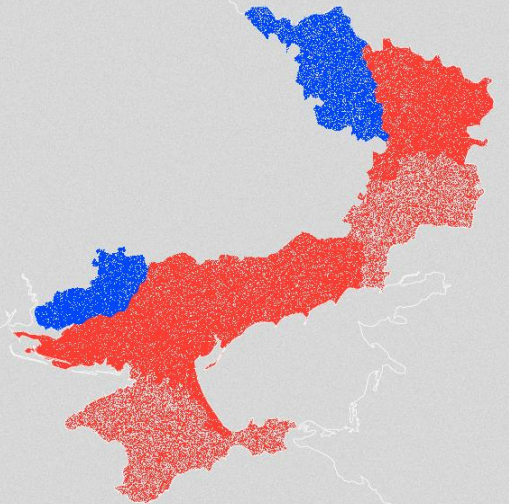


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ASSESSMENT OF THE STATE OF THE UKRAINE WAR

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Abstract

During the first month of 2023 Russia gained territory in Ukraine for the first time since August 2022. Given the prospect of renewed conflict in coming months, it is useful to assess the current disposition of the combatants. This assessment shows that current Russian weakness resides in its equipment losses and difficulty in replacing these losses. By contrast, Ukraine's difficulties reside in its shortage of manpower and its capacity to replace manpower attrition.

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Introduction

The most significant event during the first month of 2023 for the ongoing war in Ukraine was that it was the first month since August 2022 that Russia gained territory. According to *War Mapper*, at the beginning of September 2022, 12,95% of Ukraine's territory was in Russian hands out of the territory it first occupied after it invaded Ukraine on 24th February 2022. Between September and December 2022, Ukraine reconquered roughly one-quarter of its lost territory, (net 2,8% of the state's total territory).

In January however, Russia reoccupied a further net 0,1% of Ukraine's territory, making it the first month of a net territorial gain for Russian forces in four months. Even so this was a 28 times smaller gain than the area Ukraine had reconquered over the preceding four months.¹

As the mud season, known as "rasputitsa," arrives in spring, both sides will have to halt their renewed offensives probably until the end of April. Given the prospect of renewed conflict in coming months, it is useful to assess the weaknesses and strengths of the combatants. The current Russian weakness resides in its equipment losses and its shortage of replacements, while the weak point of Ukraine resides in its loss of manpower and shortage of new recruits. In terms of equipment, Ukraine can rely on supplies from NATO, while Russia only receives foreign military support from Iran and North Korea. NATO (with the inclusion of Sweden and Finland) represents 53,4% of global military spending, while Russia's amounts to only 2,4%.² Consequently Ukraine has access to far more and more sophisticated military equipment than Russia does, at least, as long as NATO is willing to supply it.

Regarding manpower, however, the equation is reversed. Russia's population is 3,3 times larger than that of Ukraine,³ while Russia's losses currently are only 1,8 times higher than those of Ukraine.⁴ Thus the main strategic question in this war of attrition seems to be whether Russian equipment supplies or Ukraine's manpower runs out first.

In early January 2023 the US announced a package worth 3 billion USD, which includes 50 Bradley M2A2 infantry fighting vehicles with 500 TOW anti-tank missiles, 18 Paladin self-propelled howitzers, 36 pieces of 105 millimetre towed howitzers, and 4000 Zuni rockets for warplanes.⁵ The package also turned out to include GLSDB missiles for the HIMARS system, with a range of 150 kilometres, well beyond the 80 kilometres range of missiles provided to Ukraine for HIMARS before this latest aid package.⁶ An earlier announcement in December 2022 added Patriot air defence units to Ukraine's support.⁷

The most widely discussed and contested part of the newly announced arms package, however, were the Leopard 2, M1 Abrams, and fourteen Challenger 2 battle tanks that represent technology one generation more advanced than the T-72 that constitutes the bulk of the Russian tank force. The decision on the delivery of western-designed battle

tanks was made after much hesitation, and even resistance, in Germany. The reasons for this German reluctance reflected worries over Germany's extensive economic relations with Russia, together with concerns over escalation of the war and not so fond memories of the events that unravelled on the eastern front during the summer and winter of 1941. Alongside western designs, NATO countries are also sending more Soviet-made T-72 main battle tanks as well. As of the end of January, the total number of main battle tanks to be sent to Ukraine reached 321, out of which the Leopard 2, M1 Abrams and Challenger 2 tanks will make up about one-third, and T-72 tanks two-thirds.⁸

Russian and Ukrainian Equipment losses compared

It is hard to estimate Russian equipment losses. According to EU estimates, Russia had already lost 60% of its tanks, 40% of its armed personal carriers, and 20% of its artillery by November 2022.⁹ If we want to get a closer look, we can take the issue of main battle tanks as an example. Photographic and video evidence assembled by Oryx verified the loss of 1661 Russian main battle tanks as of the 31st of January 2023.¹⁰ The real number must be significantly higher as, obviously, not every single damaged Russian tank has been photographed. The Ukrainian government claimed that Russia had lost 3201 main battle tanks by the end of January 2023,¹¹ which, by contrast maybe an overestimate. So the truth probably lies somewhere between 1661 and 3201 tank losses. But out of how many? In the media, the most widespread estimate for the composition of Russia's main battle tank force is 12 thousand. In 2020 however, it leaked out that Russia actually has only 2700 active tanks, and the rest were in storage.¹² How many were in storage though, and how many of those in storage could be re-activated? It was a widespread and well documented phenomenon in former Warsaw Pact countries in the 1990s and early 2000s that due to economic troubles, much if not most of the Soviet-era equipment that their militaries nominally had, were practically wrecks in various stages of decay due to lack of maintenance and parts, and Russia was no exception to that phenomenon. One independent analyst claimed to have manually counted via satellite imagery how many tanks Russia actually holds in storage, as these tanks are stored in open-air depots. This researcher calculated a total number of 6000 tanks in storage, out of which many are in such an advanced stage of decay that the decay is even visible on satellite images, and most likely beyond repair.¹³ This may or may not be correct of course. However, the satellite imagery used is publicly available, but no one else has improved on this calculation, or directly challenged the results, which supports their credibility. If this is true, it means that at the start of the war, besides the 2700 active tanks, Russia had only another 6000 in storage, out of which 3000 were beyond repair for practical purposes. Yet those 3000 tanks in storage that were not wrecks, still needed serious maintenance efforts in case of re-activation, after decades left in the open. According to another source, the Russian military can only reassemble one deployable tank from the parts of 3 or 4 ones retrieved from storage.¹⁴ From this it would seem that Russia's current predicament could very well mean that it has already lost somewhere between 1661-3201 tanks out of 2700

active tanks and 3000-6000 in storage, with only a third to a quarter of those in storage capable of being mobilised for combat.

If we calculate on the basis of predictable decay in tank reserves we end up with a figure of 1286 as the number of tanks that can be re-activated from storage. If we add this to the 2700 number of active tanks, a realistic calculation would give a total of 4000 tanks that Russia could effectively deploy. If we assume current losses, as a number halfway between Ukrainian figures (3201), and figures provided by Oryx (1661), we get an educated guess of 2431 tanks lost by Russia. Out of the educated guess of 4000 available in total, would mean roughly 60% of its total loss, a figure virtually identical with EU estimates. According to Oryx, Russia also captured 144 Ukrainian tanks, whilst, before the war, it also had an annual manufacturing production of 200-250 tanks.¹⁵ The captured Ukrainian tanks however most likely need maintenance, and only parts from them could actually be used. Meanwhile Russian tank production has most likely significantly decreased due to sanctions. If we estimate half of the captured Ukrainian tanks and half of the Russian peacetime production, that adds about 184 tanks to the picture. Ending up with Russia having roughly 1800 active tanks remaining now after having lost 2431 but acquired 184 compared to the base figure of the initial 4000. This is a plausible guess.

At the same time, this scenario might be too favourable to Russia. Some recent revelations seem to suggest a combination of higher estimates of Russian equipment loss and lower estimates on Russian reserves. This is suggested by the apparent decrease in Russian equipment use. We haven't witnessed a major Russian tank offensive since last April. Instead, Russian offensives since April have been conducted by infantry with artillery cover. Moreover, since the summer, even Russian artillery activity has decreased by 75% in terms of rounds fired on average daily.¹⁶ Russia even failed to meet its obligations under its military alliance, the CSTO, to help out its ally, Armenia against Azerbaijan last summer, taking the risk that Armenia might drift away from into the US sphere of influence. Russia obviously would not curtail its war efforts by a lack of tank offensive, or sharply decrease artillery activity, and abandon Armenia, its strategic ally, if it wasn't forced to do so. And the most obvious reason that could force it to do so is that it is running low on heavy equipment. If it had 12 thousand mobilizable tanks and lost only 1661 of them, it would have no reason to behave like this, and could have easily conducted another major tank offensive with 2-3 thousand tanks against Ukraine months ago, whilst deploying another few hundred tanks to the border with Azerbaijan to give the necessary emphasis to its request to leave Armenia alone. By contrast, if as we calculate Russia has lost 2400 out of 4000 mobilizable tanks and with only around 1800 tanks remaining serviceable tanks it is far more likely a situation where one would behave the way Russia does now.

It is equally difficult to estimate how many tanks the Ukrainian side has lost, and how many it still has in service now. Ukraine initially possessed 982 tanks before the war.¹⁷ According to Oryx, Ukraine lost 450 tanks, but received 450 replacements from NATO, and

captured 546 Russian tanks.¹⁸ Even if we use for Ukrainian losses the roughly 1,5 ratio compared to figures verified by Oryx, which we used for Russian tank losses due to the reasons discussed above, to constitute the middle ground between Ukrainian claims and Oryx figures, we would arrive at a figure of no more than 675 lost Ukrainian tanks. At the same time, captured Russian tanks obviously need maintenance, so not all of them can be used by Ukraine. So if we assume half the captured Russian tanks are salvable, that means 273 units. This leads us to the supposition that Ukraine has about 1030 tanks, now as opposed to Russia's 1800, while at the start of the war Ukraine had 1000 and Russia 4000.

How many will they have by the beginning of May, when the rasputitsa mud dries? Taking the middle ground between Ukrainian and Oryx claims regarding Russian losses and using the resulting 1,5 ratio compared to Oryx figures as well, we end up at about 3,5 Russian tanks lost daily on average during the last 2-3 months, and about 2 Ukrainian tanks lost daily in average at the same time. By the beginning of May this would mean Ukraine losing about 180 tanks, and Russia losing 315. Meanwhile Ukraine is scheduled to receive about 290 of the promised 321 tanks by then, apart from the 31 M1-Abrams tanks that will likely arrive only several months later.

On Russia's side, on the other hand, we can calculate for this three months period one-quarter of its own wartime tank manufacturing production, which we guessed to be half of its peacetime capacity due to sanctions, which leaves us with 37 Russian tanks produced in this time. This puts the numbers rounded to the hundreds to likely become 1100 tanks on the Ukrainian side and 1500 on the Russian side by the end of spring.

Number of tanks (our estimate)	Ukraine	Russia
24.2.2022	1000	4000
31.1.2023	1000	1800
30.4.2023	1100	1500

Tanks are only one type of military hardware of course, but Oryx and other sources show a similar trend in all other types of equipment as well, supported by the tell-tale sign of Russian artillery activity which has also decreased by 75% between summer 2022 and January 2023.

Manpower losses compared

Regarding manpower, the key condition for Ukraine to win is to be able to inflict casualties upon Russian forces at least several times higher than its own casualties, as it is outnumbered by Russian manpower. The pre-war population of Russia (with the inclusion of Crimea and those parts of the Donetsk and Luhansk regions that it already controls since 2014) is about 145 million, while that of Ukraine was about 44 million.¹⁹

However, for obvious reasons, mobilization in a country waging an offensive war seldom reaches the same levels as the one fighting a defensive war, which likely makes this ratio somewhat less unequal. Russia started the war with a military of around 900 thousand personnel.²⁰ Since the summer of 2022, Russia is said to have expanded its manpower by 120 thousand regular conscripts scheduled to enter military service in the fall of 2022 regardless of the war, another 300 thousand people drafted under the partial mobilization in October,²¹ and yet another 50 thousand convicts conscripted by the Wagner group from prisons.²² Under a general mobilization on the regional level in those areas of the Donetsk and Luhansk region that broke away from Ukraine adds as many as 140 thousand recruits to the picture.²³ This makes up a total of about 610 thousand recruits added to Russia's forces since last summer. As of January 2023, Russia is believed to be planning a second wave of mobilization targeting another 500 thousand conscripts²⁴. If this second wave of mobilization is successfully implemented as well, these numbers altogether added to the pre-war strength of Russia's military end up with a force of almost 2 million personnel, this includes the combined number of servicemen already active at the start of the conflict, and those mobilized since then amounts to 1,5 million, and the additional number mobilized adds another 500 thousand. By contrast, the government announced peak target for Ukrainian mobilization is to reach million people in arms.²⁵ At the start of the war, the Ukrainian military was made up of 200 thousand servicemen and women with the addition of 100 thousand paramilitary personnel.²⁶ By the fall of 2023, Ukraine managed to expand the number of its forces to 700 thousand through mass mobilization.²⁷ Thus out of the 1 million target number, 700 000 are already active, and another 300 thousand are to be mobilized. So the ratio for the entire populations of theoretically mobilizable populations of the two countries is 3,3 to 1. When it comes to actual numbers of people mobilized and announced to be mobilized however, we end up with 2 million on behalf of Russia as opposed to 1 million on behalf of Ukraine if target numbers are met, and 1,5 million on behalf of Russia and 700 000 on behalf of Ukraine regarding personnel already mobilized. This puts the actual ratio closer to 2,14 to 1 in terms of troops already mobilized, and 2 to 1 if target numbers are met.

Regarding casualties, numbers greatly vary, and are unreliable. To make things worse, not all sources give figures for both sides. One source giving figures for both sides is the Norwegian Chief of Defence who offers figures that appear to be in the middle ground. The Norwegians estimate 180 thousand dead and wounded on the Russian side, and 100 thousand on the Ukrainian,²⁸ which makes a 1,8 to 1 ratio in favour of the Ukraine. Extracting these casualties from the numbers of those already mobilized, we get about 1,3 million active troops on behalf of Russia, and 600 000 on behalf of Ukraine, which is a ratio of 2,17 to 1. If we add the numbers scheduled to be mobilized by both sides, we end up at 1,8 million on the Russian side and 0,9 million on the Ukrainian side, which again gives a 2 to 1 ratio. This means that the actual ratio of casualties in manpower seems to be slightly below the ratio Ukraine would need to maintain to be able to keep fighting as long as Russia can. Ukraine needs to reach

- a ratio of inflicting 2,17 times as many casualties on the Russian side in manpower as its own
- a ratio of 1,5 if both sides manage to implement their target numbers in mobilization, that is already being surpassed by the actual 1,8 ratio reached currently

Will arms deliveries by NATO enable Ukraine to raise the ratio to the required level? It is difficult to tell, as the answer is an equation of multiple unknowns: What quantity and quality of arms will NATO actually deliver, and how successful will Russia and Ukraine be in further mobilization?

Active military manpower (in thousands, our estimate)	Ukraine	Russia
24.2.2022	200	900
31.1.2023	600	1300
in case of successful mobilization on both sides (Ukraine's alleged goal of 1 million, and Russia's alleged plans of a further 500 thousand)	900	1800

Conclusion

The greatest risk for Ukraine seems to be the caution with which some NATO countries are portioning military supply given their fear of escalation. This was reflected in the refusal to deliver ATACMS missiles and Reaper drones, and only to decide in December 2022 and January 2023 to send main battle tanks, Bradley infantry fighting vehicles, GLSDB missiles for HIMARS, and the Patriot air defense system. As acknowledged by the 29th of January 2023 report of the *Institute for the Study of War*, (ISW) this held Ukraine back from taking advantage of Russian mistakes and launching counter offensives which they would have been able to do so, had they had sufficient weaponry. According to ISW, this procrastination hampered Ukraine from continuing its successful September-October offensive in the Kharkiv and Luhansk regions, giving time for Russia to reorganize, dig in, and regain the initiative by mid January.²⁹ Given its 53,4% of the global military spending, NATO obviously has sufficient resources to deliver the necessary equipment for Ukraine to survive. The only real risk seems to be NATO's caution, hesitation, and miscalculation where it procrastinates over the delivery of the weapons needed. So long as this continues Ukraine's losses in manpower could reach a critical level where Russia's superiority in manpower would become manifest. However, the fact that even ISW is discussing the damage done by overtly cautious procrastination shows, that the issue is entering mainstream discourse, which may prevent such procrastination continuing.

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