# The Sinews of Sudan's Latest War

BY TIMOTHY LIPTROT (HTTPS://AFRICANARGUMENTS.ORG/AUTHOR/TIMOTHY-LIPTROT/) / OCTOBER 25, 2023 / 0

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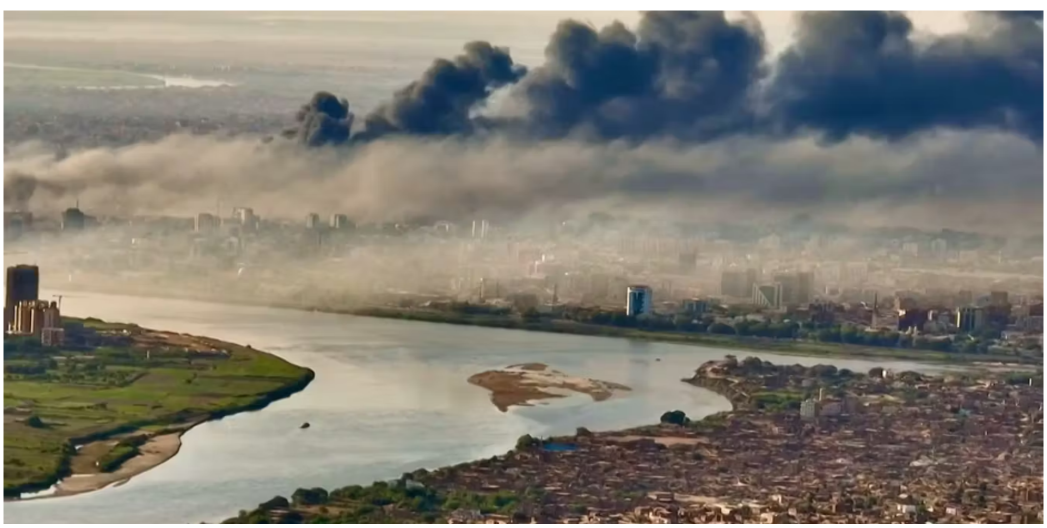

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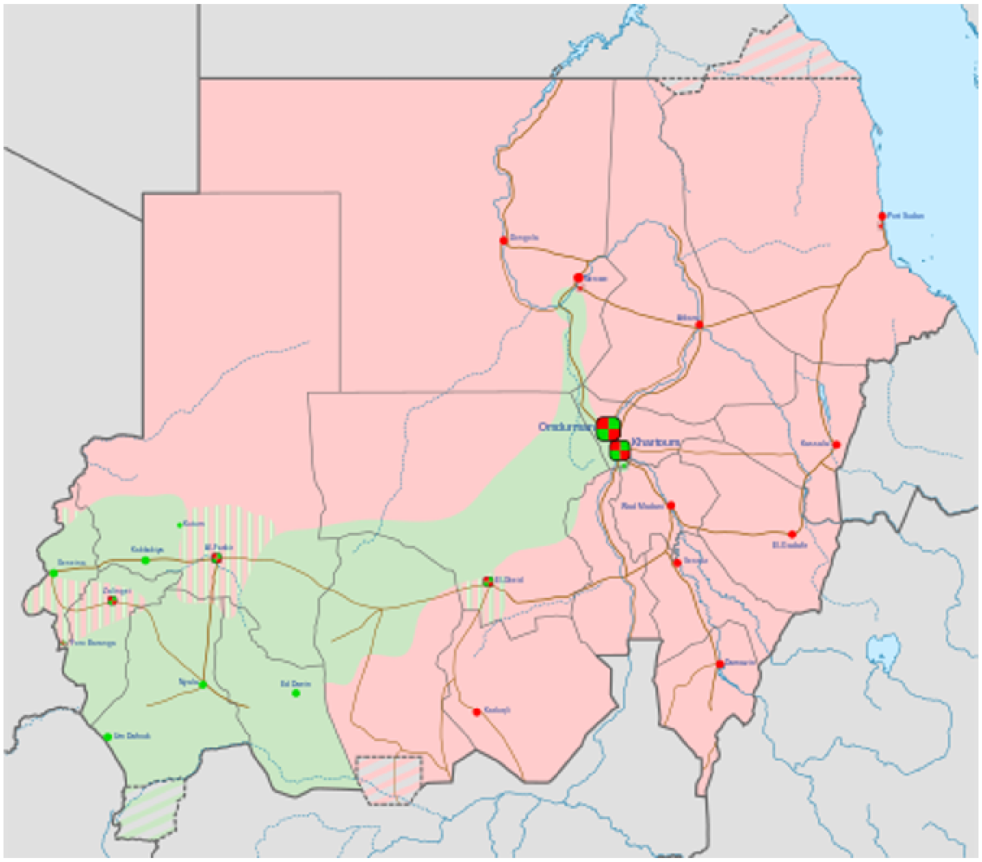
> *The sinews of war are infinite money – Cicero*

The war in Sudan has now raged for a little over five months. On 15 April 2023, the two armies that had been jointly ruling Sudan turned on one another. The Rapid Support Forces (RSF), a paramilitary army, mounted a series of raids on the Sudan Armed Forces (SAF) air bases, headquarters and seats of government. Since then, the two sides have been locked in total war, which has devastated Sudan's capital, led to the return of ethnic massacres in Darfur, and threatens to create yet another failed state in the Horn of Africa.

Since June 2023, the territory of each side has become increasingly static, with Sudan carved up between the RSF and SAF, as well as other smaller armed groups. Each side will require a steady stream of cash and other rewards to compensate and pay their fighters. This article looks at the key territories and infrastructure controlled by each side. I match these positions with pre-war taxation and revenue data from the Government of Sudan to produce a rough and speculative picture of the financial war. Along the way, readers will gain a glimpse into the strange world of armed group finance.

## Why should we care about money?

Despite major gains for the RSF, neither side has eliminated their opponent's ability to fight. The RSF, once derided as a militia of bandits from Sudan's poorest regions, now patrols most of Khartoum. This is a stunning upset and a failure for Sudan's "real" army, the SAF. But the SAF retains its major advantages. The SAF ruled Sudan for decades, leaving it the relationships and know-how to manage state institutions, and greater legitimacy with foreign governments. They also have more sophisticated weapons systems; tens of warplanes, hundreds of tanks and drones. The SAF control most of Sudan outside Khartoum, including Sudan's only ports and more developed north. Neither side is cut off from external arms markets.

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*Map of the current territorial control in Sudan (Wikipedia). The RSF (green) control most of their home territory in Darfur (the southwestern corner), and patrol most of the capital Khartoum (centre-right). The SAF are dominant in the rest of Sudan except for contested areas between Darfur and Khartoum.*

Both sides need a centralised war chest with cash to even maintain their existing territories. Because both desire to control extensive territories outside their social base, both require cohesive armies of professional soldiers with specialised equipment. A limited role may be played by unpaid volunteer militias, incentivised by booty or defending their homes (such as the Nuer White Army (https://en.wikipedia.org/wiki/Nuer_White_Army#:~:text=The%20Nuer%20White%20Army%2C%20sometimes,Sudan%20as%20ea in South Sudan). But while volunteer forces offer emergency firepower, they will not stay in the field away from home for more than a few days (https://youtu.be/2n1SJKRop8M?t=226). Only a core of professional soldiers who are paid and equipped can project power the way the RSF and SAF need to.

The RSF and SAF therefore need a centralised funding apparatus to pay, feed and equip those troops. They may offer additional decentralised benefits, such as looting, the promise of office perks and access to stolen real estate, but these will be supplemental. But the RSF and SAF surely have accumulated wealth they can spend down to fund the war? After all, ruling a country like Sudan tends to create an abundance of profitable investment opportunities.[1] Surely the two parties can pay down savings until the end of the war?

The problem with this line of reasoning is that the length of the war is partly a function of the ability of each group to self-fund. This war is unlikely to end by one side simply conquering the other, in the style of 1940s regular warfare. Unconditional surrender or collapse of one party is unusual in modern civil wars: most modern wars end in either a negotiated agreement or a gradual de-escalation.[2] Also, the RSF lack the numbers to occupy a country of 45 million people and will need to share power. In those "consensual" end games, each party will carefully consider how long their rival can keep fighting as they set their negotiating posture. If you knew your rival was burning finite assets to defend himself, you would take an aggressive negotiating position.

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## How much money do they need?

Here I give a cursory accounting based on their past receipts from the 2021 Sudanese budget, with speculation about how the conflict will affect them. In 2021 the SAF received apportionments of $288 million in 2023.[3] However, this underestimates the real consumption of the SAF. Firstly, the SAF will consume many more munitions and equipment due to the ongoing fighting. Also, the SAF previously controlled a network of industrial facilities for the production of both military and civilian products called "Defense Industries Systems" (DIS). Most DIS installations are destroyed or captured so the SAF will need to make up for domestic production with imports. Also, SAF's government influence provided plenty of discrete ways of gaining income. On the other hand, the SAF may receive some direct military aid from nearby powers who want to restore a unitary state in Sudan. As a rough guess, assume these factors combined increase the SAF's expenses by 70%, to about $500 million.[4] This is close to an estimate made by one former officer of $1.5 million per day, or $550 million.[5]

The RSF had a smaller share of the 2021 budget at $136 million, 32% of defence disbursements. The RSF leadership also, in theory, owned 30% of the DIS, and received some benefit from that (this is consistent with a rumoured informal agreement to split the state's resources 70/30[6]). But the RSF were less integrated into the formal state budget and kept large revenue gathering operations outside the Ministry of Finance system. We know they controlled and taxed the Jebel Amer gold mine in North Darfur, which is rumoured to be Sudan's most lucrative, although no hard data exists on it. This mine certainly did not pay taxes to Sudan's general budget.[7] The UN Council of Experts did produce an estimate of the revenue made by a smaller rival warlord at a nearby mine at $25 million.[8] The RSF also ran a variety of side-businesses, including sending thousands of mercenaries to Yemen and Libya, thousands of whom returned from Libya at the start of the war. If we suppose this business empire supports a further $150 million in military costs, that brings the RSF's budget estimate to about $300 million, but with even more uncertainty.

## Following the money

> *Gold will not always get you good soldiers, but good soldiers can get you gold. – Niccolo Machiavelli*

The past months have seen fewer and fewer major changes to the distribution of territorial control in Sudan. Supposing that the war becomes bogged down on the current lines of control, can the RSF and the SAF summon enough cash to maintain their operations from their current territory? Unfortunately, my analysis leads me to think so. We can roughly count the following five sources of finance.

1. **The gold mines of Darfur**

Control: 100% RSF[9]

Revenue: $50–150 million

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Darfur has several abundant sites of gold extraction. Jebel Amer is the most famous and has been held by the RSF since 2017.[10] There are no good figures on how much is produced there or how much the RSF can take in taxes. However, the nearby Jebel Marra goldmine is controlled by a rival for annual earnings of $25 million, from data reported on by the UN Panel of Experts in 2019.[11] Given Jebel Amer's reputation, it probably yields more income, perhaps $50–100 million per year.[12] The mines do rely on mercury and arsenic imports, which have been disrupted by the war. But in the long run I expect new routes will open given the proximity and porousness of the Chadian border.

**2. Taxation and looting in Khartoum, Sudan's capital of (formerly) 5 million residents**

Control: 80% RSF, 20% SAF

Revenue: Unknown[13]

Sudan's capital and economic centre Khartoum has seen the fiercest fighting so far in the war. This was a strategic choice by the RSF, who prefer to fight in the dense urban environment where the SAF's advantages in armour and airpower are mitigated. Now the RSF patrol most of Khartoum, outside of a few neighbourhoods that the SAF have fortified around key military sites.

At first, this gave the RSF a major windfall from looting Khartoum's banks, businesses and even personal vehicles. There are countless videos online of regular people attempting to defend their SUVs from militiamen hoping to ship them off to sell in neighbouring countries. Of course, the bonanza from looting will last only a short while, until most of the value is destroyed and the remainder transferred to the offshore accounts of RSF officers and the pockets of RSF soldiers. But even then the RSF could tax the local population for their land, for moving people and goods out of the city or for any number of minor activities. There are plenty of ways to squeeze value out of a city of several million, even when its economy is damaged by constant war.

**3. The oil fields in Heglig and oil export pipelines**

Control: 70% SAF, 30% RSF

Estimated Annual Revenue: $800–1,400 million[14]

Sudan produced about 60,000 barrels of oil per day in 2022, mostly in Heglig on a contested area of the southern border.[15] High international oil prices have greatly increased the profits per barrel this year. My estimate of revenue mainly comes from assuming that Sudan's government revenue per barrel of oil exported is similar to South Sudan's and that production has stayed at 67,000 barrels per day as in 2021, the most recent year with data. Sudan also contains the pipelines that ship oil from South Sudan out to the rest of the world, for which they can charge about $10 per barrel. So far oil exports have continued (https://www.bloomberg.com/news/articles/2023-08-14/oil-exports-continue-to-flow-as-sudan-s-war-leaves-pipeline-untouched?embedded-checkout=true).

The SAF control the export terminals and much of the main pipeline, but the RSF has access to the pipeline in Heglig and Khartoum and could interrupt it easily. So far, the RSF have not publicly threatened to do so, possible because cutting off South Sudan's only export could trigger a civil war there, bringing international condemnation on the RSF.

**4. The gold mines of the Northern States**

Control: 100% SAF

Estimated Revenue: $200–350 million

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The Nile north of Khartoum is a narrow strip of green surrounded by a stark desert, but that desert is rich in gold. This area is a social base for the SAF and Sudan’s most technically sophisticated gold-producing region with foreign concessionaires and a domestic reprocessing industry, both of which pay a much higher taxation rate than the typical itinerant desert refiner with a pot of mercury and a dream. Based on historic production and taxation data perhaps a $300 million range is available.[16] However, it may take time for SAF to reconstruct the public goods and taxation necessary.

5. **Export routes**

Control: 90% SAF, 10% RSF

Estimated Annual Revenue: $50–150 million

Tariffs on exports, or taxes on internal trade, can be a major source of financing for an armed group.[17] Customs duties were expected to provide $382 million in the 2022 budget in the 2021 estimates.[18] The conflict has likely decimated exports, but in the long run life will resume at a lower level. Armed groups may also increase the de facto tariff charged.

Sudan’s main export route is Port Sudan, which is firmly under SAF control. They also control the Egyptian and Ethiopian border. In theory the RSF could tax the export routes into Chad and CAR from their positions, but Sudan trades very little with those countries. Less than 1% of Sudan’s 2021 trade went to African countries other than Egypt, presumably because Sudan and its immediate neighbours have similar comparative advantages.[19] As a result the SAF control most of the export points currently, and to capture this revenue the RSF would have to set up internal checkpoints preventing producers reaching Port Sudan, which is a challenge given the long and porous frontlines.

## What does this mean for the strategic situation?

So far, I have given a very rough and ready summary of the needs of Sudan’s armed groups and the available financing. Both parties to the conflict need to consistently earn income to maintain their cores of professional soldiers given their strategy of contesting Sudan’s capital. Using the past state budgets to give a rough baseline, I estimated the funding needs of each party at around $520 million for the SAF and $300 for the RSF.

From the foregoing it appears that enough money is floating around for the armed groups to maintain their positions. The SAF, despite losing ground in Khartoum in several early offensives, remains in control of some of Sudan’s most lucrative rent sources in North Sudan’s mines and export routes. In the long run these can maintain the organisation and might even allow the Government of Sudan to pay the civil service (inshallah).

The RSF position is mysterious, as befits a secretive paramilitary run by an oligarch shy of state control, but it appears tenable. The RSF operate a more spartan force composed of light and mobile infantry, freeing them from maintaining expensive equipment and munitions. If the RSF were restricted to only their gold operations in Darfur, the current force seems unsustainable. But the RSF remain able, if necessary, to attack oil infrastructure or trade routes in the future. Moreover, their seizure of Sudan’s economic heart in Khartoum provides opportunities for both taxation and “living off the land”.

The first takeaway is that peace is unlikely to arrive via the financial exhaustion of one side, at least in the short term. It is not obvious that either party is near breaking point. This is mainly a result of their relatively low mobilisation rates; each keeps roughly 100,000 men under arms in a country of 45 million, so the tax rate needed to support them is modest. It is tragic that so few can do so much hurt to so many, and it is doubly tragic that this state of affairs may continue. Of course, the war could end for plenty of reasons other than the financial exhaustion of one party. A return to power-sharing or a partition of Sudan are both continued possibilities.



## End Notes

[1] For a case study of rent extraction in weak states, see Haber, Stephen, Noel Maurer, and Armando Razo: *The Politics of Property Rights: Political Instability, Credible Commitments, and Economic Growth in Mexico, 1876–1929*. Cambridge University Press, 2003.

[2] From 1990 to 2005 just 20 of 147 conflicts ended in the total victory of one side. See Kreutz, J. (2010). "How and when armed conflicts end: introducing the UCDP Conflict Termination dataset." *Journal of Peace Research* 47 (2): 243–50.

[3] Approved Budget for 2021 of the Republic of Sudan. Adjusting for the average 2021 exchange rate and inflation from 2021 to 2023.

[4] I am using the round numbers to express the uncertainty here. I could see the SAF maintaining current effectiveness requiring anywhere from $350 to $750 and would expect serious strains at $250 (in millions per year).

[5]

https://sudantribune.com/article274063/#:~:text=May%2023%2C%202023%20%28KHARTOUM%29%20%E2%80%93%20A%20reti

[6] I have not seen this confirmed.

[7] Anonymous source.

[8] https://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/s_2021_40.pdf

[9] I am excluding neutral and SAF-aligned armed groups also active in Darfur from control and revenue, because their role is uncertain and subject to change.

[10] https://www.theguardian.com/global-development/2020/feb/10/militia-strike-gold-to-cast-a-shadow-over-sudans-hopes-of-prosperity

[11] See S/2020/36 at https://www.securitycouncilreport.org/un_documents_type/sanctions-committee-documents/?ctype=Sudan&cbtype=sudan (https://www.securitycouncilreport.org/un_documents_type/sanctions-committee-documents/?ctype=Sudan&cbtype=sudan), p. 36.

[12] I added an extra $50 million to account for possible other mines under RSF control.

[13] I don't have a succinct way to estimate this yet.

[14] From June 2020 to May 2021 South Sudan paid $237 million (https://mail.mop.gov.ss/publications/petroleum-reports) to North Sudan in transit fees. South Sudan produced 150,000 barrels per day in 2021 (https://www.globaldata.com/store/report/south-sudan-oil-and-gas-exploration-and-production/

analysis/#:~:text=South%20Sudan%E2%80%99s%20total%20gross%20crude%20oil%20and%20condensate,of%20more%20than% Translate »
5%25%20during%20the%20period%202021-2025.) and averaged 130,000 for the first five months of 2023 (https://countryeconomy.com/energy-and-environment/crude-oil/production/south-sudan). Assuming Sudan's revenue per barrel stays constant (as stipulated by the their agreements), the north should receive $205 million in transshipment. Fees were higher in previous years but South Sudan ceased repaying TFA fees in January 2022 (see this IMF report (https://www.elibrary.imf.org/view/journals/002/2023/108/002.2023.issue-108-en.xml), p.21). The joint venture oil producers pay $14 per barrel for the use of the Petrodar pipeline. They receive 60% of total production and South Sudan receives 40%. Since South Sudan marketed 18.5 million barrels (https://mop.gov.ss/download/pubs/petroluem_Reports_June_2020_-_May_2021.pdf) of Dar blend in 2021, the joint venture brought 27.9 million barrels and the revenue for Sudan is $390 million. I cannot be sure how much of the transit fees accrue to the government of Sudan vs. the owners of the respective pipelines.

Estimating rents from the Sudan's own production is more difficult because they do fluctuate with prices, so the 2021 budget is not representative. The Republic of Sudan's Ministry of Petroleum has not released production or profit numbers from 2023 (http://mop.gov.sd/eng). We can get Sudan's domestic oil production from the US Energy Agency here (https://www.eia.gov/international/analysis/country/SDN). Sudan averaged 67,000 barrels per day from 2018–21, so I take this as an estimate for 2023. Without data on Sudan's 2023 government revenue per barrel our best strategy is to assume it is similar to South Sudan's revenue as the fields neighbour each other and both are served by foreign concessionaries. Using the same IMF report (https://www.elibrary.imf.org/view/journals/002/2023/108/002.2023.issue-108-en.xml), I can impute government revenue per barrel for the fiscal year 2023/24 by dividing oil revenue by total oil production, which gives $38 per barrel. If we assume that Sudan receives the same per barrel and produces 67,000* 365 barrels as in previous years, the total government revenue from domestic oil production is 940 million per year.

Taking the sum of domestic oil and transit fees gives a total of $1,535 million. Several underlying assumptions are generous; some portion of transit fees must be spent repairing the pipeline, production may have declined since 2021, so I set the lower bound at $1 billion.

[15] https://fred.stlouisfed.org/series/SDNNGDPMOMBD

[16] To start with, we need to know what portion of taxed production comes from different states of Sudan. The Sudan Mineral Resources Company which is responsible for gold taxation has not released data publicly on revenue by state. However they are obligated to provide 4% of production value from gold tailings back to regional organisations in grants, and sometimes release the distribution of revenue by state. In August of 2020 tailings revenue was roughly 40% from Nile State and 20% each from Northern, Red Sea and Gedarref (https://twitter.com/MubarakArdol/status/1308692982166630402/photo/1) (all currently SAF controlled). In August 2022 the SMRC again announced regional distributions with a ratio of 33% River Nile State, 18% Red Sea State, 35% South Darfur (https://www.facebook.com/smrcsudan/posts/pfbid036iTbGj4kGNBzPkgNrKBw9TBbpSEKdDEq34tFpa8D3BaQdwTYBPiHdWU4Eo9
Assume that 65% of tailing revenue is generated in SAF controlled territory and tailings revenues are taxed at the 33% rate mandated by law and production continues at the 2022 rate of 10 metric tons (https://x.com/MubarakArdol/status/1592042953656406017?s=20). That gives an available revenue of the 130 million from tailings. We can then add revenue from the mining companies and foreign concessionaires. Their tax rate is more complicated because it includes profit sharing and other elements but we can say 33% for simplicity. Fortunately all or nearly all of these companies are based in Northern, Nile and Red Sea states. They produced 3.64 tons in the first half of 2022

(https://www.facebook.com/photo/?fbid=2031946163658610&set=pb.100064674409035.-2207520000). Assuming 6 tons per year annual output at current prices and a 33% tax rate, that gives 110 million per year in revenue.

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I was unable to find public data on revenue from traditional mining which has high production quantities but a much lower de facto tax rate. I estimated an additional $50 million for it.

[17] For an interesting case, see Schouten, P. (2019). "Roadblock politics in central Africa." *Environment and Planning D: Society and Space* 37 (5): 924–41.

[18] Ministry of Finance and Economic Planning, Approved Budget for 2021.

[19] https://oec.world/en/profile/country/sdn

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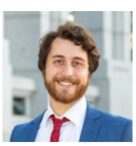

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