunition for "ensuring the increase of combat strength" for forces in the future, without noting why combat strength has been lost.[53] At his most direct, in the context of raising production rates, Shoigu said that more weapons are needed to support offensives. He also announced the Kremlin's plan to create "nine reserve units" to be shared across Russian operational commands in occupied Ukraine and spoke of replenishing personnel for wartime needs. But this has been the extent of public acknowledgment.[54]

Russian officials also cloak extensive reconstitution requirements under the umbrella of force expansion and NATO's expansion in particular. Some Russian officials have said that the Kremlin will need a larger force to counteract NATO expansion or to counterbalance the West, which, according to Moscow's claims, is using Ukraine to wage a hybrid war against Russia.[55] Other Russian officials claim that expansion is needed due to more general threats: they say, due to the "threats posed by the United States and its Allies, we will continue to improve the composition and structure of the Armed Forces and increase the production of the most popular weapons and military equipment."[56] Because Russia seems likely to make some force posture changes on the border of Finland in the years ahead (even absent a war in Ukraine), couching the extensive equipment and personnel replenishment in the context of responding to NATO expansion is a more politically acceptable route than tying the replenishment to losses in Ukraine.

Other ways that Russian officials talk around the problem of combat losses include focusing on weapons or equipment deliveries to troops. For example, in December 2023, in his annual briefing to attaches, Chief of the General Staff of the Russian Armed Forces Valery Gerasimov noted that 1,500 tanks, 3,000 armored vehicles, and 230 aircraft and helicopters had been provided to the troops in 2023.[57] These numbers are more than double the 2020–2021 deliveries, inadvertently revealing losses, and the majority of the equipment he listed was pulled from storage. When one senior official, Sergey Chemezov, the long-time director of the state-owned corporation Rostec, used the word "regenerate" in the context of combat losses, it was in reference to rebuilding new A-50 reconnaissance aircraft, after two crashed in the span of months—one of them in Russia proper.[58]

Very rarely do Russian officials publicly critique operations in Ukraine. If they do, they tend to blame the problems on the New Look reforms spearheaded in 2008–2012 by former defense minister Anatoly Serdyukov and former chief of the general staff General Nikolai Makarov. Duma member and former head of the VDV Vladimir Shamanov—a retired general with enough connections and clout to discuss these matters—wrote a scathing rebuke of how the VDV were misused in the opening days of the war. Shamanov offered a pointed critique of Russia's prewar force structure (and justified his own decisions as VDV commander in the 2000s). He noted that the New Look reforms were designed for smaller local wars against a weaker opponent and that this approach is no longer appropriate for the challenges Russia faces now.[59] Shamanov also took defense leadership to task and claimed that out of hubris, VDV paratroopers at the critical battle of Hostomel Airport in February 2022 were given rubber bullets for one of their three days of on-hand supplies. The assumption was, according to Shamanov, that the war would be over by day three, and they would need rubber bullets for crowd control.

A similar pattern of euphemisms and indirect critique was found in Russian defense journals and publications from 2022 to 2024. In 2021, the Russian government tightened laws regarding the public discussion of several topics related to the military. These laws classify or penalize discussions

of many topics related to military force posture, strategy, and the war's direction. As a result, Russian citizens, news outlets, defense publications, and think tanks only obliquely discuss reconstitution needs and do not publish directly on these topics. Instead, they use carefully worded euphemisms such as "replenish our troops with provisions" and discuss equipment repair processes in very antiseptic or generic terms.[60]

Currently, Russian military journals indirectly critique the current war by writing about past wars, including, for example, the Soviet war in Afghanistan or WWII.[61] Some Russian psychologists have studied the psychological rehabilitation of combat veterans and their mental health problems from previous wars as a way to note that problems remain unresolved to this day (in this case, diagnostic criteria for subclinical adaptation disorders are not yet addressed in today's military and must be fixed, in the view of the authors).[62] In another example, Russian strategists have written about how in 1946, the Soviet Army urgently established structures to capture lessons learned while experiences were still fresh.[63] Based on a review of Russian military science journals, it seems that using historical case studies to indirectly comment on issues arising from a current war is a way to continue to publish articles on topics in Ukraine that are off limits and that the studies provide indirect policy recommendations to officials in a politically safe way, without running afoul of new laws.

The Kremlin's continued unwillingness to discuss the true extent of damage and losses from the war could hamper its ability to reconstitute the force in the postwar period. First, Russian citizens do not know the full extent of the losses, nor the level of resources needed to replace these losses. Likewise, they are not participants in discussions on the future development of the military. Yet the costs of reconstitution will likely affect the population through changes to the federal budget, changes to the mobilization base, or changes to conscription policies to accommodate a larger force. The population's future willingness to support these social changes is unknown. Second, by prohibiting discourse on many aspects of military affairs, the Russian government is limiting the marketplace of ideas to those inside the Ministry of Defense or a small subset of outside experts in closed or classified sessions. It is possible, however, that some of these wartime restrictions on discussion will be removed after the war's active phase concludes, or under new management with Defense Minister Andrey Belousov—particularly as the implementation of a new procurement program begins and costs become hard to hide.

New Defense Minister Andrei Belousov sits with his predecessor, former Defense Minister and current Security Council Secretary Sergei Shoigu.(Photo by Vyacheslav Prokofyev/Pool/AFP via Getty Images)

Interim Concepts for Reconstitution

Presumably, Russian reconstitution plans are being discussed behind doors, either in closed or classified sessions. As of this paper's writing, there is no publicly available, cohesive organizing principle for the future reconstitution or force design of the Russian military, and there has been no public update to Russian military doctrine. But both the force design and updated doctrine are likely to materialize in the next few years, after the new State Armaments Program (SAP) is allegedly released in early 2025 and lessons from the war in Ukraine have been fully analyzed and digested. In the interim, Russian officials have discussed the need to expand the Russian military, learn and integrate lessons from the war in Ukraine, and rapidly adapt and integrate emerging technology such as drones or other unnamed combat equipment.

The SAP will likely set forth long-term production plans for the period 2025–2034 and be informed by reconstitution requirements, lessons learned from Ukraine, and the changing character of warfare. Details about the program are unavailable, but Putin has said that it will take into account sanctions, NATO expansion, growth in the size of the Russian military, "implementation of the Special Military Operation" (that is, expenditures and losses), and economic pressures in the federal budget.[64]

Thus far, Russian officials have discussed the broad contours of an expanded force for 2030 and beyond. Shoigu announced some plans in 2023 and early 2024. His plans are likely to be revised by the new defense leadership team in some respects, but it is still worth considering them. Before his departure, Shoigu advocated for a force expansion to 1.5 million active-duty personnel (with a lofty goal to maintain around 700,000–735,000 personnel in contract service positions).[65] But no public decree includes the 1.5 million number, and the official number of personnel remains at 1,320,000 as of July 2024.[66]

Shoigu and Gerasimov have announced several changes to the force since 2022. First, with respect to the accession of Sweden and Finland into NATO, Shoigu claimed that Russia would respond in kind to the estimated additional 33,000 NATO military personnel, 300 tanks, and 800 armored vehicles on Russia's border.[67] He announced plans in late 2022 to form an army corps near Finland, and while it is unclear what precisely that would entail, it could amount to a force size of around 25,000–30,000 personnel, created by expanding existing brigades to divisions. [68]

In addition, Russian officials have announced that three motorized rifle divisions will be added to Russian Ground Forces in occupied Kherson and Zaporizhzhia in Ukraine,[69] that the VDV will grow by two new regiments, that three brigades will be converted into divisions, and that each existing VDV division will gain an extra regiment (three per division) effective as of early 2024.[70] The Ground Forces will continue their decade-long reversal of the Serdyukov-Makarov reforms, which downsized Russian divisions into smaller brigades. Under Shoigu's plan, seven motorized rifle brigades will be converted

into larger divisions in central and eastern Russia.[71] Each Ground Forces' Combined Arms Army (CAA) will be given an army aviation brigade of around 80–100 combat helicopters.[72]

In March 2024, Shoigu claimed that a CAA had been formed (possibly the 25th CAA in Ukraine); that a Dnieper Flotilla had been created in occupied Ukraine; and that, by 2026, the Ministry of Defense would create two CAAs, fourteen divisions, and sixteen brigades (but it is not clear whether they will be new units or expanding existing units or a mix).[73] [74] Regardless of what has been formed, the Russian military has a track record of creating new units but then not fully resourcing them. For example, when the military announced the expansion and creation of multiple units in Russia's Southern Military District and Western Military District in 2016, most of them were left under-manned until late 2021.[75]

It is unclear whether Belousov's new defense team will retain Shoigu's plans, and if so, how large the fourteen divisions will be. Some Russian analysts suggest a return to Soviet-strength divisions, which had up to 20,000 personnel each. But contemporary Russian divisions are smaller (around 8,000–10,000 personnel).[76] To create fourteen divisions fully from scratch, Russia would need an additional 140,000–280,000 soldiers and officers (assuming 10,000–20,000 personnel per division). If this force was created by enlarging existing brigades, then the additional personnel requirements would likely be less but still substantial (at 84,000–224,000). Before his May 2024 transfer to the Security Council, Shoigu sought an increase of 188,000 billets to accommodate his force expansion plans (to become 1.5 million overall).

The military has also reorganized aspects of its command chain. It has divided the unwieldly Western Military District back into two districts, the Moscow and Leningrad Military Districts, as they were known before 2010.[77] Russia has also returned operational command of its naval fleets back to the Navy command in Moscow from the military district headquarters.[78] The Aerospace Forces will be restructured and the Air Force will be reorganized into "nine new aviation regiments, including eight bomber regiments and one fighter regiment."[79] The Aerospace Forces will gain three formations as well.[80]

Unofficial conversations online or in defense publications about reconstitution of the Russian military have been somewhat critical. For example, Russian military bloggers who are critical of the war's management have said that Shoigu's plan is impossible financially, given personnel and training capacity constraints, and that it could not be implemented without major policy and financial adjustments. Other military bloggers offer that Shoigu's plan is more of a statement of intent or is "for show," rather than something that can be achieved concretely: "This is either a PR campaign to intimidate our NATO partners, or a mirage for our people."[81] Some influential military bloggers on Russian social media believe the new plan is only possible for a mobilization-based army.[82]

Even among camps known to express frequent agreement with Ministry of Defense narratives, there seems to be a consensus that the prewar military structure—for the Army in particular, made

of brigades and organized into battalion tactical groups—was unsuitable for Russia's needs; most advocate a larger, heavier army.[838485] Other prominent military analysts have argued that the future Russian military should not be using refurbished Soviet-era equipment, calling such practices "cheap and palliative political, military, and industrial solutions," when modern technology is needed in terms of high precision, unmanned systems and new electronic warfare systems.[86]

Given the level of censorship in Russia, it is legally and politically safer for Russia-based defense analysts to discuss or recommend future modifications to Russian military strategy than it is for them to discuss problems with the Ukraine war. In the view of some, the war appears to be a hybrid battle—a "local conflict" in geographic scale, but with high-tech tools and foreign support on both sides and much in common with larger high-intensity wars.[87] Others note the challenges of multiple generations of combat equipment being present on the battlefield at once. In their view, the nature of warfare is changing rapidly, and Russia's military strategy must change to adapt to numerous developments: for example, precision strikes in depth; modern weapons capable of speed, mass, and high degrees of destruction; the ubiquitous presence of UAVs, loitering munitions, and reconnaissance strike complexes; a complex battlespace with irregular and mercenary groups, and in the near future, AI or autonomous vehicles.[88]

Russian Personnel Reconstitution

Personnel reconstitution is a critical and understudied component and can be thought of in two ways. Short-term personnel reconstitution at war is a process meant to replenish forces by reorganizing, regenerating, and retraining units that have sustained severe combat losses. Long-term personnel reconstitution is a process meant to accelerate after the war's active phase concludes, when Russia demobilizes its personnel, retains the force, and recruits the future force. Considering Russia's severe casualties and demonstrable command deficits revealed in Ukraine, what are Russia's prospects for replenishing its manpower base through 2030? How will Russia retain and recruit personnel and improve proficiency in the postwar period? What structural factors and regulations will influence how Russia replenishes its manpower?

From 2022 to 2024, Russia has conducted short-term wartime reconstitution through the partial mobilization of 300,000 personnel; the recruitment of volunteers, foreign fighters, and convicts; and, based on anecdotal evidence, the coercion of conscripts to sign contracts. This regeneration occurs at multiple locations in Russia and inside occupied Ukraine. When Russian units need to be rotated and rested, they move out of strike range to regeneration sites inside occupied Ukraine to rest, reconstitute, and do light training (see Figure 2). But when units are damaged and need to be withdrawn and regenerated, they are pulled farther back in rear areas of occupied Ukraine (see Figure 3 and Figure 4) to more complex training areas, or within Russia.

Figure 2. Russian Training and Regeneration Site, Southeast of Henichesk, Kherson Oblast, Occupied Ukraine

The training site was created after 2022 and features multiple styles of trenches, training revetments, and targets for infantry. Nearby (not pictured) is a vehicle driving range.

Figure 3. Large-Scale Training Range and Regeneration Facility Located East of Donetsk, Ukraine

A rudimentary version of this facility was constructed after 2014. However, after the 2022 invasion, Russian forces expanded it to add barracks for personnel, helipads, additional driving ranges, and several training trenches for infantry.

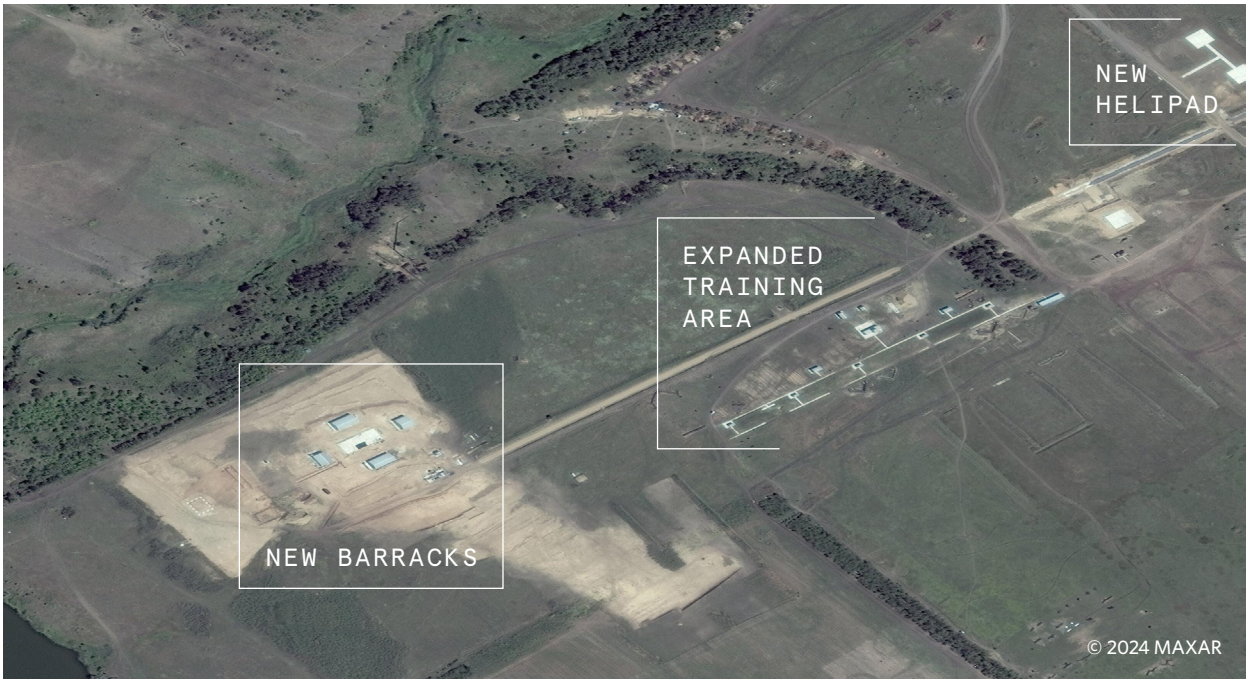


Figure 4. Second Large-Scale Training Range and Regeneration Facility

This second large-scale training and regeneration facility is also located east of Donetsk city. Modifications to this facility were made incrementally between 2021 and 2023, with dramatic expansion after the September 2023 mobilization order. This facility likely receives mobilized or volunteer Russian personnel and provides additional training before personnel move to the frontline. The facility was expanded to include several driving ranges, multiple types of trenches and target practice ranges, helipads, barracks, and administrative buildings.

In Russia, regeneration sites are located near the border, at nearby established training centers, and at military bases elsewhere in Russia.[89] New units of volunteers are also trained in these training centers and at bases as well. Initially, in late 2022, Russia was also training mobilized personnel in Belarus, but this process appears to have been abandoned by late 2023 as training capacity within Russia was avaiable once the first wave of mobilized soldiers were deployed to Ukraine.

Charles Bartles and Lester Grau, experts on Russian tactics, have noted that in conflicts prior to the full-scale invasion of Ukraine, the Russian military preferred to either downsize damaged units into smaller units (for example, battalion to company and company to platoon) or remove units and regenerate them with repaired equipment and personnel. The military preferred not to add personnel piecemeal to units.[90] But in 2022, Russia had to reconstitute somewhat differently due to several personnel shortfalls in the first year of the war. In 2022 and early 2023, Russia temporarily abandoned its preferences and committed personnel in piecemeal to stabilize depleted units.

Since early 2023, the Russian military has been able to more efficiently rotate units and has improved its regeneration process inside occupied Ukraine and in Russia. The military now trains or regenerates units in Russia and deploys them to occupied Ukraine with a mobilized or reserve unit. Other

Russian units that have suffered heavy attrition have been reconstituted multiple times.[91] These units are technically regenerated but often have lost cohesion, experience, and combat potential.

Long-term personnel reconstitution is likely to be a complicated and expensive challenge for the Russian military. Russia's losses are extensive both in quantitative and qualitative terms. While Russia has stabilized its manpower over the last year for limited offensives, this stabilization has largely been possible through wartime "stop-loss" policies that prohibit personnel from leaving the service in most cases (until the "special military operation" is declared over) and through volunteers enticed by high wages and other social benefits. Once stop-loss policies are lifted, the Russian military will face an uncertain recruiting and retention environment. It is currently unclear how many personnel will choose to stay in service after the war. Some Russian defense analysts have voiced concerns that one of the most challenging aspects of future force expansion will be retaining and recruiting officers.[92]

Long-term Personnel Regeneration Strategy and Challenges

Russia's long-term regeneration challenges will also be shaped by the amount of available financial resources to attract and retain personnel, who have grown accustomed to high wartime wages and benefits. The Russian defense budget will be under significant strain to handle the problem of procurement, let simultaneously fund the growth of a larger professional force, and this tension may force Russian policymakers into uncomfortable tradeoffs. Both recruiting and retention will also be influenced by the outcome of the war in Ukraine (whether it is viewed as a success or failure within Russia) and what the Russian population understands about military life as revealed by the war and explained by its veterans upon their demobilization.

Combat experience from the war in Ukraine is likely to have a generational impact on Russian military culture—both in ways that improve combat effectiveness and ways that are toxic to the culture, if negative trends are not addressed. Unlike in the Afghanistan and Chechnya conflicts, where only a small segment of the army was deployed into combat, the vast majority of Russia's deployable ground combat power is deployed to occupied Ukraine, fighting a war of a different character and intensity. Some Russian psychologists forecasted early in the war that up to 100,000 veterans will have moderate to severe post-traumatic stress disorder (PTSD) and will need clinical support to cope.[93] Currently, Russian soldiers receive inadequate mental health support, in large part because there are insufficient facilities to treat them or they are not granted leave long enough to receive available care.[94]

For those personnel who remain in service after the war, untreated mental health issues from combat stress, stigma around discussing combat experiences or problems in the war, and growing evidence that Russian soldiers are self-medicating with alcohol or drugs could all combine to create a situation ripe for violent hazing within the Russian military, particularly within the Ground Forces and VDV.[95] Systemic hazing and violence are incompatible with retaining and expanding a professional force.

Further, the potential resurgence of violent hazing also could once again increase draft dodging or desertion rates among conscripts, which could significantly affect a population that is already also showing signs of wariness about veterans or soldiers on leave.[96] Public perceptions that the Russian military is a violent and unsafe place will have negative impacts on future drafts and a suppressing effect on future contract service recruiting. The Russian government is already attempting to craft narratives to counteract negative perceptions of the military.[97]

Unlike in the 1990s, when hazing was borne from poverty and the social collapse following the end of the Soviet Union, future postwar hazing within the Russian military could emerge as a byproduct of troubled or alienated personnel—the result of an emerging class of "Ukraine syndrome" veterans (much like the Soviet veterans who experienced an "Afghan syndrome").[98] Social alienation and poverty were two of the main factors that drove veterans of Afghanistan and Chechnya into organized crime in the 1980s and 1990s. Russian veterans of the war in Ukraine may find brotherhood and employment in one of the many mercenary groups that operate abroad. For domestic stability reasons, the Russian government may actually prefer that some of these veterans find employment abroad, rather than return home and struggle with reintegration.

Structural Constraints and Opportunities for Personnel Regeneration

As the Russian military reconstitutes in the years ahead, it is likely to remain a force staffed with professional enlisted personnel (contract service personnel, or *contractniki*) and conscripts. In the 2010s, senior defense officials underscored that Russia was too large of a country to abandon this mixed manning system and that while Russia needed conscription and a large mobilization base, its standing army would be staffed by a majority of professional contract servicemen.[99] If the Russian military expands over the next six years, it is likely to expand the number of conscripts and maintain a strategic mobilization reserve. Structual factors that will influence personnel reconstitution include whether Russia is successful at retaining experienced personnel after the war in Ukraine ends, whether enough citizens want to enlist in the future, whether it can expand training outputs at military education institutions, and whether it can afford expensive salaries and social benefits.

Mobilized Russian soldiers in Rostov, October 2022. When the war in Ukraine ends, demobilized soldiers and those who leave service by resigning will be discharged into the reserves. (Photo by Arkady Budnitsky/Anadolu Agency via Getty Images)

The last decade of leadership under Shoigu and Gerasimov led to mixed results for many policies that supported professionalism and retention. When the two leaders assumed their posts in 2012, they inheritied a comprehensive reform plan initiated by their predessors. Most of the hardest reorganization and force reductions were completed prior to their appointment through a massive reorganization and consolidation of the force, ensuring all that remained were at the highest readiness levels; the securing of sufficient funding to reequip the force with modern equipment; the establishment of new professoinal enlisted training programs and revisions to professional military education (PME) programs; and improvements in salaries and housing.[100] Under their leadership, the military prioritized the rearmament and modernization of Russian equipment and force structure, instituted a policy of "snap exercises" to test readines, and made some progress in increasing wages and improving living and service conditions.[101] While Shoigu and Gerasimov's Ministry of Defense prioritized rearmament and readiness, they halted Soviet-era equipment dismantlement, largely ignored the mobilization base and stopped the new training program for NCOs in 2012 (noting it was not necessary because junior lieutenants could fill the role, reflecting an older Soviet mentality).[102]

Preparing for Postwar Retention and Recruiting

Postwar personnel reconstitution includes the retention and recruitment of skilled personnel. Russia's specific retention challenges are not yet known, as military personnel have been prohibited from resigning from service since the fall of 2022. All Russian military personnel in Ukraine serve "on contract"—regardless of whether they were mobilized or recruited from prison or were compelled to sign a new contract while deployed to receive benefits.[103] Russia claims it has been recruiting around 30,000 personnel a month since 2023, but these claims are difficult to verify, particularly as recruiters have incentives to inflate their numbers at multiple stages of the recruiting process to meet quotas.[104] Even if the recruiting numbers may be lower in reality, the numbers have been sufficient for Russia to maintain its offensives in Ukraine as of April 2024 and regenerate new units.

Because Russia plans on maintaining a larger force postwar than it began with in 2022, and because they do not know how many personnel will resign when stop-loss policies have ended, it is unlikely that the Kremlin will conduct a mass demobilization all at once, or allow mass contract terminations or resignations, absent strong popular pressure to do so. To keep the size of the force stable postwar, particularly if they seek to maintain a larger size, the military could recommend a phased demobilization to the Kremlin. This would mean demobilizing veterans at the rate they can replace them with new contract service personnel. Shoigu seemed to hint at this phased demobilization process in January 2023, when he suggested that the plan for Russian force expansion will be calibrated to match equipment delivery, and to increased availability of training ranges and military education capacity. There would be little point in retaining and recruiting a larger number of personnel without facilities or serviceable equipment to use.[105]

When Russian personnel are discharged into the reserves upon demobilization, the Kremlin's strategic reserves will be considered highly experienced, and their proficiency will be retained by the system overall (at least for a few years before the skills degrade or become outdated). Other demobilization options include facilitating the transfer of veterans into the National Guard, or into Ministry of Defense–controlled mercenary groups abroad. The latter option might prove to be an attractive option for personnel that the Kremlin may not want to return home or considers a risk, such as Wagner fighters who participated in the June 2023 rebellion, violent convicts, veterans who show signs of severe adaptation disorders, or others who could cause trouble at home.

Shoigu's plan to expand the force to between 1.312 and 1.5 million, including 700,000 contract service personnel, would not only be expensive in terms of wages and social benefit expenditures, but it would also effectively require a doubling of the military infrastructure currently available in Russia. To put the figure in context, in the prewar period, the Russian military never come close to having 700,000 contract personnel. Prior to the full-scale invasion of Ukraine, Russia downsized its target from 475,000 to 425,000, suggesting that higher numbers were unattainable in the late 2010s, at least with the benefits offered at that time.[106] Russia is still working on building housing for some prewar contract service personnel and their families.

To increase to 700,000 contract personnel, Russia would need to refurbish old bases by building additional modern facilities, such as barracks, family housing, schools, on-base amenities, and so on. And this would be an expensive endeavor. For each new division, Russian analysts forecast the need for five four-story barracks, five-to-ten family housing buildings, and other on-base amenities and wages that contract service personnel have come to expect.[107] The associated costs could end up being prohibitive, as they would put even more strain on a defense budget already trying to finance rearmament. Furthermore, the recent arrests of defense ministry officials—on charges of corruption and failure to construct housing in a timely manner—suggest that the gap between what is promised and what is delivered remains large.

Perceptions of military prestige and social trust are also important components of military recruiting and retention in Russia.[108] Putin, Russian media, and various organizations are trying to shape how Ukraine war veterans are perceived by society at large to assist with postwar retention, postmilitary care for veterans, and recruiting. Part of the strategy is suppressing negative news about military operations in Ukraine. Russian authorities have also sought to create a positive impression of veterans and the appearance of providing care to them, by establishing regional Defenders of the Fatherland Fund centers (which nominally are supposed to help reintegrate veterans into local Russian areas). Russian state television and other media portray soldiers and veterans positively and eschew negative reporting. The Kremlin has also surged spending on military-patriotic education since 2022, and has instituted more military education or instructional blocks into Russian public schools. Putin has said in various public engagements that he wants veterans to be considered a new elite group in Russian society; within the military, commanders are to receive priority for promotion, a customary practice.[109]

However, it is unclear how Russian society will embrace these veterans. Historical trends and current anecdotes suggest that the veterans may not come back to a warm embrace. In the past, Soviet and Russian civilians have been wary of Russian veterans that exhibit signs of adaptation disorders or severe PTSD. Some Russian mercenaries and soldiers who have returned home since 2022 and committed violent crimes upon discharge or home leave are certainly not helping the reputation of veterans. Anecdotal encounters on Russian social media, as well as insights from doctors and other medical professionals who prefer to remain anonymous, suggest that many war veterans are struggling psychologically and some are self-medicating with alcohol or other drugs.[110] Negative impressions of veterans and the military writ large are threats to future recruiting and retention, and the Kremlin's initial policies and actions suggest they are aware of this threat.

Addressing Limitations on Military Training Capacity

Force reconstitution will also be shaped by Russia's capacity to produce trained personnel in a timely manner—both during and after the war. The training system is facing multiple pressures that at times are contradictory. Russian military and civilian leaders want training programs updated as soon as possible to improve battlefield performance in Ukraine. They want a comprehensive revision to training programs to reflect changes in modern warfare and to address shortcomings revealed in the Ukraine war. These requests are reasonable, but are also in tension with an education system already operating at capacity to replenish casualties to its junior officer and NCO cadres. Russia's military training pipeline is currently configured for a force size of around 1 million and has several constraints that will challenge the desired expansion to about 1.3 million. As of April 2024, the expansion of output capacity for PME had not yet begun.

While Russia faces structural challenges in increasing the capacity of training and military education at present, they do have institutional knowledge of running a larger system. Russia inherited the Soviet Union's sprawling military education system and network of training facilities, and then it gradually reduced the number, consistent with force reductions over the course of twenty years. In 1991, the Soviet Union's military education system could produce 60,000 officers a year from 166 military education institutes to support a force size of around 4 million.[111] The consolidation of PME and force size occurred in increments until 2009, when the Ministry of Defense consolidated the remaining sixty-nine institutes to sixteen and cut educator staff by around seven times as part of the New Look reforms.[112] The education system and training manuals were overhauled. To cope with major reductions and revisions, some services, such as the Russian Air Force, stopped admitting any new cadets around 2010–2012. This created a temporary deficit of junior Air Force officers, which had to be addressed with larger classes (the deficit was allegedly overcome by 2018).[113] Serdyukov's reductions proved too extreme, and under Shoigu, the military increased the number to forty institutes.

From 2020 to 2023, there were around 43,000 total cadets in military academies and 17,000 in military departments of civilian universities.[114] Other services like the Navy and Air Force, are better postured to regenerate trained personnel because their casualties have been much lower. According to BBC analysis, 216 Russian Air Force pilots have been killed in action but the Air Force is able to graduate 100–200 pilots annually.[115]As of 2018, Russia was maintaining thirteen schools for NCOs.[116]

Russia has not opened more academies to increase the cadet pipeline, but rather shortened their instructional period to churn out more graduates. By 2019, the military reduced combined arms training for Ground Forces and Airborne cadets from five years to four years to increase the number of junior officers in command positions.[117] Since 2022, cadets have only been receiving three years of training because lieutenants are so urgently needed on the front line, and in the years prior to the war, five years of training was compressed into four years to generate more officers. Shoigu claimed the number of new first-year enrolled cadets at academies reached 18,000 in 2023, nearly a 30 percent increase from the prewar capacity of 13,000–14,000 annually, because of the reconfiguration within the academies.[118]

And what of reserve officers who study in military education departments of civilian universities? Russian universities maintain a military department (военные кафедры) where students either join the reserves (to be discharged into the reserve after graduation and eligible for mobilization if needed) or are put on active duty, where they will be commissioned and then command units after graduation.[119] In 2021, Shoigu announced that the number of military departments would expand to 128, as they are important for maintenance of the mobilization reserve.[120]

However, when Russia mobilized in 2022, military commissariats specifically turned away reserve lieutenants who had never had any command experience.[121] Some reserve officers received summons, only to be turned back because they had no prior military experience; only certain specialists were needed.[122] Turning reserve officers away might seem odd, considering Russia's need for junior officers, but it is consistent with the long-standing bias within the military that officers from military academies are superior to those who attended civilian universities and then transferred straight into the reserve.[123]

The military plans to increase the number of training grounds in Russia and in occupied Ukraine, increase training of specialists in training centers to accommodate a larger force size, and has said it plans on expanding training centers and building new ones.[124] Russia also has future plans to upgrade its training areas to accommodate brigade-level training.[125] Modifications have been detected at Russian training ranges (additional driving ranges and trench networks) since the start of the war, according to analysis of commercial imagery.

Shoigu claimed that the experiences of the war in Ukraine will be used to update Russian field training programs, modeling, planning cycles, and fire solutions for Russian weapons.[126] The war has created new officer and enlisted specialty positions for assault reconnaissance units, particularly

for drone and first person view (FPV) operators.[127] The increasing role of drones and FPVs in wars will likely require expanding educational facilities for these specialties, as well as developing training courses and identifying instructors. Russia, like Ukraine, might be able to increase the number of instructors by hiring combat veterans, perhaps those who were medically discharged, to instruct cadets or to join research staffs at these specialty institutions.

Improving Personnel Quality and Proficiency

The war in Ukraine has revealed command deficits; some of them were known in advance, while others were not. Shamanov said in 2023 that the "special military operation" has shown that the Russian military needs to improve PME and introduce a new code of honor into the troops and that raising officer quality will be the most important task for the Russian military.[128] Shamanov opined that raising the quality of officers and simultaneously raising their numbers was mutually exclusive.[129]

Reducing the number of education facilities, as described in the section above, had negative impacts on Russian military proficiency. These institutions' staff members not only train cadets, but also conduct specialized research, test tactics, and update operational art.[130] By reducing these staffs, the Russian military lost an important source of military learning. One longtime (and hard-line) Russian military analyst suggested that it will take a decade to reverse the negative impacts of these cuts on, for example, tank officer training. He blamed tanks' crude slat armor (sometimes referred to in the West as "cope cages") on the decline of military research: "I'll probably write a seditious thought, but if the Armored Academy had not been dissolved into the Combined Arms Academy, tanks in Ukraine would not have been protected from Javelin by bars on the turrets."[131]

Destroyed Russian tank with cage armor, Kharkiv 2022. Russian armor modifications continue to evolve as the war goes on. (Photo by Juan Barreto/AFP via Getty Images)

Cutting these educational facilities has also had effects on combat medicine and mobilization in the war in Ukraine. After the number of military medical institutes was cut, there were fewer specialists to advocate proper tactical medicine training and proper first aid kits. In the words of one Russian military analyst, "The fewer specialists lobbying for the promotion of a particular solution (for example, a modern first aid kit for a soldier), the less likely it is to appear at the front."[132] This proved to be the case in Ukraine, as Russian soldiers were provided with

expired or outdated medical kits in the first year of the war, and there is evidence that soldiers were given insufficient tourniquet training, leading to avoidable deaths or amputations.[133]

In 2010, the Military Institute for Advanced Training of Specialists of Mobilization was closed as part of larger consolidations in the military. After WWII, the institute was created to harness wartime best practices and retain knowledge of the complexities of maintaining a large mobilization base (for example, the appropriate mix of officers and tactics).[134] A current lack of these practices and knowledge, and the neglect of the mobilization system throughout the 2010s, was apparent in Russia's chaotic early months of mobilization in 2022; there were errors in call-ups, field training was of poor quality, and some gear for soldiers was missing.[135] If Russia reinstitutes this organization or something like it after the war in Ukraine, it will be an indicator that they intend to create a well-preserved mobilization base for future contingencies.

In recent years, Russian cadets have received consolidated training to graduate faster into command roles for the war effort. They claimed the training covered the same material in a shorter amount of time. However, in 2021, Russian military psychologists noted that there were major command deficits among lieutenants in the Western Military District, noting that "a lack of command literacy of junior command staff does not allow them to effectively build individual and group work with subordinates."[136] With the training reduced by a full year since that assessment, it is unlikely that cadets are prepared to lead in present circumstances.

The implications of junior officer training will shape the military's future in several ways. It means that surviving lieutenants (in the Ground Forces and VDV) from the war will have had less formal training steeped in the Soviet military educational experience and more trial-by-fire combat experience. Like the Armed Forces of Ukraine, Russian junior officers and field grade officers who survive the war and remain in service will be in positions to improve and modify training programs in their future command roles from 2024 onward, as long as their lessons are retained and disseminated.

Finding Additional Personnel for a Larger Force

One way to staff a larger force would be to expand the draft's size or lengthen conscription from one year to two years. However, Russian demography and labor shortages make draft expansion a difficult proposition. For example, Russia has already expanded the draft pool in 2023 by raising the eligible conscription age range from eighteen to twenty-seven to eighteen to thirty.[137] Further, Russian society has become accustomed to the one-year conscription period, and lengthening it is likely to be unpopular. During the 2010s, draft dodging declined significantly from its 1999 peak of 44,000 draft dodgers a year, due to an improvement in service conditions and shorter service time.[138] It also appears that Putin is unlikely to relax his long-standing policy on no conscripts in warzones. In the opening days of the war, Putin publicly ordered all conscripts who had accidentally deployed to Ukraine to return home immediately; and since that time, conscripts are still not serving in

occupied Ukraine, even in rear areas. However, coercion against conscripts by their commanders or by their peers to sign contracts to fight in Ukraine continues.[139]

Russia could also reconsider its policy toward women in the military to generate additional personnel. Allowing women in combat roles is a complicated topic in Russia, and therefore, women remain an underutilized labor source that could be used to fill personnel shortfalls. Russian women distinguished themselves in WWII, but today, they are prohibited from many combat roles. The percentage of women in the Russian military declined from 10 percent in the 1990s to around 4.5 percent in 2018.[140] Yet military training in civilian schools is offered to both teenage boys and girls, and girls are active participants. Russia is even experimenting with allowing women in some combat roles, such as pilots. But so far, women's interest in serving is higher than the space that the Ministry of Defense is willing to allocate—even as they acknowledge that for some specialties, they receive seventeen female applicants for each available slot.[141] A major revision to this policy would be a sign that Russia is willing to pursue new avenues to staff a larger force. For now, Russia prefers to drop recruiting standards to allow felons or those with severe mental health problems to serve. Foreign men have been able to serve in the Russian military since 1998, and this process has accelerated to staff Russian units. Volunteers from Africa, Asia, Cuba, and the Middle East are fighting for Russia in Ukraine.[142]

Capturing Combat Experience for the Future Force

Another important component of reconstitution will be the military's ability to institutionalize lessons learned from its combat experience to modernize and improve proficiency. Such lessons could inform tactics and field manuals, training programs, PME, research and development, and procurement needs. The task before the Russian military to identify lessons and implement changes will be far more qualitatively and quantitatively complex than it was during the reform era in 2008, after Russia's brief war against Georgia. Russia was able to quickly launch comprehensive reforms within one year of that conflict, but major aspects of the reforms they initiated had already been on the shelf or attempted several times in the years prior.[143] In the aftermath of the war in Ukraine, a comprehensive learning and analysis program—akin to what the Soviet military initiated after WWII—is likely to occur but will take several years to implement throughout the force.

The Russian military already has a template for how to ingest and institutionalize lessons learned, formed during the post–WWII years of 1946–1953. During these seven years, the Soviet military worked quickly to ingest and disseminate lessons learned and to improve operational concepts, force design, and training. It created a new directorate in the General Staff for this purpose (the study of tactics and operational art), and this directorate partnered with other command elements to integrate lessons into the force. Important postwar learning tasks included materials conservation (materials such as commanders' logs, reports, orders, and interviews); analysis; dissemination; and knowledge sharing via presentations and symposiums. An important part of this learning process was capturing the military history of the war.

To ensure that these lessons were absorbed, learning organizations sponsored multiday conferences, specialized field training, papers, lectures, exhibitions, and discussions between veterans and cadets (or inexperienced commanders or personnel). The first year after the war ended was a particularly important, according to Russian military historians, to capture the freshest lessons before soldiers were demobilized or before they forgot details. The aim was to share this knowledge as quickly and widely as possible.[144] According to modern Russian military historians, the Soviets felt that conference-based retreats for staff and commanding officers were the most effective methods for rapid knowledge transfer.[145] In subsequent years, deeper analysis became possible from wartime materials, and this analysis became the basis for change in operational art and for the projection of future trends in warfare. After completion of the analysis, changes can be permanently introduced to training programs and PME curriculum, according to the recommendations of Russian military historians.[146]

Russian forces in Ukraine are currently sharing adaptations at the tactical and operational level. Learning is evident on the battlefield, whether through changes in tactics or modifications to air and ground platforms or some type of ammunition. While some modifications may look crude, such as additional armor welded onto tanks or nets attached to motorcycles, they suggest that local commanders from the Operational Group of Forces level and below are empowered to experiment and are collaborating with regional repair centers near the front line as they try to develop solutions to FPVs and other drones. These lessons are disseminated horizontally to other parts of the front line and are conveyed vertically to the General Staff.

However, because the war is ongoing, it is not yet feasible for the Russian military to conduct a comprehensive analytic postmortem of the war that could inform long-term doctrine and force posture changes. Further, the military has not publicly announced the creation of a lessons learned center within the General Staff. Battlefield adaptations are likely to remain more short term and technical, designed to increase lethality in Ukraine and improve survivability. Long-term changes from in-depth analysis will be possible once the conflict freezes or ends.

While the Kremlin has not yet set up a comprehensive lessons learned center, Russian leaders have called for the integration of combat experience and have taken steps to disseminate learning.[147] Presently, service academies have made adjustments in their training programs for essential updates (not defined publicly), and more in-depth learning is likely to occur after the active phase of the war concludes. For example, seminars for knowledge transfer are taking place now, as veterans from Ukraine share lessons learned. In addition, operational lessons learned are being included in Russian Air Defense textbooks and manuals,[148] and training problems in military institutes were being upgraded as of late 2022,[149] some with a special focus on UAVs and combat robotics, according to Gerasimov.[150] Still, the learning process is far from complete. Russian military strategists continue to discuss how to absorb lessons learned systematically, which suggests that a postwar learning structure has not yet been agreed on.[151]

Russian Equipment and Materiel Reconstitution

As of April 2024, the Russian military was supplying a stable amount of equipment to the war effort through accelerating production capacity at existing defense factories and refurbishing older Soviet-era equipment at accelerated rates. This process will buy the Russian government at most a few years to implement a larger rearmament plan. Reconstituting lost equipment will be a critical long-term task. This section will evaluate Russia's short-term reconstitution activities (refurbishment and repair of equipment) and long-term reconstitution capabilities through 2030 and beyond. It will also consider the Russian defense industrial base's advantages, constraints, and policy trade-offs in light of the reconstitution task before it. The majority of the Russian military's reconstitution needs are concentrated in its land combat forces (Ground Forces, VDV, and Naval Infantry), so this section will focus on constraints and policy trade-offs in that area in particular.

In early 2024, when senior U.S. officials remarked that the Russian military is almost fully reconstituted, they were not implying that the force is almost restored to what it was in 2022.[152] They were most likely referring to the doctrinal definition of reconstitution—the restoration of sufficient or acceptable combat capability. The Russian military in 2024 can therefore be considered reconstituted quantitatively via mobilized soldiers and volunteers who received truncated training and via refurbished Soviet-era equipment from strategic reserves. The military can also field new capabilities that did not exist before 2022, especially in relation to UAV and FPV use. Qualitatively, the force remains uneven in many respects.

Russia's Reconstitution Lifeline: Equipment Refurbishment and Repair

To consider how the Russian military will reconstitute through 2030, it is first essential to evaluate how Russia is repairing and refurbishing older equipment for combat deployment to Ukraine. Western think tanks have estimated that 75 percent of Russian equipment sent to Ukraine as of 2023 and 2024 was repaired or refurbished and 25 percent was newly produced.[153] Russia's ability to replenish the force allows the military to maintain operations at a sufficient level for now. The Kremlin has an extensive network of repair facilities and a limited number of storage facilities and factories that specialize in restoring equipment from the reserves. But the mismatch between the level of monthly equipment losses (while conducting offensive operations) and the level of new production is unsustainable, given finite remaining reserves.

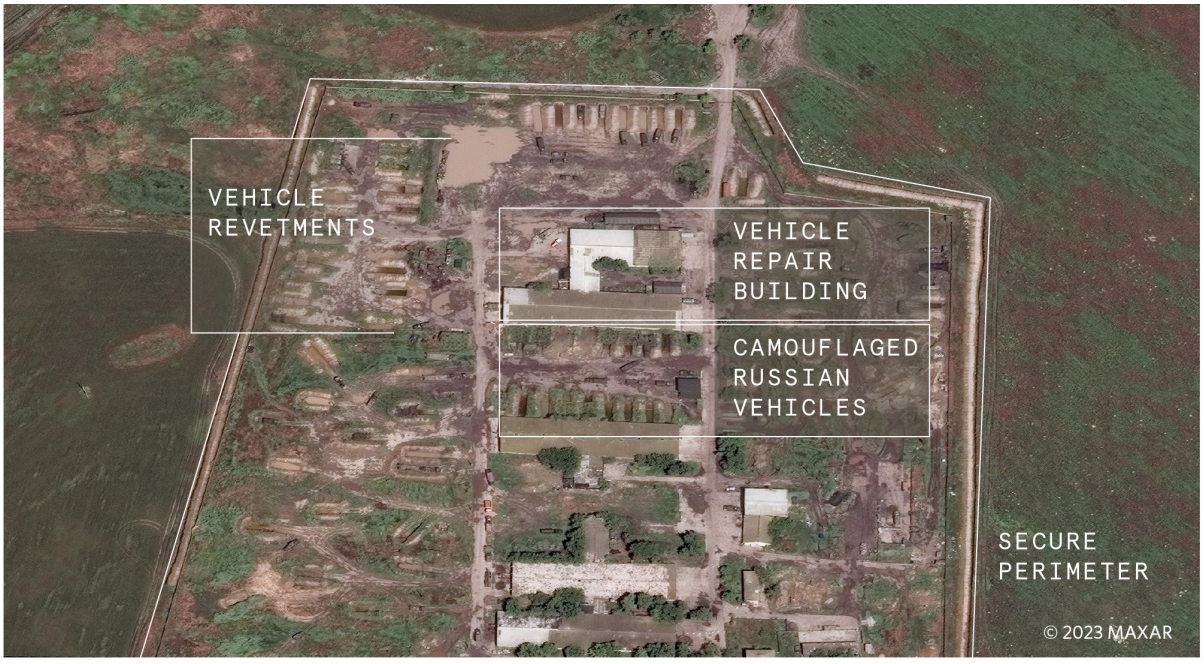
Damaged equipment is triaged according to three major repair categories, and that classification determines where the repairs are made. Minor repairs (or "current repairs" in Russian) are carried out at field restoration points inside Ukraine and include the repairing of broken parts, oil changes, or engine repair. Minor repairs are completed by the crew or engineers within a unit. Moderate repairs are done by transporting damaged vehicles to new wartime repair facilities on the Russian

side of the border, or deep within occupied Ukraine, and include repairing specific systems that fail on a piece of equipment. Major repairs are carried out at factories or specialized repair facilities well inside Russia to extend the equipment's service life by addressing major structural damage or critical systems failures.[154]

Russian officials claim they have created an estimated 270 facilities of varying sizes to repair equipment quickly and send it back to the front line in Ukraine.[155] Some of these facilities are located inside occupied Ukraine (see Figure X). Officials from the Southern Military District (adjacent to Ukraine) claim that 95 percent of retrieved weapons are repaired and sent back to the front, with a goal of being done within five days or less, and the average time taking two to three days. Russian media claim that field restoration points are only 9 to 12 miles (15 to 20 kilometers) from the front line and can handle tasks from oil changes to engine replacement.[156] As is the case with Russian forces in Syria, defense industry specialists are deployed to these sites to make repairs, learn about equipment performance, and assist with solutions for repair or modification.[157] Russian logisticians, specifically the recovery crews, are the first to document observations about how different foreign technology impacts the equipment, and this information is shared with Russia's network of equipment repair and restoration points across Russia.[158]

Figure 5. Russian Vehicle Repair Facility, Kherson Oblast, June 2023

After invading Ukraine, Russian forces modified this facility with a secure perimeter and vehicle berms. It was likely used to repair vehicles in sheds and store them temporarily. Vehicles under camouflage netting can be seen in this graphic. This facility was destroyed by Ukrainian forces in August 2023, according to imagery analysis.



As of April 2024, most equipment sent to Ukraine is refurbished Soviet-era equipment withdrawn from strategic reserves in centralized storage bases across Russia. Russia's vast strategic reserves of military equipment, most of it dating back to the 1970s or earlier, are based in multiple locations. The Kremlin has around five dozen central tank reserve bases, armament and equipment reserve storage bases, and bases for artillery systems of various types.[159] See Figure 6 for the locations of these bases. According to prewar estimates by the International Institute for Strategic Studies (IISS), Russia had around 10,000 tanks in various conditions in strategic reserve, ranging from derelict (turret-less and rusted) to good working order, with room for a maximum of 2,000 tanks to be kept in covered storage (minus workshop space). Russia also kept the following armored equipment in storage prior to the war: 18,500 armored vehicles (BMP-series infantry fighting vehicles and BTR-series and MT-LB armored personnel carriers); 4,200 self-propelled artillery and 12,400 towed artillery; and 3,200 multiple rocket launcher systems.[160]

Figure 6. Russian Equipment Reserve Storage Bases

Before 2009, Russia had an even larger storage and repair network. During the New Look reforms in 2009–2012, the Ministry of Defense began consolidating and privatizing these repair facilities to conserve funding. When Shoigu and Gerasimov came to office, they halted the closures. But it was not until 2023 that Shoigu said the privatization plan was a mistake and had "had a negative impact on the serviceability of weapons" and announced plans to expand repair facilities and build three new repair plants.[161] Serdyukov put forward a plan to scrap, between 2011 and 2020, about 10,000 derelict or old pieces of equipment in strategic reserve, as senior military leaders stated that a large-scale land war would be unlikely. In 2017, Shoigu and Gerasimov halted this process as well, preventing around 6,000 pieces of equipment from being destroyed.[162] These stockpiles are now very likely being refurbished or stripped for repair parts for the war in Ukraine.

To prepare a well-maintained tank in the strategic reserves for deployment takes less than one week.[163] However, between thirty and sixty days of work are required to prepare a tank that has been in long-term storage and has not undergone regular maintenance.[164] In addition to specialized tank reserve bases, three factories can repair tanks. For example, Uralvagonzavod, which produces all of Russia's new tanks, refurbishes them as well. This factory's prewar rate was around 96–125 refurbished tanks per year, but this number has likely increased to 200–250 annually, due to additional shifts and recent mobilization directives.[165][166]

Ukrainian analysts have used commercial imagery and monitored activity at Russian tank repair facilities during the war. Their work suggests that since 2023, Russia has been able to refurbish between thirty and seventy-seven tanks each month on average to send to Ukraine—largely the same as the rate of withdrawal from storage bases, during this period.[167] When combining refurbished monthly rates, in addition to the twenty or so new tanks that Russia produces each month, Russia's tank deliveries to the front meet or slightly exceed combat loss rates of fifty to seventy tanks per month (while conducting offensive operations).[168] The Center for Strategic and International Studies (CSIS) has noted that, if accurate, the numbers provided by Russian officials on procurement in 2023 would suggest that 125 new and refurbished tanks can be supplied each month, which is enough to cover losses.[169] These views are consistent with those of the IISS, which estimated that in 2023, Russia had the capacity to reactivate 1,180–1,280 tanks and 2,470 armored vehicles from storage. Further, according to Ukraine analysts, if battlefield loss rates remain constant, Russia could sustain the war for two to three years before some types of serviceable equipment runs out.[170] The United Kingdom's Ministry of Defence also suggests that Russia could continue the war with loss rates at this level until 2026.[171]

Russia also has specialized facilities for the refurbishment of other armored vehicles. For major overhaul or severe combat damage, BMP-1, BMP-2, BTR-70, and BTR-80 vehicles are sent to repair sites and factories. Prewar refurbishment rates are thought to be around 100 per year for older BMPs, based on observing activities at these repair facilities via commercial satellite imagery.[172] The more

modern BMP-3 is produced and repaired at the same factory, Kurganmashzavod, which claims that it has increased its outputs from 100 new and 100 refurbished BMP-3s per year to 300 new and 200 repaired BMP-3s annually. Other Russian factories report that they can repair 120 modern BMP-2s per year and an estimated 300–400 new or modernized BTR-82A/AM armored personnel carriers.[173]

The Russian Air Force has been able to use modified FAB-series modified glide bombs to devastating effect in Ukraine. The military has been able to increase the modernization and production rates of FAB-500 and FAB-1500 glide bombs and has started large-scale production of the latest variant, the FAB-3000. To do this, Russian leaders claim that they have modernized up to 45,000 square meters of production space at the factory that produces the bombs, instituted triple shifts, raised wages by 20 percent, and hired over 1,000 workers. Reportedly, a similar approach was carried out to increase production at 122mm and 152mm artillery shell factories.[174]

New Production

In the years prior to the war, Russia did not increase the production of new tanks, infantry fighting vehicles, or armored personnel carriers. This suggests that either the war was not planned far enough in advance to modify production plans or that Russian leaders did not believe they would sustain such severe losses to the force, instead assuming the Ukrainian government would flee or capitulate quickly. Since partially mobilizing the war economy in 2022, Russia has been able to raise production capacity at several factories. As some observers have noted, Russia has also begun implementing other important changes to speed up production, such as simplifying contracts, shortening timelines in the R&D cycle, and creating coordination centers.[175] Some civilian factories have been partially converted into military production. For example, some factories that produced bread now make drones, and some factories that produced oil or gas drilling equipment now make artillery gun tubes.[176]

Overall, the production of new equipment may have reached a plateau with Russia's current capacity. First, the production of new tanks and armored vehicles is constrained by the number of factories currently operating. And, second, those same factories are urgently needed for vehicle repair, further limiting new production output capacity.[177] To build more quickly, Russia would either need to build or convert new factories, take existing factories temporarily offline to retool them, or import armored equipment from abroad.

Until 2023, Russia had only one tank company, Uralvagonzavod, which also produces exports.[178] At peak Soviet production, Uralvagonzavod produced 1,559 T-72 tanks in 1985, according to Russian military bloggers. However, a Rostec official reported in late 2022 that its current capacity is 200–250 annually, which includes refurbished T-72s as well as smaller numbers of new T-90Ms and even smaller numbers of T-14s. Russia did restore the dormant T-80BMV tank engine line at the

Omsktransmash factory, which produces 120 refurbished tanks per year.[179] This facility has also been converting the old T-72 tank chassis into the TOS-1A thermobaric multiple rocket launcher system.[180] Prewar, Russia was producing an estimated several hundred new armored vehicles a year: 300–400 BMP-3 and BMD-series vehicles and 130 new BTR-82A vehicles.[181]

One area of new construction and growth is Russia's investment in drones, UAVs, and FPVs. Russian military experts and leaders alike have noted that the Geran-2 (Iranian Shahed), Zala, Orlan, Eleron, and Supercam drones; Lancet FPVs; and 2K25 Krasnopol precision rounds have proven themselves operationally and should be mass produced as soon as possible.[182] To accelerate the production of Geran-2 drones, Russia has built a new factory in Alabuga, with a goal to produce 6,000–10,000 a year.[183] Both the Russian and Ukrainian forces are using Chinese commercial drones, such as the DJI. Russian defense industrial leaders have noted they would like to increase the percentage of domestically produced drones to 70 percent and produce 32,000 unmanned aerial systems per year by 2030.[184] For this purpose, Russia has allegedly allocated 713 billion rubles (8 billion dollars) through 2030 as part of a federal plan to mass produce unmanned aerial systems.[185] Shoigu has also said that the Kremlin is pleased with the operational performance of the Pantsir air defense missile system and plans to double its orders.[186]

Labor Shortages

Russia faces significant labor challenges across key industries, including the defense industry.[187] Labor shortages are occurring in multiple industries and regions. Russia is facing its worst labor shortage since 1996, estimated in December 2023 to be 4.8 million unfilled jobs, according to Russian officials. And this is occurring at a time when mobilization has created thousands of new jobs in the defense industry.[188] Labor shortages in nonpriority sectors of the economy have been made worse by the increase in demand and creation of thousands of new defense industrial jobs.[189] Russia also has deployed some of its defense factory specialists to forward repair facilities near Ukraine, which puts further strain on remaining workers and limits production.

Labor pools tapped in the past to resolve these shortages, such as migrants, prisoners, and students, are needed as volunteers for the war.[190] Most factories are now working round the clock, and some use prison labor to cover shifts, including at Kurganmashzavod.[191] Russia has been recruiting from abroad to fill some of its defense industrial positions, particularly at new factories. For example, the Alabuga Polytechnic College, co-located with the facility that produces Geran-2 and other drones, has both foreign students (for instance, from Africa and Central Asia, particularly from Tajikistan, for those who also speak Farsi) and students from across Russia ostensibly attending the college but they are also employed for drone construction.[192]

Russian women are an underutilized labor source for the defense industry. Women have been excluded since the 1970s from most defense industry jobs due to the Russian labor code, which prohibits women from 100 professions that could harm their fertility or a pregnancy. Women are prohibited from certain occupations deemed physically dangerous, such as those that deal with hazardous chemicals or heavy metals (essentially eliminating many defense industrial jobs like welding or repairs).[193][194] Women are prohibited from underground work, such as mining; jobs requiring lifting and heavy exertion above a certain weight, including the operation of heavy machinery; jobs requiring the handling of some chemicals or many petroleum products; most metallurgy (ferrous and nonferrous) professions; and firefighting.[195] In 2023, the Putin government announced policy plans to focus on family and childbearing, making the cultural change needed to overturn these laws complicated.[196] Changes to the labor code that would allow women to hold these positions would require not only a cultural shift but also an amendment to Russian labor laws; it would be an indicator of Russia's intention to expand production capacity and acknowledgment of severe labor deficits.

Production Options and Trade-Offs

Russian defense leaders have choices for achieving equipment reconstitution through 2030. As Russia continues to shuffle top defense officials in 2024 and prepares for the new SAP (2025–2034), they are likely weighing several options. If they pursue a conservative route, they may judge that the current capacity is suitable (roughly 250–300 tanks per year and so on) and are willing to accept risk on delivery timelines in exchange for more manageable costs and less investment risk. Such a course of action would rest on assumptions that older refurbished equipment and other capabilities like air or sea power, or Russia's nuclear weapons, will be sufficient to satisfy Russian defense or offensive needs until newer equipment can be phased in over the next decade. The Kremlin might select this course of action if they feel unable or do not want to make lasting and expensive increases to the defense industrial base, including the construction of additional factories. Such a course is sustainable financially and would also take into account persistent labor shortages in the defense industrial base and manufacturing sector more broadly. But in reality, for such a plan to work, the conflict in Ukraine would have to freeze or shift into a low-intensity stalemate by 2025, when the level of remaining Soviet-era equipment is likely to become critically low.

In taking another course of action, Russian leaders could attempt to ramp up new production before 2030 via substantial capital investments in new factories or the reconfiguring of lines in existing factories to increase outputs. Russian leaders might choose this route if they feel that a modernized army must be restored as quickly as possible for various defensive or offensive operational needs. Labor shortages and financial investment risks are likely to be the biggest challenges to this course of action. Retooling existing factories to make them more efficient would cause a temporary pause or decline in production while they are being overhauled—which is incompatible with Russia's current

wartime needs. Russian factories are working at full capacity to sustain the war effort, so this course is likely too much of a risk. Building new factories would sidestep that issue, but expansion assumes that Russia could purchase needed tools from China or other partners.

Even in the immediate postwar period, as Russia takes stock of its losses, an expansion of the defense industrial base might prove politically unpalatable unless the Kremlin is willing to make a permanent commitment to financing the expansion at the expense of other areas of the federal budget. To execute an ambitious retooling or expansion of production capacity, Russia would most likely be heavily dependent on China for machine tooling. The Kremlin's shift away from Europe to China for these critical materials accelerated after the 2022 sanctions on Russia, according to CSIS analysis.[197] China's support to the Russian war effort also allegedly includes propellants, space sector support, and commercial imagery over Ukraine, as Russia's own domestic satellite constellation is aging and insufficient for the operational tempo.[198]

Another method to boost equipment numbers, but one that Russian defense policy has not contemplated since WWII, is importing large numbers of ground forces equipment from abroad. If by 2025 or 2026, Russian equipment stockpiles are running out (assuming the war continues at the same intensity levels as the first two years), they could purchase equipment from partners such as China or scale back on exports and risk losing market share. CSIS found that since the 2022 sanctions, Russia has been shifting its imports for key electronic components, machinery, and other mechanical appliances away from European companies to Chinese companies and other shell companies in Hong Kong, India, Turkey, Vietnam, and other locations.[199] To expand its forces, Russia will also need to scale up imports of semiconductors and ball bearings for armored vehicles (often sourced from Belarus).[200]

The timely identification of innovative ideas and their rapid integration into the force represent another way forward, but persistent problems impede this course. While mobilization authorities have given the Kremlin and Rostec increased ability to reduce red tape for research, development, and production, many problems remain. It would appear that the problem is not a shortage of ideas or start-up companies willing to create innovative solutions for the Russian defense industry, but rather persistent bottlenecks in early-state investment and contracting with the state-controlled defense industry. Tech start-ups face challenges in breaking into the Russian defense industry, a critical problem for the innovation that Kremlin leaders claim is so direly needed. Investment into tech start-ups, particularly at the early phase of their product development, is low, especially in the areas of combat robotics, unmanned aerial system (UAS) technology, and other FPV technology. The venture capital market for military technology start-ups has shrunk since 2022—decreasing year on year by 56 percent for investments, while increasing by 10 percent in terms of purchases. The chief executive officer of a Russian company that makes UAV detection equipment described his market as "sorely lacking early-stage systemic investments."[201]

Further, members of the Russian military-scientific community claim that the Ministry of Defense is flush with patent proposals for counter-UAS technology, new forms of camouflage, and signature reduction (reducing electronic emissions, visual, noise, or thermal signatures) but that patent officer numbers have not grown, existing staff are overwhelmed with paperwork, and organizational links to Russia's patent office remain weak.[202] There also are few mechanisms for obtaining "seed money" or financial investments in the early phases of development. If a soldier or officer identifies an innovation, their commander can recognize them with a rather meager cash award of up to 800 rubles (around $9)—not because more funding isn't available, but because the regulations guiding this award have not been updated in many years. The Russian research and development system is in need of reorganization, in the view of Russian strategists.[203] Russia's new defense minister Andrei Belousov is focusing on these particular bottlenecks.

Finally, another choice of action would be to address the secrecy, opacity, and counterintelligence concerns that hamper multiple aspects of Russia's defense procurement cycle. Growing classification and lack of security clearances among different governmental organizations charged with oversight creates an environment where graft, underperformance, and quality control issues thrive. RAND researchers have identified problems with Russian oversight processes at multiple levels.[204] As the defense budget and most aspects of Russia's military capabilities or defense industrial base (particularly related to the war effort) have become increasingly classified over time, having a clearance is necessary to review procurement plans and state defense orders, recruit personnel, and conduct audits.[205] However, there are no indications that the number of security clearances has grown since the war; not all Duma members even held clearances before the Ukraine war.[206]

Financial Considerations of Military Reconstitution

By Richard Connolly, June 2024

This section considers how Russia's economy will shape reconstitution and the revitalization of the defense industrial base through 2030. It will consider which financial aspects are constraining factors and where the main uncertainties and potential chokepoints lie. To evaluate Russia's ability to fund reconstitution, two scenarios were developed to estimate future expenditures: (1) a partial mobilization scenario, which reflects current resource allocations and decisions as of 2024; and (2) a full mobilization scenario, where more money, manpower, and priority are allocated to the Ministry of Defense and the defense industrial base.

Financing Military Reconstitution

With the defense burden soaring to levels last seen under the Soviet Union, Russia might soon be competing with China for its position as the world's second-largest country by military spending in absolute terms. Doing this with an economy less than 20 percent the size of China's might seem impossible.[207] However, prudent management of the budget and an unprecedented surge in federal government revenues have enabled Moscow to do this without running a significant budget deficit.

The Budget at War

Initially, the war in Ukraine put Russia's public finances under substantial pressure. However, soaring commodity prices came to Moscow's rescue. Elevated prices for oil and gas exports meant that total exports soared from $550 billion in 2021 to $636 billion in 2022.[208] Imports, by contrast, fell by 9 percent (from $380 billion to $351 billion). The trade balance surged to $285 billion, which in turn caused the current account surplus to reach $233 billion, nearly double the previous record ($122 billion in 2021).

Enormous trade and current account surpluses meant that there was plenty of money, as well as new restrictions on capital outflows in the economy that could be mobilized by the government to maintain fiscal discipline. Aggregate revenue for the federal budget grew by 10 percent on the previous year to reach a record level of $285.5 billion. This was driven by record-high oil and gas revenues (₽11.6tn).[209]

Expenditure also grew briskly, rising 25 percent on the previous year and reaching a record level of ₽31.1tn. This was over 30 percent higher than the planned spending of ₽23.7tn outlined in the 2022 budget, passed into law only months before the war began. Overall, federal spending exceeded

income by ₽3.3tn in 2022 (2.3 percent of GDP). Most of this was financed through the release of ₽3tn from the National Welfare Fund (NWF). The NWF was tapped again last year to finance the budget deficit of 1.9 percent of GDP.[210]

The Federal Budget for 2024–2026

Military spending at the current level is likely to be sustainable to 2026. The Federal Budget Law for 2024–2026 passed last year envisages another year of fiscal expansion in 2024.[211] Federal expenditure is set to rise from ₽30.5tn in 2023 to ₽36.7tn in 2024. This increase in spending is driven by a planned hike in the "national defense" portion of the budget, which is scheduled to rise from ₽6.4tn to ₽10.8tn. Other areas of the budget, such as the "domestic security and law and order" portion, are also used to finance military expenditure. Total defense spending is likely to exceed ₽13tn. Social spending will rise by close to 20 percent in nominal terms from ₽6.5bn this year to ₽7.7bn; however, it will remain far below military expenditure. Other categories of spending are only expected to increase slightly, with most expected to rise in line with inflation.

Success in Raising Federal Budget Revenues

Increases in expenditure are difficult to support without a corresponding rise in revenues. However, Moscow has performed exceptionally well in this respect. Federal budget revenues are projected to rise from ₽28.7tn last year to ₽35.1tn in 2024, bringing down the budget deficit to 0.9 percent of GDP.

Oil and gas-related revenues are forecast to increase by close to 30 percent from ₽8.9tn to ₽11.5tn, backed by rising global oil prices, a weaker ruble, and completion of the ongoing "tax maneuver" that will eliminate export duties on both oil and oil products while raising the rate of the mineral extraction tax (MET) as well as taxes on additional income for oil companies. The increase in MET will likely add an extra ₽2tn in revenues, causing it to rise from ₽7.7tn in 2023 to ₽9.7tn in 2024. The MET for natural gas is expected to grow from ₽1.2tn to ₽1.6tn.

Importantly, non-oil and gas-related revenues are also projected to grow by nearly 20 percent, from ₽19.8tn in 2023 to ₽23.6tn in 2024. Value-added tax (VAT) will account for more than half of these revenues. Economic growth and inflation are expected to push up domestic VAT collection, while the recovery in imports and the devaluation of the ruble should also boost VAT charged on imported products.

Two other sizeable additions to the non-oil and gas federal revenue stream in 2024 include the imposition of higher fees for vehicle recycling—which will bring an estimated extra ₽300bn to the budget—and the introduction of new export duties, which is expected to add a further ₽600bn.

The budget for 2024 is based on GDP growth of 2.3 percent and an oil export price of $71.3 per barrel. Revenues could fall short if economic performance is less robust than expected or if Russia's export revenues decline, perhaps due to a deceleration of global economic growth. Because expenditure is forecast to remain close to current record levels until 2026 and probably beyond, Moscow's revenue projections will require continued economic growth. Despite recording a faster-than-expected rate of expansion of 3.6 percent last year, the momentum must be maintained.

In the first half of this year, the economy continued to expand at a brisk rate. Growth of 5.4 percent in the first quarter was followed by expansion of 4 percent in the second quarter. The Central Bank of Russia (CBR)—usually conservative in its forecasts—revised its forecast for growth in 2024 up from the 2.5–3.5 percent projected in its April forecast to 3.5–4 percent in its end of July forecast.[212] However, the bank warned that faster growth this year could end abruptly if supply-side constraints cause inflation to soar and the economy to overheat. To engineer a controlled slowdown, the CBR raised the key rate from 16 percent to 18 percent at the end of July, indicating that it may need to raise rates further to dampen inflation.[213] Whether the CBR can prevent the economy from overheating without inducing a severe slowdown or recession will be key to Russia's growth prospects over the next year.

Growth Projections

The good news for the Kremlin (and the bad news for Ukraine and its NATO allies) is that the consensus among most forecasters—both inside and outside Russia—is that the economy will keep growing for the foreseeable future. Where there is disagreement is over the pace of this growth.

Table 4 outlines growth projections from Russia's Ministry for Economic Development, which are used for budget planning in Moscow and by the International Monetary Fund (IMF) and the Bank of Finland's Institute for Emerging Economies (BOFIT). Because each entity only provides forecasts for the next three to four years, a trend line is extrapolated until 2030.

Table 4. Growth Forecasts for the Russian Economy, 2024–2026

	2024	2025	2026	2027	Trend 2028–2030
Minekon	2.8	2.3	2.3	2.4	2.4
IMF	3.2	1.8	1.2	1.3	1.4
BOFIT	2	1	1	-	1

Source: Russian Ministry for Economic Development, IMF, and Bank of Finland Institute for Emerging Economies.

The ministry's forecast is, perhaps unsurprisingly, the most optimistic. If Russia grows at this rate, Moscow would comfortably be able to afford its current level of military spending, which would mean the *partial mobilization scenario* of spending would be manageable. Federal revenues are forecast to peak at 19.5 percent of GDP in 2024.[214] If the share of federal revenues in GDP remains at around this level until the end of the decade, the growing economy would result in more financial resources being available to the Kremlin, potentially making room for even more military spending, if needed.

The IMF's forecast, while lower, nevertheless yields a similar conclusion. The lower forecast from BOFIT would mean that maintaining existing levels of defense spending would prove less comfortable. Other areas of federal government expenditure—such as pensions for Russia's rapidly aging population, large-scale infrastructure, development programs under the aegis of "national projects," and financial transfers to poorer regions—would all likely suffer. Health and education, by contrast, might not suffer as much because they are principally funded by regional budgets rather than federal spending. But if the Kremlin were to prioritize defense spending, the resources would likely be found.

These forecasts would, however, mean that a shift toward a *full mobilization scenario* would place the budget under much greater strain. The Kremlin would be forced to increase taxation to finance the significant expansion of military spending entailed under this scenario, pushing total federal revenues to closer to 25 percent of GDP. Raising these taxes would draw financial resources away from households and enterprises, suppressing the potential for growth in consumption and investment, which in turn would probably slow the rate of growth. Spending on other areas of the federal budget would also be squeezed.

Other Sources of Revenues

If the economy does not grow at a rate sufficient to generate the required tax revenues, how might Moscow fund its military reconstitution ambitions? There are three obvious ways to do this: (1) draw funds from the NWF, (2) raise taxes, and (3) increase borrowing.

The value of NWF assets stood at about $135.7 billion on April 1, 2024, or 7 percent of GDP.[215] Of this, only the liquid assets can be used to finance deficits because the nonliquid component is invested in long-term projects managed by VEB.RF, the state development bank. The fund's liquid assets totaled $55.1 billion, or 2.8 percent of projected GDP. This amount could be used to finance one or two years of budget deficits, depending on their size.

Taxes also could be raised. Over the last two years, growth in revenue collections was mainly driven by one-off adjustments, while base tax rates (for example, VAT and corporate and personal income taxes) were left intact. In the event of any new external shocks, such as a sustained collapse

in oil prices, the government could raise some of these taxes. Indeed, this looks to be exactly what the Kremlin is planning. Putin told an audience of business leaders at the annual Congress of the Russian Union of Industrialists and Entrepreneurs (RSPP) in April 2024 that taxes would rise.[216] The Ministry of Finance submitted proposals to the government at the end of May that will see increases in the rate of both corporate and personal income taxes.[217] Proposed changes to the tax system are expected to yield an additional $44 billion per year, which would comfortably eliminate the budget deficit of ₽1.6tn anticipated for this year.

The oil industry and the banking sector have both generated considerable profits that have been retained and could be accessed by "one-off" levies. The banking sector—dominated by state-owned banks such as Sber and VTB—is an obvious potential source of funds. It is estimated that soaring interest rates enabled the sector to generate around ₽2.5tn profits in 2022 and ₽3.3tn in 2023.[218] Together with profits retained from before the war, this leaves state-owned banks with a substantial cash pile that could be taxed if needed.

Finally, the state could borrow more. Since clearing its national debts in the 2000s, the Russian government has sought to avoid borrowing abroad. At around 15 percent of GDP, federal government debt is very low by international standards, compared to an average 65.3 percent of GDP for emerging market and middle-income economies. There would be no need to borrow abroad, either. The domestic banking system—dominated by state-owned banks—could buy government bonds. It is already the case that state bonds are largely held by residents rather than foreigners. The share of nonresidents in the OFZ (state ruble-denominated bonds) market fell from 20 percent in January 2022 to less than 8 percent at the end of 2023.[219]

Debt securities accounted for 13 percent of the aggregate banking sector portfolio at the end of 2023, or around ₽19.4tn.[220] This percentage has not changed since the start of the war and is much lower than the average for emerging-market economies, which suggests that there is considerable scope for domestic (mainly state-owned banks) to buy more government debt. For comparison, the IMF has noted that holdings of government debt by emerging-market banks reached 17 percent of total assets in 2021.[221] Government debt amounted to 25 percent of bank assets in some emerging-market economies.

If Russian banks were to increase their holdings of state bonds to 17 percent of current total assets from the current level of 13 percent of total assets, it would mean that total exposure could rise from approximately ₽19.4tn to ₽30.6tn, using estimated GDP for 2024.[222] This alone would give the government an additional ₽11.2tn, which would be enough to fund several years of deficits.

Instead of pursuing these three funding methods, Moscow might revise its ambitions downward, perhaps seeking to spend enough to maintain a credible military but not enough to build the much larger, better-equipped military set out by Shoigu at the end of 2022. This, however, would ultimately be a political decision rather than an economic one. There would likely need to be a significant

change in political orientation for the Kremlin to consider scaling its ambitions back. If Russia remains hostile to Ukraine and NATO, such an outcome is even less likely. In this scenario, Moscow would likely resort to a combination of drawing down on its savings, tax hikes, and increased borrowing to ensure that the military receives the financial resources it needs. Given Russia's strong public sector balance sheet, this could well prove sufficient, at least until 2030.

Economic Constraints on Military Reconstitution

Although the forecasts for Russia to 2026 and beyond suggest that it will experience growth of some kind—and with it a relatively stable flow of revenues to the federal budget that should support elevated military spending for the foreseeable future—there are risks that could change this trajectory between now and the end of the decade. There are two principal supply-side constraints that could hamper economic growth and with it federal government tax revenues: (1) shortages of human capital, and (2) an inability to generate sufficiently fast growth in physical capital to support a higher rate of economic expansion.

Human Capital

Russia is likely to face considerable challenges in generating the manpower necessary to engage in the type of military buildup described above—either in an partial mobilization scenario or in a full mobilization scenario—and sustain a healthy rate of economic growth.

The most important constraint is the size of the labor force. The reasons for this lie in the profound demographic transformation that has been underway since the collapse of the Soviet Union. The Russian population shrank between 1991 and 2010, falling from 148.6 million in 1993 to 142.7 million in 2009. This decline was caused by a sharp decline in birth rates and a corresponding increase in the death rate. Both these trends began in the late 1980s and caused natural population growth to decline from 1994 onward.

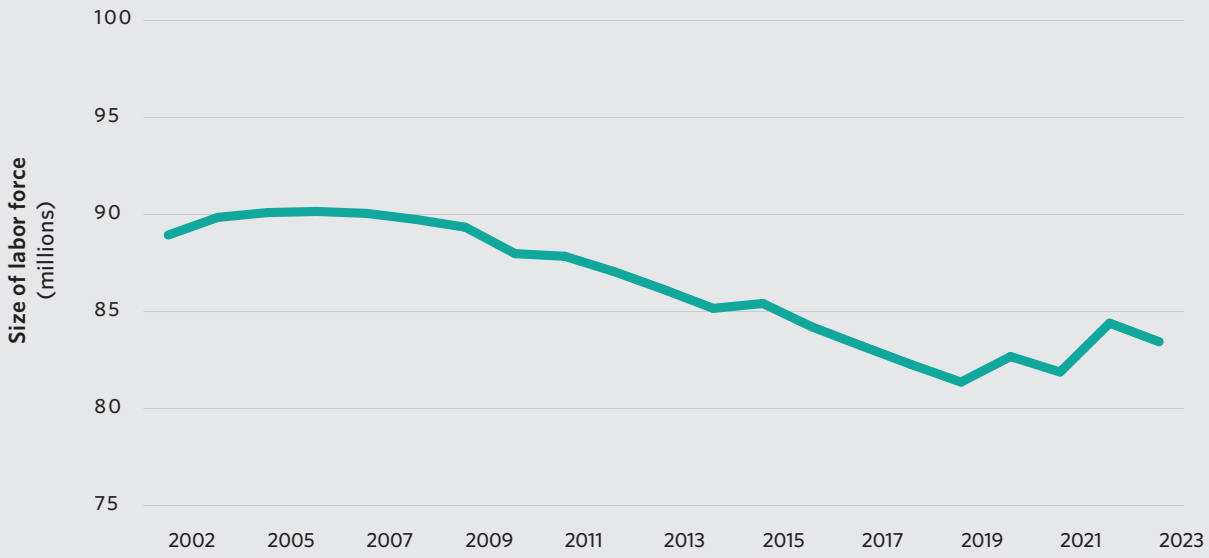
Natural population growth resumed in 2011, facilitated by a high net inflow of immigration from ex-Soviet states, a decline in the death rate, and a modest yet sustained increase in the fertility rate. However, the most important factor driving population growth was the annexation of Crimea in 2014, which added around 2.5 million to the total Russian population. Russia's population before the full-scale invasion of Ukraine was 146 million.[223]

The most recent United Nations Population Division's median variant forecast, published before the war, envisages that the Russian population will shrink to 142 million by 2030 and 138 million by 2040.[224] Although the population is likely to decline, life expectancy is likely to rise. As Russia's older people live longer, the average age has increased. Over a fifth of the population is now age sixty

or older. As this has taken place at the same time that the low birth rate in the 1990s has become evident in the working-age population, the labor force (in other words, the number of people of working age) in Russia has been shrinking since 2007 (see Figure 7).

The data, which are produced by Rosstat and therefore include the regions of Ukraine annexed in 2022, reveal a steady decline in the labor force since 2007. It was only the annexation of new territories in 2022 that resulted in a temporary increase. Over 1.3 million people ages twenty-one to twenty-nine were estimated to have left Russia in 2022, which exacerbated an already negative trend.[225] Without the addition of illegally annexed Ukrainian regions, the picture would be even worse.

Figure 7. Number of People Ages 16–59 in the Labor Force, 2002–2023 (Millions)

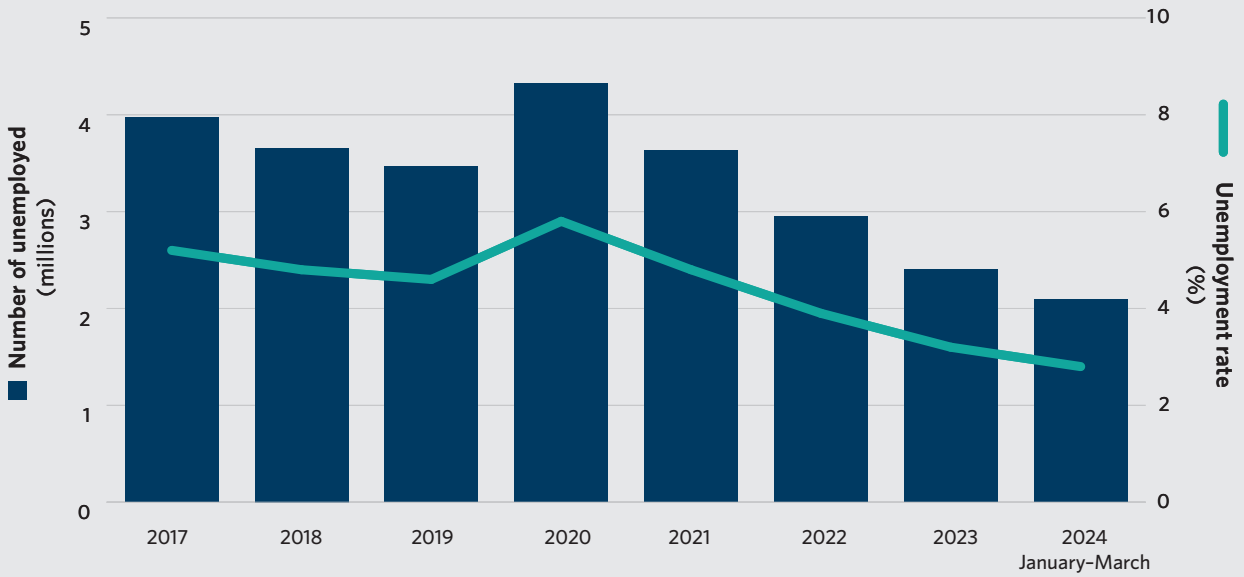


Source: Rosstat (2023)

The decline in Russia's labor force has been forecast to continue uninterrupted until 2040, and this was even before the COVID-19 pandemic, the war, and the exodus of young people. Because many of these people have already been born, the forecast is subject to a reasonably high degree of confidence. Even if Russia's birth rate rises sharply in the decade ahead, which it is not expected to, the impact on the size of the labor force will not be observed until the 2040s.

The trends outlined here do not bode well for Russia. Its population is getting smaller and older, and its labor force is shrinking. The war has accelerated these trends. Because demographic change is so intractable, Russia is experiencing labor shortages across the country. This has resulted in record-low levels of unemployment. As shown in Figure 8, the economic adjustment that began in the summer of 2022 has resulted in a sharp rise in demand for labor, causing unemployment to fall after it rose slightly following the full-scale invasion of Ukraine.

Figure 8. Number of Unemployed and the Unemployment Rate, 2017–2024



Source: Rosstat (2023)

The demographic challenge has been deepened by the number of workers who have left the labor market either due to being mobilized, volunteering to fight, or leaving the country altogether. According to conservative estimates, wartime emigration and military mobilization have cost the work force about 600,000 working-age males. The emigrants include significant numbers of skilled workers. According to the Central Bank, in 2023, every second enterprise lacked specialists, and every third workplace suffered from a shortage of qualified workers.[226]

Russia therefore already faces stark challenges in its labor force today. Sustaining its current rate of economic growth and generating a larger military force will only exacerbate these tendencies. The Armed Forces alone will require at least half a million additional personnel—mostly men—above its prewar level to reach a force of 1.3 to 1.5 million. Given the high numbers of killed and wounded in Ukraine, this figure is probably an underestimate.

And this only considers the military's needs. The defense industry and associated suppliers would also need to expand their workforces. Russia already has a comparatively labor-intensive defense industry, which employed around 2.5 million people before the war and has reportedly added 500,000 workers since 2022.[227] As a result, an expansion of production is likely to require a further influx of labor.

It is difficult to conceive how the Kremlin could solve these problems without dragging labor from other sectors of the economy and causing both sectoral labor shortages and political discontent. Russia is already close to full employment. Those who are not working are unlikely to either be willing to or capable of performing the roles required by them for the military and wider economy.

Insufficient Investment

Russia is already undertaking an enormous effort to produce the required volume of equipment and munitions for the war in Ukraine. And its economy is expanding at a much faster rate than many analysts had expected. This has caused the use of existing industrial capacity across the economy to soar. However, to sustain the current pace of economic growth and expand defense-industrial capacity to equip the planned new force, Russia will need to rapidly increase and sustain investment. Expanding production will require the construction of new facilities or the upgrading of existing ones.

Significant investment in fixed capital (for example, new factories, machinery, and infrastructure) will be necessary. However, currently, investment in Russia remains too low, both in the defense industry and the wider economy. Investment has averaged just 20 percent of GDP since 2009.[228] To support elevated military production and economic expansion, investment will need to reach around 30 percent of GDP for a sustained period (in other words, at least a decade). This investment share is also necessary for middle-income countries such as Russia to become a high-income country. The extra investment in capital—whether in new factories, machinery, or infrastructure—is what is needed to boost the productivity of the population and push incomes higher.

Investment has increased some since the Ukraine war began. According to Rosstat, the aggregate rate of fixed investment grew by 6.7 percent in 2022 and 9.8 percent in 2023.[229] This contrasts sharply with an annual average of 0.2 percent growth between 2011 and 2019. As a result, the share of investment in GDP has reached 22.2 percent in 2023, the highest level since 2011. However, although these figures might encourage policymakers in Moscow, the details show that the headline data conceal significant problems.[230]

First, investment growth was concentrated in "transport, mainly land and overland, professional activities of all kinds, warehousing and logistics, construction, and wholesale trade.[231]" This is a result of firms restructuring their foreign trade routes away from Europe. Although this type of investment helps the economy adjust to sanctions, it is unlikely to boost productivity.

Second, rapid growth was also observed in chemicals and petrochemicals; metals production; and subsectors associated with military production, such as optical and electronic equipment; and transportation. This type of investment is likely to boost military production but is unlikely to generate economy-wide productivity growth.

Third, investment in machinery and equipment—essential for any expansion of the defense industry and for upgrading existing capacity more broadly—declined in real terms (in other words, adjusted for inflation) in 2022 and only grew modestly in 2023.[232] What growth did take place will have merely made up for the previous year's contraction in investment. This means that the broader

investment growth achieved to date might only be increasing the volume of capacity, rather than modernizing it.

This point is further reinforced by the fact that the share of modernization and reconstruction of existing facilities in total investment was 13.9 percent in 2022, its lowest level on record.[233] This is a particularly important indicator given the role that the upgrading of existing facilities will play in any expansion of capacity within the defense industry. In 2023, the share remained at close to this record-low level. It will need to rise to a much higher level and remain there if Russia is to meet its more ambitious reconstitution targets.

Russia has been able to increase output at existing defense factories, but given the difficulties that the Kremlin appears to be encountering in boosting capacity beyond this new level—even after over two years of intense combat—it is difficult to see how Russia can achieve the required increase in investment to support a much larger military and sustained economic expansion. Such expansion may be possible at the end of the 2020s and beyond, but only if a concerted and sustained effort is made to expand capacity by building new factories and reequipping existing ones with new machinery. If such investments are made over the next few years, this would also leave Moscow well placed to maintain high production levels years into the future. A decision to embark on this type of investment spree could be made within the framework of the SAP (2025–2034), which should be approved in the near future.

So far, the increase in defense output observed in Russia is being driven by utilizing existing capacity, both in terms of factories and stockpiles of Soviet-era equipment and munitions. This has yielded some positive results to date, but it will only provide a short-term fix. Reaching production levels required for large-scale force reconstitution will require significantly more investment than appears to be taking place today.

It is difficult to exaggerate the importance of investment growth to Moscow's plans. If the leadership can unleash a sharp and sustained increase in investment, it will go a long way to solving Russia's labor shortage challenge (by replacing labor with capital) and ensuring a broader modernization of productive capacity across the economy. Crucially, faster investment growth could enable Moscow to overcome the mounting supply-side constraints that present the biggest threat to growth.

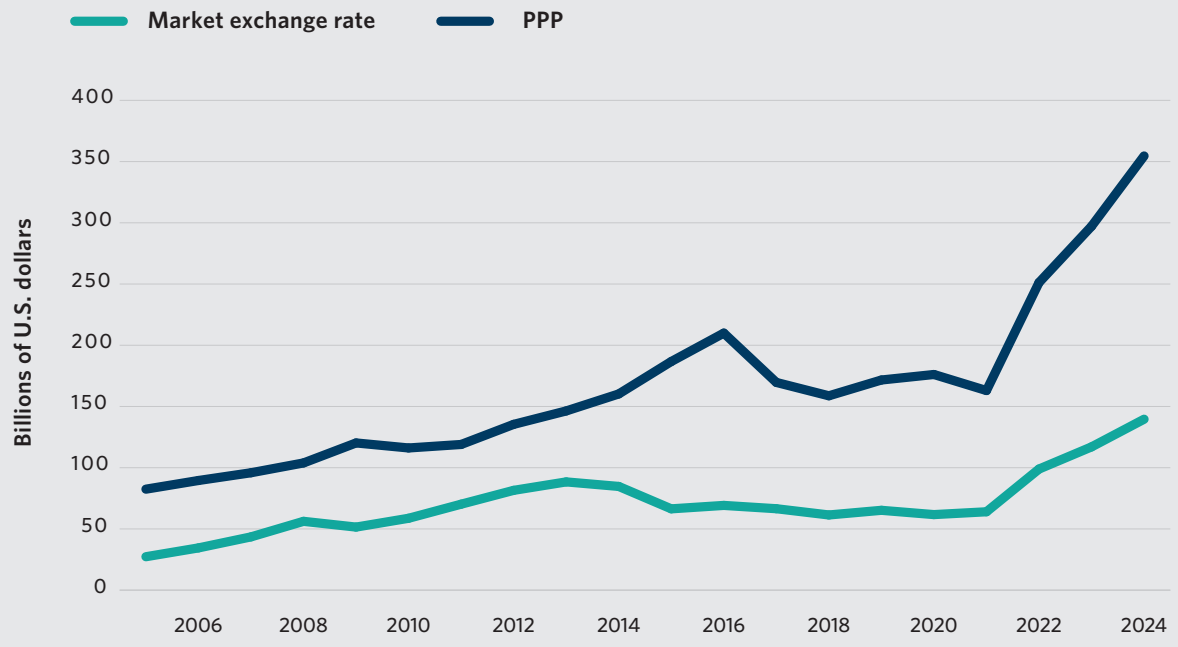
However, if investment does not grow at a sufficiently fast rate, Russia will struggle to produce the equipment needed for its planned new force structure and will fail to deal with the wide range of other problems confronting the Kremlin, including demographic decline, creaking infrastructure, and low productivity growth.

In sum, notwithstanding the risks to growth identified above, it appears unlikely that finances will have an overriding constraint on reconstitution between now and 2030, at least if current levels of military spending are maintained. If, however, Moscow moves to a full mobilization footing, the strain on the budget would likely grow. Signs that full economic mobilization might be underway would probably include the increased nationalization of private property, the widespread use of administrative measures to allocate resources across the economy, price controls, and the prioritization of defense-industrial production over all other types of economic activity, resulting in shortages of labor and other inputs across the economy.

Military Expenditure

The increase in manpower, equipment, and munitions required by either of the partial or full reconstitution scenarios will cost a lot of money. Military expenditure has already surged well above the prewar average. In the five years before the war, military expenditure (using the broad NATO definition) fluctuated between ₽4–5tn annually, or 3–4 percent of GDP. At market exchange rates, this amounted to $60–70 billion.[234] According to purchasing power parity (PPP)—a more appropriate exchange rate for comparing military expenditure across countries—this meant that Russia's prewar level of military spending ranged between $155 billion and $175 billion.[235]

Figure 9. Russian Defense Budget Market Exchange Rates v. Purchasing Power Parity 2005-2024



Source: Data for 2005–2023 are taken from the SIPRI Military Expenditure database, at https://www.sipri.org/databases/milex; and the IMF World Economic Outlook database (April 2024), at: https://www.imf.org/en/Publications/WEO/weo-database/2024/April. Data for 2024 are based on the Ministry of Finance projection contained in the budget, the IMF's PPP forecast, and on the author's calculations.

Although this was a higher defense burden than most NATO countries had during this time, it was not exceptionally high. It was scheduled to reach ₽4.9tn in 2022, but the demands of the war meant that these plans were abandoned.[236] Estimating precisely how much Russia now spends on the military is difficult because the Ministry of Finance ceased publishing detailed data on expenditure after the war began. However, it is likely that defense spending reached somewhere in the region of ₽6-8tn in 2022 (5–6 percent of GDP), depending on the measure used.[237] Last year, it surged to ₽9.3–11tn (6–7 percent of GDP).[238] At PPP, this was more than $300 billion.

Military spending is scheduled to stay at an elevated level in 2024. The budget for 2024–2026 envisages spending on chapter 2 ('national defense') of the budget to reach at least ₽10.7tn, or over $350 billion at PPP.[239] In practice, once additional military-related expenditure is included, defense spending is more likely to reach ₽13tn (over $375 billion at PPP). This could push the defense burden over 7 percent of GDP, accounting for nearly 40 percent of total federal budget expenditure. Russian military spending has not been this high since the late Soviet period. This was confirmed in May 2024 by Dmitry Peskov, the spokesman for Putin, who stated that defense spending accounted for 6.7 percent of GDP in 2023, coming close to the 7.4 percent recorded in the Soviet Union in the mid-1980s.[240]

The increase in defense spending is likely to have been caused by soaring costs for procurement (the reconstitution of equipment), operations (principally for the war in Ukraine), and personnel. The burden of personnel costs has traditionally been comparatively lower for the Russian military than armies in the West. A high proportion of conscripts, as well close-to-average wages for professional soldiers, ensured that personnel costs were unlikely to have exceeded 30–40 percent of total military expenditure.[241]

However, the war in Ukraine and the leadership's reluctance to order a second mobilization for the front line has prompted the Kremlin to hike levels of pay and other benefits (including signing-on bonuses, social benefits, and payments for death in service) to levels not seen before in Russian military history. As a result, where contract soldiers were paid on average around ₽300,000–400,000 per year before the war, new recruits in 2024 are paid closer to ₽2.5mn per year.[242] Once other payments are taken into account, such as signing-on bonuses, soldiers could earn close to ₽10mn over a three-year period. They could "earn" even more if they are killed on the battlefield, with payments to families in excess of ₽5mn.

This means that the personnel bill is much higher in 2024 than it has ever been before. If Moscow uses the current payment model to attract around half of the high target force of 1.5 million, with conscripts paid 10 percent of this level, the basic annual salary bill would reach approximately ₽2–2.5tn at current prices. With other personnel-associated costs, such as housing, training, and other benefits, it is plausible that maintaining such a force would cost well in excess of ₽3tn each year, which is around double the prewar personnel bill.

Maintaining current pay levels for a larger force over a sustained period of time would mean that staffing costs could crowd out financial resources intended either for procurement of new equipment and munitions or for operations and training. This may not be a binding constraint in the immediate future due to Moscow's strong balance sheet. However, if the war drags on at its current level of intensity for years to come, and if the Kremlin continues to build a larger force, it is plausible that the personnel bill could surpass procurement spending. Combined with elevated expenditure on operations (the war) and training, it would be difficult for the Ministry of Defense to reduce overall military spending. If the war ends or declines in intensity, however, it is unlikely that the military will maintain these salaries, as many entitlements are linked to combat pay and conditions.

Future Scenarios for Military Expenditure

What level of spending would be required under the scenarios outlined in this report?

For Russia to continue on a similar path of partial mobilization, this course of action would probably entail maintaining spending at around its current share of GDP (6–7 percent). If the economy grows, there would likely be modest growth in the absolute volume of defense spending. Given that around ₽4–5tn is probably being spent on military procurement annually—around three times more than the ₽1.5tn spent in the prewar period—defense-industrial output would likely remain at a historically high level. However, the demands of reconstitution would become even higher, meaning that either full-spectrum reconstitution would take longer at existing rates of production, or Moscow would be forced to prioritize producing certain types of equipment to quickly bring the most important units up to their desired strength.

The duration of the war in Ukraine will also be crucial in determining the speed at which this volume of spending would result in reconstitution. If the war continues at its current level of intensity, it is unlikely that annual new output will be able to replace annual battlefield losses for certain types of equipment, such as armored vehicles, artillery systems, and many types of munitions (for example, artillery shells). This would mean that it could take over a decade to replace these categories of equipment. If, however, the war ended, or at least diminished in intensity due to some form of ceasefire, reconstitution targets could be reached sooner.

In short, at the current level of spending, and with the existing productive capacity of the defense-industrial base, reaching the targets assumed in the partial mobilization scenario would prove difficult, especially in those areas where Russia's wartime losses are highest. Russia's military would be large, but the standard of equipment would vary dramatically across units.

The full mobilization scenario, by contrast, would require a much more concerted financial and industrial effort. Reaching the targets quickly would require a sharp and sustained increase in the capacity of the defense-industrial base well beyond its existing level, especially if the war in Ukraine drags on. Defense procurement would probably need to account for up to 15 percent of total annual manufacturing output. To put this in context, it would mean that Russia's industrial system would be as, if not more, militarized than that of the Soviet Union, which was one of the most militarized economies of the last century. In the late Soviet period, defense output accounted for 11–12 percent of total manufacturing output.[243]

Financing this expansion and equipment of the armed forces would be very expensive. Procurement alone would probably reach double the level of the already-elevated levels observed since the full-scale invasion of Ukraine. In practice, this would mean in the region of ₽8–10tn (at current prices) allocated to the production of equipment and munitions, as well as the research and development of new systems. Personnel costs would become at least double the pre-2022 level, if not much higher. If the war in Ukraine continues, additional costs will be incurred. In total, military spending in this scenario might reach up to twice that planned for 2024, resulting in an annual outlay of up to ₽20tn, or around $550 billion at the current PPP exchange rates.

The approximate calculations presented here give a sense of the level of military expenditure that Moscow would *need* to reach its objectives under the two broad reconstitution scenarios outlined in this paper. However, whether Russia is able to mobilize this scale of financial resources will depend on the size of the economy and the pool of available budgetary resources, the rate of inflation, the size of the available labor force, and the availability of industrial capacity to produce the required equipment and munitions.

Conclusion

The Russian military will almost certainly not be reconstituted or rebuilt back into what it looked like prior to the 2022 invasion of Ukraine. New capabilities, tactics, and battlefield realities have permanently altered what the Russian military will become to 2030 and beyond. The Russian government has claimed that in 2025, it will announce a new long-term procurement program to 2034, and the contours of that new program will provide important clues on the future force that Russia wants to reconstitute. While the force has already begun the process of structural changes, a truly comprehensive lessons-learned process can only be completed after the war's end.

In the two years since Russia's full-scale invasion of Ukraine, the Kremlin has regenerated its forces through partial mobilization, repairing on-hand equipment, purchasing equipment from abroad, offering lucrative financial incentives for volunteer soldiers, and ramping up production at existing factories. However, with the exception of drone production, these efforts have reached a plateau as of early 2024. To reach a fundamentally higher level of production or manpower availability over 2024 levels, ostensibly to reconstitute as quickly as possible, Russia would need to activate more mobilization authorities that would likely put its economy, labor market, and population's involvement further onto a wartime footing. Russia has more of these resources available; thus far, domestic political considerations have constrained the Kremlin from taking such further steps.

Military expenditure is already very high, approaching levels last seen during the Soviet era. At the current level, expenditure is likely to be sustainable in the near term due to Russia's strong public finances and expected continued economic expansion. In the medium to long term, elevated military expenditure will impose opportunity costs. For instance, state support for other national development goals might be lower than desired. The allocation of huge resources toward the military will distort other parts of the economy. Despite the current record-high level of spending, the scale of investment in productive capabilities appears to be relatively low. To meet ambitious modernization and reconstitution targets for equipment, Russia will need to increase investment in its defense industrial complex and maintain this high level for years to come.

Russia is likely to face challenges in recruiting and retaining a professional force in the aftermath of the war, and is already taking steps now to try to shore up the recruiting challenge in particular. The Russian defense budget is also likely to face competing internal pressures to maintain high personnel spending levels, even after the war concludes. These pressures will worsen if the Kremlin attempts to expand the force or is forced to maintain high salaries and entitlements to stabilize postwar recruiting and retention. Much will depend on the conclusion of the war and how the authorities manage demobilization.

The Russian military has historical experience in ingesting, analyzing, and disseminating lessons learned after a major war. This process is already occurring in the form of adaptation and increased

lethality on the battlefield in Ukraine. Longer-term force posture and doctrinal modifications are likely to occur in the years after the war freezes or concludes. The military's learning process could be hampered by the current lack of transparency and public discussion over the reality of the war in Ukraine. The potential for distorted analysis and decisions is more likely if discourse is limited or suppressed because of political sensitivities. In contrast, a sudden public shift to being transparent about the war's losses or mistakes made could be a signpost not only of a major new defense reform effort, but also a potential precursor to a large force expansion.

In conclusion, when considering the Russian military's long-term reconstitution capabilities, it will be important to keep in mind that Russia does not possess the Soviet Union's population, economy, and defense industrial base, which will limit the military's quantitative growth potential. Nor does Russia have easy access to the most modern technology due to sanctions and domestic innovation shortfalls—which will ultimately limit the type of innovation it is able to achieve. However, the Russian military has gained relevant high intensity combat experience and is adapting technologies and tactics that in many ways are shaping modern warfare. As an organization, it is gaining a unique form of resilience, and motivation to evade or bypass sanctions or other restraints, as its antagonistic views of Ukraine and the West sharpen and intensify. Reconstitution, and the future capability of the Russian military, will be influenced and shaped by all of these factors.

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Acknowledgments

The author would like to express her gratitude to Jasmine Alexander-Greene, Nicole Gonik, and Sean Eriksen of Carnegie's Russia and Eurasia Program for their intrepid sleuthing and research support, Tatyana Pyak also of Carnegie's Russia and Eurasia Program for her encouragement, and Richard Connolly for his analytic acumen on Russian budget matters. Finally, the author would also like to thank the Russia Strategic Initiative for its sponsorship of this research.

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