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Political and Economic Drivers of Sudan's Armed Conflict:

Implications for the Agri-food System

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ABSTRACT

This study assesses the political economy of the conflict between the Sudan Armed Forces (SAF) and the Rapid Support Forces (RSF) that brought out in April 2023, resulting in massive violence, displacement, and threats to food security. Based on a series of key informant interviews and other secondary materials, this study identifies that the primary underlying driver of the conflict relates to the rise of competition between the SAF and RSF over productive resources, including within the agri-food system. This scenario has been facilitated by a longstanding lack of scrutiny, accountability, and transparency over the distribution of economic rents and commercial holdings between the two factions. Additionally, the capture of rents from different industries and resources has been a key contributor to the geographic expansion of the conflict. As the conflict continues to rage between the two groups and their associates, it continues to impose considerable impacts on different actors within the agri-food system, posing significant challenges to the planting season and crop production, introducing blockades of trade routes, and a near cessation of agro-processing. We discuss these aspects of the ensuing conflict in view of the uncertainty about political and economic developments and propose policy recommendations for rebuilding Sudan's agri-food system holistically under different scenarios.

Keywords: Sudan Conflict, political economy, SAF, RSF, agri-food systems, food security

CONTENTS

1. INTRODUCTION

On April 15th, 2023, violent combat commenced between the Sudan Armed Forces (SAF) and the Rapid Support Forces (RSF), abruptly ending over 3 years of their fraught partnership in Sudan's Transitional Military Council (TMC). Prior to the conflict, political tensions between the SAF and the RSF continued to sharpen, whereby the two warring factions competed for political and economic power over Sudan. In recent years, following the overthrow of the former regime under the leadership of former president Omar Al-Bashir, the SAF and RSF have formed a complex web of regional and international alliances, which continue to influence Sudan's political trajectory (Reuters, 2023b). In a landscape marked by geopolitical tension and economic rivalry, the political alignments, and financial bases of both the SAF and RSF have proven instrumental in shaping Sudan's political power distribution. SAF and RSF political financing derive from both factions' involvement in economic sectors, including the agri-food sector. This study highlights the political economy drivers of the conflict between the SAF and RSF and identifies the overall implications of the conflict on different actors in the agri-food system in both conflict and non-conflict regions in Sudan.

To do so, the study draws on in-depth interviews conducted with 18 key informants in different components of Sudan's agri-food system, from production, agro-processing, and trade. The interviews were conducted between July and August 2023 to gain a relatively rapid assessment of both the causes of the outbreak of war and how it was unfolding through the agri-food system across different parts of the country. The intention of the study is twofold. First, the analysis highlights the different ways in which both protagonists in the conflict have accumulated assets within the agri-food system over time and how rivalries over those assets are partially responsible for the outbreak of conflict. Second, it shows the channels through which the war is affecting different parts of the country's agri-food system, which can provide indicators about which regions of the country and which policy interventions will need to take priority when a resolution to the conflict hopefully occurs.

The rest of the paper is organized into several sections. The following section provides background to the extant conflict, including the ways in which Omar Al-Bashir laid the roots of the political rivalry between the SAF and RSF by allowing each party to become more entrenched in commercial enterprises in diverse sectors. Over time, threats to each protagonist's political influence were perceived as a threat to their economic interests, ultimately resulting in the current conflict when the RSF refused to be subservient to the SAF under pending security sector reforms. Section 3 then focuses on examining exactly how these dynamics have manifested in the agri-food sector, drawing on key informant interviews. Both the specific agri-food system assets of SAF and RSF are discussed and how their relationship evolved from one of complementarity to conflict. In turn, Section 4 describes to the ways in which the conflict has impacted the agri-food system more broadly with a specific focus on producers, processors, and exports and considering implications through input access, the banking system, and manufacturing and trade infrastructure. Section 5 concludes and provides an overview of the policy implications and recommendations in relation to reviving Sudan's agri-food system amidst this shock and with the goal of ultimately mitigating the shocks of the current conflict on long-term food insecurity.

2. BACKGROUND TO THE APRIL 2023 CONFLICT

During the past three decades, various elements of Sudan's security apparatus have expanded their commercial gains in a range of sectors, and public expenditures remained disproportionately allocated to the security apparatus, particularly military and defense (Resnick, 2021). The SAF, the National Intelligence and Security Service (NISS), and the RSF have controlled and monopolized profits from the extraction of natural resources and other resources due to their various commercial interests across the services, industrial, and agricultural sectors (D'Silva et al., 2022; Baldo and Mailey, 2021).

The origin of this state of affairs is closely to how the country was managed under the tenure of the former president, Omar Al-Bashir, from 1989-2019. Al-Bashir maintained his political control through a three-pronged strategy: ensuring the loyalty of the military—the SAF, bolstering the economic fortunes of his party, the National Congress Party (NCP) and the National Intelligence Security Services (NISS), and arming local militias to deal with regional uprisings by those with grievances against his regime.

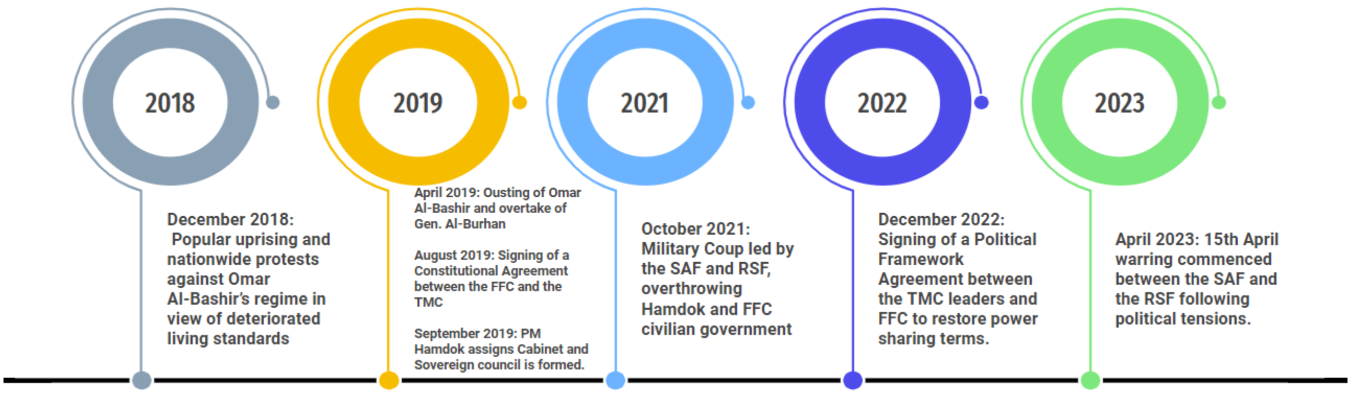
In particular, Al-Bashir's regime used privatization of SOEs to acquire more economic and political power for the NCP (Suliman, 2007). In 1992, the Government of Sudan initiated a privatization program when 117 SOEs were originally listed for privatization (Suliman 2007). The privatization processes entailed transferring SOEs to state governments and entities, including the SAF (Cartier et al., 2022; Suliman 2007). From the year 2000 onward, significant control of SOEs was camouflaged behind companies within the SAF's Military Industrial Corporation (MIC), forming large proxies for state ownership. Coupled with special tax rewards and exemptions for highly ranked SAF officers' businesses during Al-Bashir's regime, the SAF developed deeply rooted economic and financial power (Al-Batthani, 2016).

During the same period, a militia known as the Janjaweed was heavily involved in fighting against local populations in the west of the country, particularly in Darfur. While initially denying a connection with the militia, Al-Bashir eventually recognized the group as ethnic conflicts against his rule erupted in other regions of the country as well, including South Kordofan, Blue Nile, and the Nuba Mountains. Unsure of the SAF's willingness to continue to support him in the face of these threats—especially since the SAF included men from historically marginalized regions, in 2013 Al-Bashir created the RSF out of the remnants of the Janjaweed, selecting Mohamed Hamdan Dagalo (Hemedti) as its leader (Ahmed, 2022). By 2014, the RSF was constitutionally accepted as regular force (Etefa, 2019).

When a popular urban uprising in 2018 over massively deteriorating economic circumstances, the SAF ultimately sided with the protestors (after weeks of repressing them) and overthrew Al-Bashir in 2019 (see Figure 1). The SAF and RSF, along with the civilian leadership of Prime Minister Abdalla Hamdok and the Forces of Freedom and Change (FFC), jointly formed the TMC as a key component of the Transitional Government of Sudan (TGoS) in the wake of signing the Constitutional Framework Agreement. This created a relatively widely dispersed political settlement that distributed power among a wide range of political actors and elites (Resnick 2021). At the same time, the arrangement was beneficial for the SAF and RSF; companies owned by Al-Bashir's patronage network, the NISS and the National Congress Party (NCP) members became a prize for SAF and RSF leaders. The SAF took hold of many companies owned by the NCP and Al-Bashir's relatives while the RSF took control over many companies previously run by the NISS (Gallopin, 2020a).

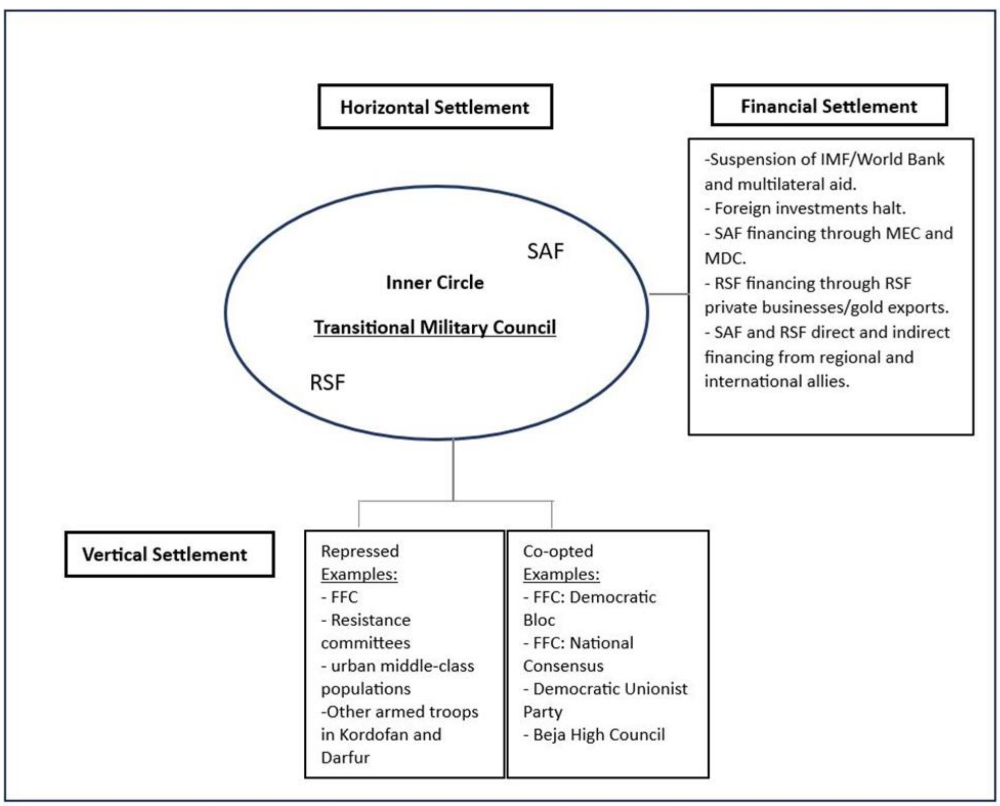
Not surprisingly then, Hamdok's efforts to pursue reforms required by the IMF to divest the security apparatus from its economic holdings prompted the SAF and RSF to join forces to overthrow him in a military coup on October 25th, 2021. The coup of October 2021 narrowed the widely dispersed political settlement, which was formed in 2019 following the signing of a Constitutional Framework Agreement which distributed power among a wide range of political actors and elites (Resnick, 2021) (see Figure 2). Indeed, the horizontal distribution of power across different elite factions and political decision makers has narrowed over time. Following the December 2018 revolution, the political settlement incorporated various political parties and civil society groups. At the onset of the coup in October 2021, many of these civilian stakeholders were still vocal but their preferences were effectively overshadowed by those of the SAF and RSF.

Figure 1: Chronology of Sudan's major political changes between 2018-2023



Source: Authors illustration.

Figure 2: Sudan's Political Settlement Between October 2021 – April 2023



Source: Partially adapted from: Resnick, 2021. FFC= Forces of Freedom and Change. RSF = Rapid Support Forces. SAF = Sudan Armed Forces. MEC = Military Economic Corporation. MDC = Multiple Dimensions Co. Ltd.

Between 2019-2023, the RSF maintained its political status and leveraged its growing commercial empire to partake in nationwide decision-making alongside the SAF (Sarkar and De Waal, 2023). Yet, this growing political power of the RSF was at threat with the signing of the Political Framework Agreement (PFA) between military and civilian actors in December 2022 and supported by the international community (UNITAMS, 2023). The underlying emphasis of the reform, which was intended to return Sudan to civilian rule, included merging the SAF and RSF, which was opposed by both parties. The RSF leadership's newly found prominence was resented by high ranking SAF officers, including General Abdel Fattah al-Burhan (Gallopin, 2020a). Each side perceived threats to their status and economic interests, ultimately resulting in the eruption of violence in the capital, Khartoum, before expanding to 9 other states, including North Kordofan, North Darfur, West Darfur, South Darfur, Central Darfur, East Darfur, South Kordofan, West Kordofan, and Blue Nile, albeit with different intensity and magnitude (Siddig et al. 2023).

Since the outbreak of the crisis, the conflict has also escalated to include participation from, and clashes with, other local actors. For instance, there has been fighting in North Kordofan between the RSF and nomadic Kababish groups and in South Kordofan between the SAF and SPLM/N under the leadership of Abdelaziz Al-Hilu (ACLED, 2023a). The capture of land and water resources in the Kordofan region impacts the degree to which each faction can leverage political and societal alliances with other armed groups, thus influencing political power.

In sum, during the agreed transitional period (2019 – 2021) and the subsequent period after the October 2021 coup until April 2023, the RSF and SAF leadership have maintained strong economic bonds, through facilitation of commercial interests and exemptions from the SAF to the RSF. Thus, a key instrument in this context was the reinvention of a political marketplace with a cooperative oligopoly between the SAF and the RSF (Elbadawi and Alhelo, 2023). However, continuous popular protests after the 2021 coup, coupled with poor economic performance and deteriorating livelihood standards, further undermined the pre-existing vulnerable political settlement between the SAF and RSF, which was finally shattered by the provisions of the PFA.

3. IN-DEPTH ANALYSIS OF SAF'S AND RSF'S AGRI-FOOD SYSTEM ENTERPRISES

A deeper understanding of the SAF's and RSF's respective commercial enterprises is critical for understanding their resistance to cooperation with each other as well as the broader implications for the functioning of Sudan's agri-food system. Indeed, understanding the ownership structure of economic resources and the relationship amongst the ruling coalition is imperative to the changes in political settlements (Behuria, Burr, and Gray, 2017). Uncovering these dynamics is particularly dependent on drawing on expert interviews with key informants. As such, this section draws on key informant interviews (KIIs) with 18 agri-food system actors based in Sudan and who were interviewed virtually based on a standardized questionnaire. We identified the key informants through stakeholder mapping of key agricultural value chain actors in Sudan and consultations with our project partners. A snowballing method was used to supplement this strategy. Table 1 characterizes the respondents that were interviewed for this study.

Questions sought to understand the respondents' perspectives on the economic drivers for the SAF-RSF conflict, the extent to which the SAF's and SRF's commercial interests are interlinked, the scope of involvement of Sudan's security apparatus in the agri-food system, and the implications of the on-going conflict on the livelihoods of the Sudanese people. Moreover, we also sought to identify the respondents' views on the key areas for investment and support for the agricultural sector in a post-conflict period. We acknowledge that our approach is not without limitations, most notably, our selection of key informants and the informant's bias or potential bias. To minimize these potential challenges, we proactively engaged particular informants that were deemed knowledgeable in SAF-RSF dynamics and others knowledgeable in Sudan's agri-food ecosystem.

Table 1: Characteristics of Key Informants

Characteristic	Proportion of the Key Informants (%)
Gender of Respondents (100%)	
Male	56%
Female	44%
Area of Expertise (100%)	
Agrifood System Actors	61%
INGO Experts	17%
Political Experts	22%
Agri-Food System Actors Representation (100%)	
Farmers Support Service Providers*	25%
Farmers	25%
Farmers and Processors	33%
Food Traders and Supply Chain Companies*	17%

Note: Farmers support service providers are companies that serve as input suppliers and support training for farmers. Food traders and supply chain service providers are the logistics companies operating in food trade.

3.1.SAF and RSF Business Interests

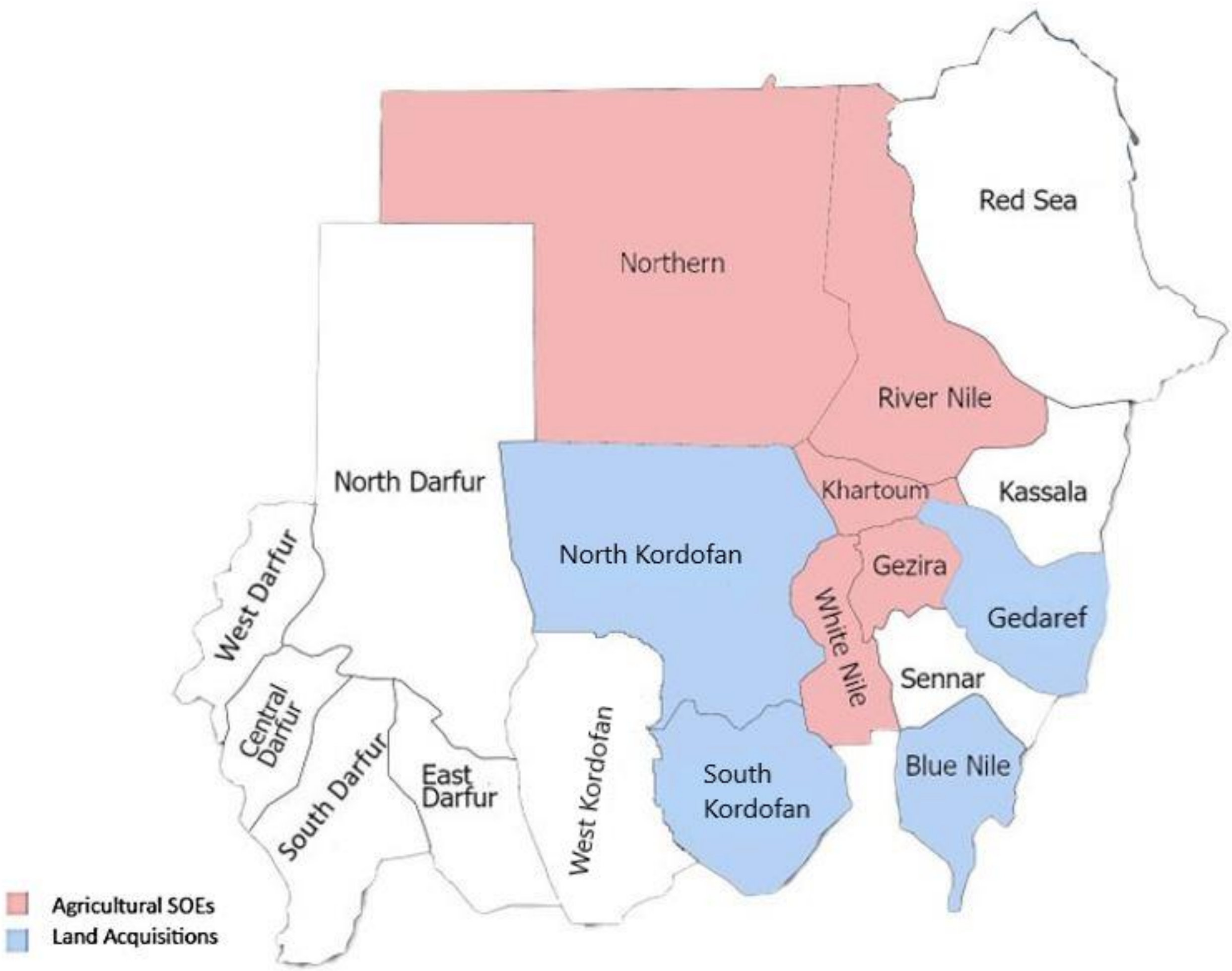
As noted earlier, SAF benefitted immensely under Al-Bashir's privatization program. Under the US imposed sanctions between 1997-2017, direct control of SOEs by ministries and executive government institutions decreased from 55.4 percent to 37.4 percent and indirect state control of SOEs through other state-linked persons and institutions, mostly related to the NCP and the SAF, increased from 4.5 percent to 21 percent (Cartier et al., 2022). The purpose of this privatization program was both to evade the imposed sanctions through obscuring direct links of these companies to the sanctioned Sudanese government, as well as to promote political financing through the strategy of "Al-Tamkeen" or the entrenching of National Islamic Front's (NIF) ruling position (i.e: Al-Bashir's regime) through reshaping the economic landscape. Cartier et al. (2022) identified 408 SOEs in different sectors owned by over 500 unique shareholders which include government bodies (such as the SAF), NGOs (non-governmental organizations linked with the NCP), personal businesses (owned by NCP and SAF individuals). Most of the private and public sector owners of SOEs are from Sudan; however, the inventory also broadly highlights owners from Saudi Arabia, the United Arab Emirates, Turkey, Kuwait, China, Japan, and Malaysia (Cartier et al.,2022; D'Silva et al., 2022).

The crown jewel of the SAF's empire – the Defense Industrial System – was originally launched in 1993 as a defense manufacturer to safeguard against potential sanctions and disruptions of weapon imports from Western Countries (Al-Batthani, 2016; D'Silva et al., 2023). The institution has evolved over the years, whereby the Military Industrial Corporation and the Military Economic Corporation (including the Multiple Directions Co. Ltd) became the key revenue generating arms for the SAF. The MEC engaged in several economic sectors, including agriculture and livestock. The entity owns Sudan's largest abattoir and is responsible for most of Sudan's livestock exports, particularly to Egypt and Saudi Arabia (D'Silva et al., 2022).

The SAF's ownership of Zadna International Company, an agricultural and construction conglomerate, includes large pivot irrigation schemes in the Northern State, imports of chemicals and fertilizers, and exports of live animals and other crops. It is important to note that Zadna is the only institution in which representatives of the SAF and the RSF serve side-by-side on the company's board (Cartier et al., 2022). Beside Zadna International Company, the clientelist linkages mapped by Cartier et al. (2022) showcase a strong relation between the agricultural SOEs, the Agricultural Bank, Omdurman National Bank, and the SAF, through SAF institutions and/or NCP members closely linked to the SAF.

At the national level, SOEs occupy a large marketing share of key crops such as cotton, gum Arabic, and livestock, while private traders handle the marketing of most other agricultural commodities (D'Silva et al., 2022). During Al-Bashir's regime large-scale SOEs in the agricultural sector were mostly in Khartoum, Gezira, White Nile, River Nile, and Northern States where they produced and traded fodder, horticultural crops, sugar, wheat, and grains (D'Silva et al.,2022). The same period witnessed mass land acquisition deals between the Government of Sudan and other public and private foreign stakeholders (D'Silva et al., 2022). The geographic positioning of these land acquisitions was more widespread in the rain-fed regions (Figure 2).

Figure 3: Agricultural SOEs and Land Acquisitions



Source: Author's illustration.

Agricultural SOEs were not confined to the irrigated agricultural sector. Some SOEs also established schemes in the mechanized rainfed sector (through Mechanized Farming Corporations) and entered into large-scale land leases and acquisitions in states like Blue Nile to foreign states (e.g., Saudi Arabia and Kuwait) and individuals (such as, Osama Bin Laden). In the traditional rainfed sector, SOEs were established for gum Arabic and oilseeds (D'Silva et al., 2022). The SAF direct and indirect control of agricultural SOEs persisted throughout Al-Bashir's regime, and continued following his removal, to date.

In another breath, RSF's private commercial operations include various sectors such as the banking sector, agriculture, construction, transport, and information technology (Sarkar and De Waal, 2023; Cartier et al., 2022; D'Silva et al., 2022). The RSF has succeeded in building an enclave economy to insulate itself from political power changes in Sudan through the utilization of the patronage networks that benefited Al-Bashir, while creating new ones following his ousting. By the time Al-Bashir was ousted, and a Transitional Constitutional Agreement was signed in August 2019, the RSF had already acquired multiple commercial interests. Many of these commercial interests are buffered through the RSF's close ties with the UAE's private sector (Cartier et al., 2022). These commercial ties have allowed the RSF's leadership to expand and diversify its portfolio of activities in different productive sectors.

The RSF is connected to international banking and business systems through their dominant shareholding in Al-Khaleej Bank, which maintains correspondent banking relationships with banks in the UAE, Bahrain, Egypt, Saudi Arabia, Turkey, and Italy – and through those to banking networks in Switzerland, the United Kingdom, and the United States (Cartier et al., 2022). The RSF's leadership and its clientele controls at least 28.5 percent of the shares of Al-Khaleej Bank and the private companies affiliated with it (Cartier et al., 2022). When accounting for other companies alleged to be controlled by Hemedti's network, the number may be as high as 58.2 percent, making his network majority shareholders.

At the center of the RSF's corporate network is Al Junaid Co. Ltd (or AJMAC), which was registered in 2009 as a private company, even before the creation of the RSF in 2013 (Baldo and Mailey, 2021). Abdulrahim Dagalo, the brother of Hemedti, is the largest stakeholder in Al-Junaid (Cartier et al., 2022). The company has multiple subsidiaries in construction, road and bridge development, treatment of mineral waste, transportation, and agriculture. The company has clear transactional links with the RSF's leadership (Baldo and Mailey, 2021). Other RSF economic sources of stable revenue include GSK and Tradive companies, both registered in the UAE and Sudan, and both involved in facilitating cash flows into RSF (Baldo, 2021; Baldo and Mailey, 2021; Cartier et al., 2022). The RSF also controls a large part of the Sudanese gold market and 70 percent of gold exports. Through privately registered companies like Esnaad Engineering, a gold trading company owned by the Dagalo family and linked with Russian ownership, the RSF manages a global network of gold exports (Cartier et al., 2022).

The nature of the RSF's commercial and corporate operations are opaque and untraceable, with elevated levels of fiscal autonomy. The Law of 2013 instilled the RSF under the President's command and granted the RSF a high level of fiscal autonomy by limiting SAF and MoFEP supervision of RSF funds. Furthermore, the RSF's position has also been bolstered by support from the UAE and Saudi Arabia in exchange for the provision of fighters in Yemen and Libya (Berridge et al. 2022, Al-Batthani 2016).

3.2. Complementarity of Business Interests

The SAF and the RSF have adopted parallel, albeit different, modalities in building and sustaining economic and commercial strength. The ownership of commercial enterprises across various productive sectors, through domestic and foreign links, driven by common political and economic interests, has provided both groups with significant economic rents and rent capture capabilities.

The outdated political union between the SAF and RSF has deeply rooted economic drivers and has facilitated mutual commercial and political benefits[1]. The support from RSF to the SAF – or the SAF controlled government – often manifested in the form of fiscal provisions such as "debt relief" and the provision of public goods to citizens, such as the RSF's efforts in containing the Covid-19 pandemic and efforts towards building isolation centers and hospitals in different parts of the country, attributable to the RSF's autonomy over liquid fiscal resources and expenditure avenues. Moreover, the simultaneous strive by both factions for economic rents was coupled with mutual trust over security service provision. The RSF was responsible for securing and guarding key economic entities such as the oil refinery in Al-Jeily, amongst others, which proves that both factions' economic and political interests were protected and shielded by one another. Similarly, under the SAF's leadership of Sudan during the past few

[1] KII.3, Agri-food expert, August 3rd, 2023., KII.5, Agri-food expert, August 3rd, 2023., KII.16, Agri-food expert, August 4th, 2023.

years, the RSF's commercial operations were facilitated and eased. The SAF allowed the RSF's commercial operations similar allowances and conditions to its own, allowing it to sustain and grow its commercial across different sectors whilst maintaining high levels of administrative and fiscal autonomy. For example, specifications by the Sudanese Standards & Metrology Organization (SSMO) for import goods by the RSF were tailored to promote RSF's commercial growth and existence[2].

The SAF and the RSF have adopted varying modalities in engaging with the broader economy and in promoting their financial power and financing their political status[3]. The SAF's ownership of the Military Economic Corporation (MEC) and the Multiple Dimensions Company Ltd. (MDC), backed by the control over Omdurman National Bank – has facilitated the SAF's engagement in various sectors, ranging from defense equipment manufacturing to meat processing and exports and other engagements in the service sector[4]. However, the focus of economic rent capture was driven by the urge to acquire "quick cash" through activities like large land leases, exports and imports of agricultural input materials, and exports of live animals.

The RSF, contrarily, has diversified its rent capture activities in two ways. First, land capture in regions of conflict facilitates the RSF's investment in agriculture and livestock production, particularly in the regions of Darfur and Kordofan. Furthermore, the RSF's direct ties with the global banking system through the ownership of Al-Khaleej Bank and the regional private sector through its companies, AJMAC, GSK and Tradive, has allowed the organization's ability to capture more domestic rents, with minimal risk of losing rents as they are tied with foreign buffers (Cartier et al., 2022). The RSF's engagement in productive sectors, besides gold, such as irrigation for agriculture, and construction and infrastructure projects, expands the RSF's economic base for financing its political presence.[5]

3.3. From Complementarity to Competition

The ensuing conflict between the SAF and RSF is often viewed as a political conflict between two factions vying to govern the country (USIP, 2023; CSIS, 2023; Verhoeven, 2023). However, the conflict is also driven by economic incentives and commercial factors. In recent years, Sudan's transition trajectory has been characterized by fierce competition over economic rents between the SAF and the RSF. Although the SAF and the RSF have distributed sub-sector monopoly and market dominance amongst them – the increasing competition in some of Sudan's key sectors – most prevalently gold and livestock, amongst other sectors including agriculture, makes a case for competition over economic rents to finance political power. The RSF's competitive advantage over the gold sector and partnership with some private sector companies, has driven SAF's illicit operations in the extractives processing sector. Similarly, the livestock sector is another example of RSF and SAF's growing economic competition. In the previous years, the RSF has acquired 100 percent share of "The Livestock Bank" in 2021[6], and

[2] KII.3, Agri-food expert, August 3rd ,2023.
[3] KII.15, Political Expert, July 13th, 2023.
[4] KII.17, Large-scale farmer and agro-processor, July 16th, 2023.
[5] Efforts towards halting the SAF's and the RSF's continued combat have been pursued by foreign political actors. In July 2023, the United States and the United Kingdom have imposed sanctions on several multi-billion companies owned by the SAF and the RSF. In September 2023, the US Treasury imposed sanctions on Abdulrahim Dagalo, Hemedti's brother who is at the heart of the RSF's pseudo commercial empire and holds large proportions of company shares. Although this provides an important step to cut the warring factions' fiscal resources, the clientelist networks within which both SAF and RSF models operate continue to overcome those sanctions. It is stipulated that both actors' dispersed means of acquiring political finance in the past, which is utilized currently finance for militarization and combat, has a relatively high level of resilience to such measures.

[6] KII.18, INGO expert, August 30th, 2023.

strived to establish a livestock abattoir and export system outside of Al Moweilih area in Khartoum. Previously, livestock exports were dominated by the SAF's MDC through a large abattoir in Al-Kadaru, in Khartoum.

The SAF's and the RSF's contradicting yet complementary commercial interests are among the key drivers of the conflict in Sudan. The strive to capture productive public entities manifests as a form of competition over economic and productive resources in Sudan. Following the conflict's outbreak, it was reported that the RSF has acquired critical economic institutions in Khartoum, such as the capture of the Khartoum Printing Company, which is responsible for issuing banknotes, and the Sudan Gold Production company[7], made room for easy and quick cash access by the RSF – and this poses serious threats to Sudan's macroeconomic trajectory.

Another indicator of the economic drivers of the conflict is the geographic expansion of the fighting. The competition between the SAF and the RSF is not simply one of political power and dominance but is also a competition over natural resources. Historically, Sudan's political and economic elites have sought to ensure their control over rural resources which include land, crops, livestock, and oil (Oxfam, 2014). Similarly, the warring between the SAF and the RSF in key agricultural production regions in Darfur and Kordofan manifests each faction's attempt to acquire a larger share of productive resources, such as land, water, livestock, and oil.

The unfolding conflict and its expansion in 9 states across Sudan poses serious concerns to the future of Sudan's economic trajectory. Sudan is a predominantly agrarian economy with most of its population residing in rural areas and engaged in subsistence farming. The escalation of the conflict has led to the forced displacement of rural populations in Darfur and Kordofan, and urban populations in Khartoum. As of October 2023, 431,197, 317,479 and 20,177 people have crossed borders of Sudan to Chad, South Sudan, and Central African Republic respectively, from Darfur and Kordofan fleeing the conflict, and as of September 2023, 317,230 and 37,555, have crossed to Egypt and Ethiopia respectively (UNHCR, 2023). The forced displacement of agrarian populations at the lower nodes of the agri-food chains poses considerable disruptions to the agrarian labor market structure. Similarly, the forced displacement of Khartoum populations, coupled with the nearly complete halt on agri-food processing and production further poses risks to Sudan's food security (Kirui et al., 2023). The forced displacement of populations in view of the violent combat provides an opportunity for further competition over various productive resources, particularly land and water.

3.4. Intersection of SAF and RSF Business Interests with the Conflict

The SAF and RSF have both direct and indirect roles in the agricultural sector. For instance, they are both involved in the export of cash crops from Sudan – particularly in the groundnuts, sesame, and gum Arabic sub-sectors. The intervention of these two entities in the agri-food markets has led to the disruption of commodity markets, through disrupting prices to obtain foreign currency8. The disruption of those commodity markets has direct implications on farmers, due to the lowered commodity prices in the domestic market and in turn lower return for smallholder farmers. Figure 4 below displays how the market relations in the agri-food system are, in view of the presence of the SAF and RSF.

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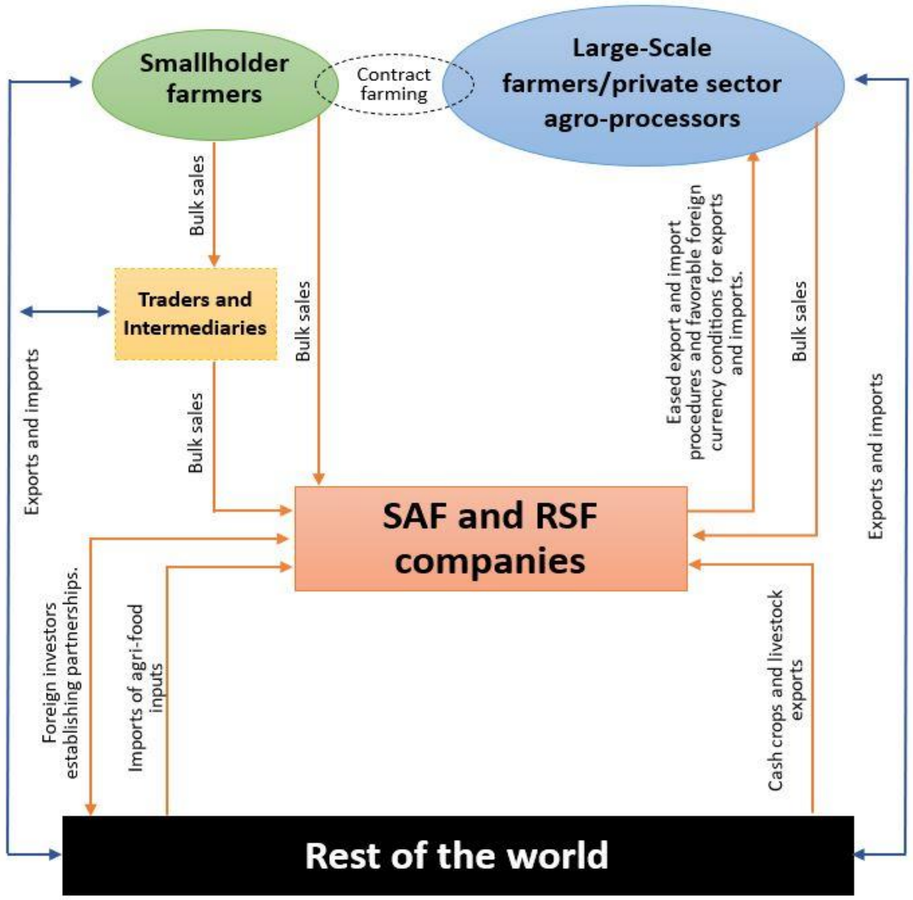
[7] KII.15, Political expert, July 13th, 2023.

[8] KII.17, large-scale farmer and agro-processor, July 16th, 2023., KII.18, INGO expert, August 30th, 2023.

Figure 4: Agri-food system structure and relations between the different actors



Source: Authors' illustration based on Key Informant Interviews.

The SAF and RSF represent the largest share of cash crop buyers from smallholder farmers, both directly and indirectly through bulk traders and intermediaries[9]. Moreover, SAF and RSF subsidiaries and companies represent the first destination for foreign investors in Sudan, which limits private sector's engagement with foreign investors, competition, and innovation. However, an oligopoly of large-scale farmers and agro-processors have maintained a strong commercial presence by engaging with both SAF and RSF clientelist networks[10]. The mode of clientelist relations between some large conglomerates and the SAF and RSF companies had manifested in the form of SAF and RSF purchases from the local private sector, in return for availing foreign currency and bypasses for specific regulations for some companies. Thus, the implicit cooperation between SAF-RSF limited private sector competitiveness and constrained the capacities of medium and small enterprises.

The modality by which the SAF and the RSF are involved in Sudan's agricultural value chains is different. The SAF's engagement within the agricultural sector revolves around crony business networks, manifesting in a form of unproductive rent-seeking. The SAF SOEs and SAF officials' businesses in the agricultural sector are profit-driven organizations, with modest positive impact on farmers' profitability and enhancement of productivity. For example, Zadna – the largest agricultural SOE owns land plots in many states and is heavily involved in pivot irrigation and agricultural schemes in the Northern State, and operates in sales and leases of land, for private investment. The company reportedly was given

[9] KII.18, INGO expert, August 30th, 2023.
[10] KII.18, INGO expert, August 30th, 2023.

several concessions and tax breaks throughout its years of operation via the clientelist networks during Al-Bashir's era.

Additionally, SAF's MEC owns the largest abattoir in Sudan and is responsible for a majority of meat and animal exports from Sudan, mostly to Egypt, Saudi Arabia, and UAE. In animal production, the SAF also owns poultry farms and pivot irrigation schemes in Atbara, in the River Nile State. In recent years, the SAF has gained interest in working directly with farmers through contract farming, for example the SAF contracts farmers and operates horticulture nursing farms for seedlings and fruits in Al-Kadaru, north of Khartoum. Similarly, through its dominant ownership of Omdurman National Bank, one of SAF's subsidiary companies works with contract farmers in the Blue Nile Region to produce cotton and sesame. Moreover, the SAF's vested interests in agriculture included imports of fertilizers and chemicals that require licenses, which it then sells in the domestic markets.

Like the SAF, the RSF is also engaged in the imports of improved seeds and fertilizers for the domestic market, albeit in a lower capacity. However, in recent years, the RSF's engagement with the agricultural sector has moved beyond trading of imports and exports, to more focused value-added and productive activities. Through the establishment of a holistic system and investments in agricultural infrastructure, the party's recent entry into agriculture poses significant implications for the sectoral productivity, labor, and food security in Sudan.

The RSF has a military presence in many states in the Darfur region and a history of societal networks in the region due to the tribal nature and ethnic background of the RSF leadership[11]. Although the RSF has played a role in the conflict in Darfur and Kordofan regions during Al-Bashir's era – the recent years following ousting of Al-Bashir and prior to the current conflict, the RSF has been involved in less violent, and more productive agricultural activities across Sudan. The dominance of the RSF for lands in those regions makes the RSF a determinant factor in the prospects of the agricultural sector in Darfur and Kordofan regions, and has implications for land and water resources, labor for agriculture, and for control over key export crops such as gum Arabic, sesame, and groundnuts. For instance, it is estimated that the RSF provides water for irrigation in parts of the Kordofan region, for approximately 250,000 acres of arable land[12]. Unlike the SAF, which has explicit land acquisition deals in the regions of Kordofan and Blue Nile, the RSF's direct involvement in agriculture land use in those regions is that of investment in infrastructure by the RSF as an institution, or direct land ownership and farming by RSF individuals, as reports of RSF soldiers utilizing large areas of land for growing cash crops have surfaced.[13]

The RSF also owns subsidiary companies which work in agricultural finance and development. The acquisition of agricultural land and investment in irrigation systems has extended beyond the Darfur and Kordofan regions, to include River Nile State, White Nile State, Sennar, and Northern states; in the latter, the RSF has been involved in the digging of irrigation canals over an area of 200,000 acres (Gallopin, 2020a). Additionally, our respondents highlighted that the RSF is involved in contract farming in the White Nile State, whereby water systems and renewable energy solar cells for crop irrigation are provided for 100,000 acres[14]. Furthermore, by establishing "The Production Bank"—a commercial bank that finances the RSF's agricultural projects and developments—as well as training and skills development centers for agricultural graduates and experts, and sub-contracting former Agricultural Bank staff, the RSF was in the process of building hegemony in the agricultural sector.[15].

[11] KII.5, Agri-food expert, August 3rd, 2023.
[12] KII.10, Medium-scale farmer, July 17th, 2023.
[13] KII.1, INGO expert, July 12th, 2023.
[14] KII.10, Medium-scale farmer, July 17th, 2023.
[15] KII.3, Agri-food expert, August 3rd, 2023., KII.15, Political Expert, July 13th, 2023.

3.5. The Future of SAF and RSF Vested Interests in Agriculture

Given the rapid escalation of the conflict, both the SAF and RSF continue to fight to acquire more agricultural assets and to protect their vested interests in the agricultural sector. The RSF's strive to control more land and water resources in Darfur and Kordofan has direct implications on the rainfed agricultural sector by affecting the agricultural workforce composition and monopolizing the production of key cash crops. Simultaneously, the SAF's increased military presence in the Eastern and Northern states in Sudan is tied to the need to protect its economic resources and investments.

The SAF's MEC and the MDC are currently non-operational, with reports of RSF capture of the MEC campus. Additionally, the Al-Kadaru abattoir owned by the SAF for meat processing and horticulture production is centered in a heavily conflicted region[16], whereby processing and exporting have ceased due to the conflict. However, like other crop producers in non-conflict regions – agricultural projects owned by Zadna in the Northern State and contract farming agreements in the Blue Nile State continue to operate under similar challenges faced by other producers in the agri-food system[17]. Tax exemptions, rapid mobility of produce, and export facilitation are also more achievable for the SAF's businesses given their pre-existing status in the market, compared to the private sector production and exports[18].

Both the SAF and RSF import businesses are affected by the ensuing conflict. Exchange rate fluctuations and the increased costs of imports, as well as reduced safety and accessibility of trade routes, pose concerns for business operations. Additionally, the banking arms of the SAF, the CBoS and Omdurman Islamic Bank are impacted by the banking sector downfall amidst the conflict. To a lesser extent, RSF's commercial empire with external roots in other countries, like Al-Khaleej Bank, makes the RSF's operations and financing more resilient to the domestic banking collapse, allowing the RSF a competitive advantage in contributing to the imports sector.

The RSF's reported agricultural activities are not particularly Khartoum-based. Firstly, the control over vast areas of land in the regions of Darfur and Kordofan provides a key productive input for RSF's agricultural base, which is the land and water resources for agriculture. Secondly, the productive farming operations reported by our respondents, namely in the White Nile State and the Northern State, are operational and productive, subject to similar implications of conflict to other actors. However, export routes from non-conflict areas to Port Sudan remain dominated by the SAF.

The geographic dispersion of the conflict and the regional and trade route controls by one of the two warring factions, poses serious limitations to both SAF and the RSF in pursuing their agricultural activities. Checkpoints, taxation, and custom authorities are key nodes in the secure movement of exports and imports[19]. Differential control over trade routes affects the degree to which each warring party is able to operate in various parts of the country. Given RSF's control over Darfur, Kordofan, and Khartoum checkpoints, and SAF's more dominant presence in the non-conflict regions, which include Port Sudan and Suwakin ports, both parties are equally affected.

As the conflict continues, the warring parties continue to capture and control productive resources across regions of dominance. In view of the increased cost of conflict over time, and the depletion of existing resources for political and militant financing, increased competition over productive resources, production nodes, and trade routes by the SAF and the RSF is expected. The conflict threatens both

[16] KII.2, Political Expert, August 2nd, 2023., KII.3, Agri-food expert, August 3rd, 2023., KII.18, INGO expert, August 30th, 2023.
[17] KII.6, Agri-food logistics expert, July 17th, 2023., KII.17, large-scale farmer and agro-processor, July 16th, 2023.
[18] KII.16, Large-scale farmer and agri-food expert, August 4th, 2023.
[19] KII.16, Large-scale farmer and agri-food expert, August 4th, 2023.

SAF and RSF's commercial operations in the agri-food system, and directly impacts the ability of each faction to run its domestic political financing streams as per the status quo prior to April 2023.

As the economic hegemony of the SAF and the RSF expanded through a regime of rent control and patronage, the ensuing economic landscape became increasingly constrictive for agri-food actors unaffiliated with these power blocs. The monopolistic control exercised by SAF and RSF essentially marginalized independent private sector endeavors, and disadvantaged smallholder farmers, thereby exacerbating the asymmetric distribution of economic power. This contractionary economic environment has contributed to the crowding out of independent commercial stakeholders, reinforcing the duopoly of SAF and RSF in the economic sphere.

4. IMPLICATIONS OF THE ARMED CONFLICT ON THE AGRI-FOOD SYSTEM

The conflict has had devastating effects on Sudan's economy, particularly on the agrifood system and food security. Early evidence from various rapid assessments shows that the conflict has led to substantial reduction in economic activity (Abushama et al., 2023). This satellite-based study highlights a significant drop-in economic activity, which includes food production, food processing and trading around Khartoum. Furthermore, evidence showed closure and/or reduction of operations by the food processing and beverage manufacturing firms (Kirui et al., 2023). Similarly, Siddig et al. (2023) used an economywide modeling framework to estimate the economic cost of the ongoing conflict. Their findings suggest that in view of the drastic loss in the country's GDP by about US$ 14.6 billion (48 percent) if the conflict continues until the end of 2023, the agricultural sector losses are expected to be US$ 1.3 billion (21.4 percent). Moreover, industry losses are US$ 4.7 billion (70.8 percent), of which food processing alone loses US$ 0.7 billion (52.1 percent) if the war continues until the end of the year.

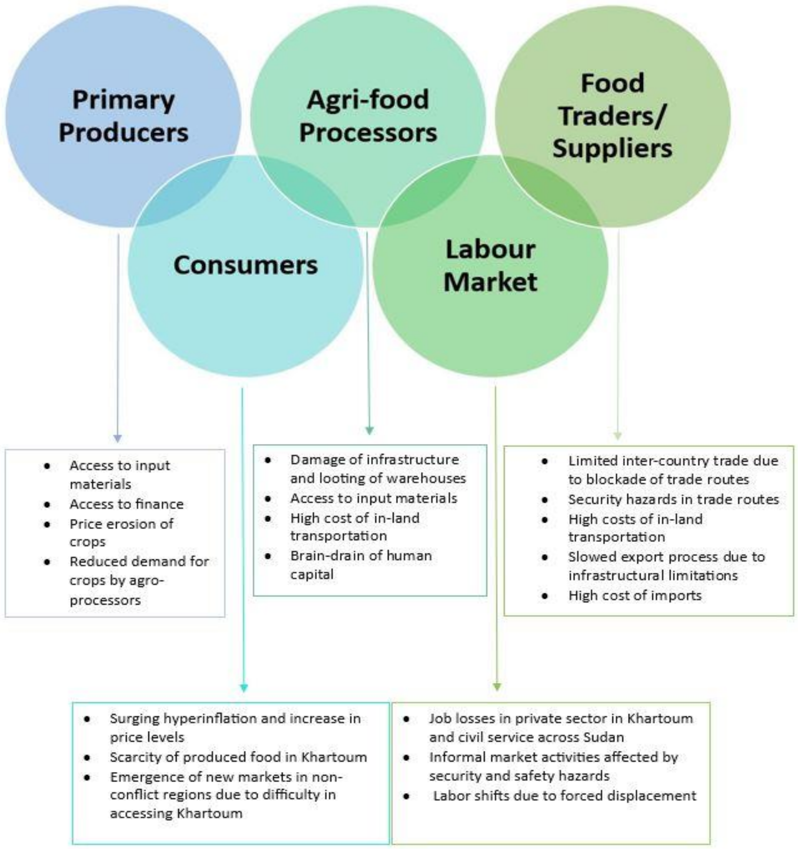
The scale of the conflict's impact on food insecurity is compounded by the fact that prior to the conflict, the agrifood sector was grossly underfunded by the government, and the sector's reliance on domestic finance and market operations increased the centralization of agrifood system activities around Khartoum, which has been the epicenter of the present conflict. It is estimated that the current conflict is likely to push 2-2.5 million more people into hunger, exacerbating the food security crisis in Sudan (World Food Program, 2023). This is compounded by the fact that several farmers were either unable to get or could not afford certified seeds on time for the current growing season (Mercy Corps, 2023; Kirui et al., forthcoming).

The Khartoum-centric nature of the SAF-RSF conflict has yielded drastic impacts on the various levels of the agri-food system. Khartoum State being a market for a sizable proportion of produced crops and processed agri-food products, a commercial and banking hub, and the host of federal government institutions and entities, has led to a partial paralysis in the agri-food ecosystem at the onset of the conflict. Given the centralization of the agri-food production and distribution channels, as well as the banking sector operations in Khartoum, the main location of the fighting, the pressure on local governments in other states (production states) with limited fiscal and human capacities is amplified[20]. Furthermore, the conflict has underscored how fragmented agricultural value chains are in Sudan, and the lack of effective supply chain systems in Sudan's agri-food system, limiting the scope of local governance interventions to alleviate the pressure on the food security status.

[20] KII.12, Agri-food expert, July 17th, 2023., KII.1, INGO expert, July 12th, 2023., KII.10, Medium-scale farmer, July 17th, 2023.

Figure 5 below highlights the key channels through which the conflict impacts the productivity of the agri-food system in Sudan. Specifically, it has impacts on farmers and pastoralists (producers), traders, agro-processors, and exporters and importers as well as consumers. The degree of impact and the challenges to the different notes of the agri-food system vary depending on the intensity of the conflict in the region alongside other intertwined factors such as the banking and finance sector, and the public sector. We examine each of these channels in more depth below.

Figure 5: Channels of influence of the conflict on the agri-food system



Source: Authors' illustrations.

4.1. Primary Food Producers

The violent confrontations coupled with structural infrastructure limitations, have direct implications on primary food producers in both conflict and non-conflict regions. In addition to the security concerns and heightened securitization, alongside the forced displacement of populations in conflict areas, the lack of access to finance, extension services, input materials such as improved seeds, and fuel, magnify the challenge for farmers. Additionally, the increasing price erosion of crops and primary food produce is a byproduct of the drastic changes in food market systems, coupled with security hazards and other macroeconomic fluctuations. These factors combined exacerbate the risks for food producers at different levels of the agri-food system.

4.1.1. Farmers and pastoralists in conflict regions

In Khartoum, smallholder farmers produce key horticultural crops, most of which are sold in local markets in the outskirts of Khartoum, where the combat is less intensive. The horticulture industry in Khartoum State, being the most prevalent primary agricultural product produced, is impeded from supplying local markets as before the eruption of the conflict, this is attributable to the insecurity of in-state transportation routes, destruction and burning down of several larger markets in Khartoum, and violent exchange of gunfire in different locations across the state.

Another primary food product largely affected by the conflict in Khartoum state is the dairy industry. Milk producers and distributors in Khartoum state are impacted by the conflict through the significant drop in demand for milk, both for consumption and for processing [21]. Given the closure of all of the dairy processing factories, and the destruction of some processing facilities considering the confrontation between the SAF-RSF, the milk and dairy production has been faced with a significant increase in supply over demand by processing firms, pushing milk prices down and increasing the milk waste.

In the conflict regions of Darfur and Kordofan, it is estimated that the cultivated acreage had dropped more steeply than in non-conflict regions. Our respondents note that the cultivated acreage has approximately dropped by more than 65 percent according to rough estimates for the season, posing serious threats to crop produce in the region[22]. In Kadugli, farmers have reported the lowest percentage in intention to plant during the summer planting season (Mercy Corps, 2023). This is attributable to the security hazards and the localized impacts of the conflict. Women farmers in the Darfur and Kordofan regions represent a significant faction of food producers in the region. In view of the conflict, female farmers become the most disadvantaged segment of the agri-food value chain. For example, groundnut is primarily cultivated by female farmers with 24 percent of women reporting it as their primary crop (Mercy Corps, 2023). The increased securitization and lack of security and the difficulty of accessing farms entails a gender differential attributable to safety and security especially during planting season, posing potential risks of internal displacement.

The RSF's presence and dominance in Kordofan and Darfur has implications on security and potential agricultural land capture. Export crops like groundnuts, gum Arabic, and sesame, grown in the western regions in Sudan will be affected in two ways. The uncertainty about marketability of produce, displacement of households and labor force, and the violent combating, limit farmers ability to cultivate the usual area of land, whereby 31 percent of the farmers who do not intend to plant at all this season blamed the recent conflict for the decision, compared to 16 percent of farmers who noted the intention to plant later in the season (Mercy Corps, 2023). Furthermore, the profitability of planting export crops given the limited mobility of goods in and out of those regions pushes farmers away from planting export crops. Given the security situation and farmers' uncertainty, many farmers have shifted to cropping sorghum and millet in areas further away from the conflict zones[23]. This finding confirms the survey findings by Mercy Corps (2023), which highlight a significant shift towards consumable crops over cash crops. The shift toward cropping sorghum, millet or maize resulted in 79 percent of farmers planting those crops, compared with 75 percent in 2022.

The livestock sector is another impacted sub-sector and has significant implications on the Sudanese economy, due to its particular importance both for domestic use and for exports. It is estimated that the change in income for livestock herders to drop by 22.3 percent (Siddig et al., 2023). Although there is

[21] KII.17, Large-scale farmer and Agro-processor, July 16th, 2023.
[22] KII.10, medium scale farmer, July 17th, 2023.
[23] KII.3, Agri-food expert, August 3rd, 2023., KII.17, large-scale farmer and agro-processor, July 16th, 2023.

little information about pastoralists grazing routes amidst the ensuing conflict between the SAF and the RSF, the pastoralists in Darfur and Kordofan are likely to be direly affected. Additionally, around 40 per-cent of the entire population of Sudan are directly or indirectly employed along the livestock value chain (IGAD, 2013; Behnke, 2012). The impact on livestock production is three-fold. First, the conflict directly affects livestock quality and health due to the smaller cultivated area of land where the pastoralists graze their herds. Second, the conflict might catalyze increased tensions between farmers and herders due to the smaller acreage of land, and hence animal feed. Third, the closure and blockage of trade routes and inability to reach domestic trade destinations like Al-Butana in the eastern part of Sudan, and to export destinations and feedlots jeopardizes the livestock value chain. In view of that, livestock exports, which comprise a significant share of SAF export revenue, are jeopardized.

Crucial to the expansion of the conflict on the basis of natural resource and rent capture, is the RSF's efforts to take over El-Obeid, in North Kordofan. El-Obeid hosts one of the biggest crop and livestock markets in Sudan, where the cereals' stock market is centered. The prices of cereals and the exchange of a variety of staple food occurs in El-Obeid. Control and accessibility to crop markets is not entirely divorced from the geographic expansion of the conflict. The fall of El-Obeid in the hands of one of the warring factions poses serious concerns to the continuation of the fighting, due to the accessibility to El-Obeid's international airport, as well as to the future of agricultural production, harvesting, and crop prices across Sudan[24].

4.1.2. Farmers in non-conflict regions

Farmers in non-conflict regions; mostly in Gezira, Gedaref, Kassala, and White Nile States continue to be disadvantaged regarding access to finance, agricultural inputs, and uncertainty of the profitability of farming. Our analysis highlights that both smallholder and large-scale farmers in non-conflict regions are most perversely affected by the lack of access to finance[25]. Agricultural production is mostly fi-nanced through the local banking sector, which, in recent years, has shown increased interest in invest-ing in agricultural projects. The agricultural summer season financing transactions take place in April-May of every year; therefore, the adequate dispersion of funds has not occurred for the agricultural sea-son in view of the conflict[26].

Although many government organizations like the Taxation Authority, the Customs Authority, and some commercial banks have relocated to Portsudan, the CBoS and the Agricultural Bank's lack of contin-gency operation plans continue to disadvantage the agricultural sector[27].The failure of the Central Bank of Sudan and the banking sector to promptly resume operations, due to their centralized nature in Khar-toum, has formulated the biggest impediment for farmers in non-conflict regions[28]. The banking sector's lowered revival capacity amidst the fighting has posed serious challenges to the agri-food production processes and to the import and export of food commodities. Smallholder farmers' lack of access to fi-nance reduces farmers' ability to purchase input materials, which are scarce this season in view of the conflict. Nonetheless, smallholder farmers' day-to-day monetary transactions are minimally affected in view of their out-of-bank monetary dealings, however the broader access to finance and liquidity for purchases of input materials are hindered[29]. For large-scale farmers, access to domestic working capi-tal and banking services for contract farming has been impeded, and consequently, many contract

[24] KII.15, political expert, July 13th, 2023., KII.2, political expert, August 2nd, 2023.
[25] KII.16, large-scale farmer and agri-food expert, August 4th, 2023., KII.17, large-scale farmer and agro-processor, July 16th, 2023.
[26] KII.3, Agri-food expert, August 3rd, 2023.
[27] KII.16, Large-scale farmer and agri-food expert, August 4th, 2023.
[28] KII.4, Agri-food expert, July 16th, 2023.
[29] KII.4, Agri-food expert, July 16th,2023.

farming activities have stopped[30], more prevalently in the regions of Gedaref and the White Nile states. key informants have noted that many large-scale farmers who produce both cereal and perennial crops have been affected in terms of the increases in costs of operation and selling at losses[31].

The conflict has resulted in significant decreases in cultivated land with evident shifts toward sorghum production, and wheat to a lesser extent, in Gedaref and White Nile states. For Gedaref, an estimation of the cultivated areas this season is just 50 percent of the area cultivated last year, which has implications on the amount planted and crop prices. In the White Nile state, the cultivated land acreage is expected to drop by almost 60 percent according to on-ground farmers, with a higher focus on sorghum for consumption with a significant drop in acreage from 110,000 in 2022, to approximately 45,000 acres as of July 2023[32]. The lack of resources at the state government's level also impedes government intervention to support increased farming activities. The drop in cultivated acreage is attributed to the difficulty of access to inputs, availability of improved seeds, uncertainty of markets, and crop prices at the time of harvesting[33].

The shift toward sorghum has effects on seed availability for the following season, The agricultural season's success in non-conflict regions is dependent on seeds, and as of now, the available quantities planted will lead to shortages in next season seeds. The support by the Agricultural Bank (AB) and the Food and Agriculture Organization (FAO) for seeds to small-scale farmers alongside personally produced seeds comprise 70 percent of production[34]. By July 2023, the distribution of seeds to the Blue Nile, Gedaref, Kassala, Sennar, White Nile, Red Sea, South Kordofan and North Kordofan states amounted to 3,300 tonnes of seeds only (UN-NEWS, 2023). Hence, the lack of adequate seeds is another contributor to the reduced cultivation of land.

Similarly, the Blue Nile state remains accessible and functional with regard to agricultural production. The Blue Nile region is prominent in sesame and gum Arabic production. The gum Arabic production and export limitations could yield disastrous implications for the global beverage and pharmaceutical industries. In view of the conflict, gum Arabic producers in Sudan report a price collapse of 60 percent (Al Jazeera, 2023). However, in the Blue Nile State, farming is resuming in regions that are further away from where the clashes are between the RSF and other factions – with access to markets being a significant challenge for produced crops. Access to seeds and use of seeds is also a determinant factor in the planting season. In a recent Mercy Corps (2023) farmers' survey, only 5 percent of the farmers in the Blue Nile state have reported to have received seeds from government, NGOs, or the FAO. Among them, 54 percent denoted using primarily local seed while 26 percent used a mixture of improved and local seeds (Mercy Corps, 2023).

Further, in view of the conflict and reduced access to technology, it is expected that farmers might revert to more traditional ways of farming and will not invest in higher technologies to boost yield. Moving back to more labor-intensive agriculture compared with more capital-intensive agriculture has limitations for yield and productivity of crops – particularly in regions where the labor market dynamics have changed. Many farmers, even in safer regions like Gedaref who have high technology machinery but

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[30] KII. 17, large-scale farmer and agro-processor, July 13th, 2023.
[31] KII.16, Large-scale farmer and agri-food expert, August 4th, 2023.
[32] KII.10, medium-scale farmer, July 17th, 2023.
[33] KII.6, Logistics and Agri-food expert, July 17th, 2023.
[34] KII.17, large-scale farmer and agro-processor, July 16th, 2023.

are driven by the uncertainty of the market and the on-going conflict, have parked their capital, and resorted to labor[35]. The potential outcome of such uncertainty could yield severe implications for the agricultural sector's productivity and food production.

A key constraint to the ongoing agricultural production season is the reduced agricultural extension services from government institutions. At the state level, local government institutions across Sudan have been impacted by the on-going conflict in Khartoum. The centralization of public funds and the reliance of state ministries on the federal government for fiscal support has been hampered by the lack of operation of the federal ministries and MoFEP.

Nonetheless, evidence from our key informant interviews suggests that female farmers in non-conflict areas formulate a resilient segment of the agri-food production segment[36]. Our findings suggest that women farmers operating in large cooperatives, particularly in Gedaref, have historically benefited from learning by doing, sharing skills and expertise, but most importantly through disseminating useful information. Efforts of local civil society support for women cooperatives in the region have been reported, which could result in positive trends regarding productivity and yield of key consumable crops.

4.2. Agro-processors and Food Manufacturers

The agro-processing firms have been drastically impacted by the conflict in two ways: the loss of finished goods for sale in warehouses because of looting and burning of warehouses across Sudan, and secondly, the destruction, looting and even burning down of production plants in Khartoum.

The study's respondents have emphasized that the impact of the conflict is the harshest on the agro-processors in the agri-food system. Due to the violent combat near the Khartoum North Industrial Area, where many processing plants are located, 13 percent of the agri-food processing firms operating in Khartoum have permanently ceased operations, 53 percent have temporarily closed, and 20 percent have reduced their operations significantly (Kirui et al., 2023).

The Khartoum-centrism of the private sector operations and coordination has affected agro-processing companies that operate beyond Khartoum equally. Around 57.1 percent of the agro-processing firms operate within Khartoum only, and 35.7 percent are based both in Khartoum and other states (Kirui et al. 2023). Raiding of companies' premises, theft of safes, documents, and has limited Khartoum-based HQs in supporting other states' activities. However, companies with regional offices across Sudan were more resilient to the destruction of factories and entities in Khartoum[37]. Additionally, many of the Khartoum based agro-processing firms have reported loss in working capital and implications of the looting and theft of warehouses on company operations. The looting of produced food goods from warehouses in Khartoum, El-Obeid, and Nyala have been the most significantly reported.

Outside of Khartoum state, the agro-processing factories' capacity is smaller, both in terms of number and in terms of factory capacity[38]. The conflict has not affected the agro-processing plants in non-conflict areas. Sesame and cotton ginning plants are operating normally in areas of Gedaref and White Nile states. Atbara is another location where wheat milling is taking place after the destruction of the larger wheat milling facilities in Khartoum. However, factories in Kordofan and Darfur regions are not operating – although reports on destruction and burning of factories have not surfaced to date.

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[35] KII.6, Agri-food logistics expert, July 17th, 2023., KII.17, large-scale farmer and agro-processor, July 16th, 2023.
[36] KII.12, Agri-food expert, August 7th, 2023.
[37] KII.3, agri-food expert, August 3rd, 2023.
[38] KII.5, agri-food expert, August 3rd, 2023., KII.17, large-scale farmer and agro-processor, July 16th, 2023.

Some of the key industries affected are the dairy and the cooking oil industries. The dairy processing facilities in Khartoum are non-operational, leaving much of the produced milk in the market unprocessed[39]. As for the cooking oil industry, many of its manufacturers are based in Khartoum, complimentary with the finding that 33 percent of the factories operating in Khartoum are fats and oil plants (Kirui et al., 2023). The drop in the supply of cooking oil is an indicator of increased cooking oil imports in the next period[40].

4.3. Food Traders and Suppliers

Despite the signing of the Jeddah Declaration[41] on May 11th, 2023, by the two warring factions, which mandated the commitment to safeguarding civilian populations and safe mobility of food, crops and livestock, the commitment has not materialized fully on the ground. The blockage of trade routes and looting of commodities at checkpoints across Sudan has been reported, with larger magnitudes in certain regions more than others. The on-going SAF-RSF conflict has not only challenged the security of conventional trade routes, but it also increased the costs of marketing and transportation of agri-food products in between states. Additionally, the agri-food export and import sector has been well impacted in view of the on-going occurrence.

Approximately 95 percent of the crop and food transportation in Sudan occurs through in-land trucking, with 55 percent of the trucking services provided by individual truck owners[42]. In view of the closure of banks, increased demand for the SDG and the surging inflation, inflated fuel prices, and in-secure trade routes, the cost of transporting commodities has increased by approximately 250 percent[43]. This increase is attributable to the aforementioned factors, in addition to complete disruption in the market prices, facilitating speculative pricing by truck owners and drivers. A respondent from a large food producing and processing firm noted that as of July 2023, the cost of securing warehouses and domestic trucking and food transfer from Kadugli, in South Kordofan to Gezira state, has exceeded 40,000 USD[44]. Respondents in the food producing and trading spheres have reported that the Taxation Authority has mobilized efforts to collect taxes from domestic traders and producers at the state level[45]. However, the lack of sensitivity of the urgency in delivering commodities at low cost has not been abided by. Our respondents have highlighted that the authority offices lack lenience and often complicate processes for food traders for in-between state food transfer.

The Khartoum-centrism of Sudan's economy has devastating outcomes for food markets and transportation. Khartoum, being the central hub and market for a lot of the crops, agri-food production facilities, and private and public sector companies, has major implications for agri-food systems across Sudan. The blockage of trade routes in-and-out of Khartoum has resulted in a drastic drop in prices of products which were previously mostly sold in Khartoum (e.g., Horticultural products like watermelons, bananas, etc.).

Khartoum's entrances and exits have been reported to have checkpoints in which vehicles are checked and often stop for a few days before clearance to move[46]. Though leaving Khartoum is difficult and full

[39] KII.16, large-scale farmer and agri-food expert, August 4th, 2023., KII.17, large-scale farmer and agro-processor, July 16th, 2023.
[40] KII.2, political expert, August 2nd, 2023.
[41] Jeddah Declaration of Commitment to Protect the Civilians of Sudan: https://www.state.gov/jeddah-declaration-of-commitment-to-protect-the-civilians-of-sudan/
[42] KII.11, agri-food logistics expert, August 3rd, 2023
[43] KII.10, medium-scale farmer, July 17th, 2023., KII.13, large-scale farmer and agro-processor, July 16th, 2023.
[44] KII.13, large-scale farmer and agro-processor, July 16th, 2023.
[45] KII.11, agri-food logistics, August 3rd, 2023., KII.14, agri-food expert, August 4th, 2023.
[46] KII.13, large-scale farmer and agro-processor, July 16th, 2023., KII.4, Agri-food expert, July 16th, 2023., KII.17, large-scale farmer and agro-processor, July 16th, 2023.

of risks of theft and loss of product, international NGOs often succeed in facilitating the movement of commodities. However, theft of trucks, vehicles, and commodities at check points has been highlighted by our respondents. A large food manufacturing firm has reported that checkpoints from Khartoum to Gezira, and Khartoum to Portsudan require RSF officers' approval, which often required in-cash and in-kind payment to allow passage[47]. The route between Khartoum - White Nile State is safer than the Khartoum – Gezira route moving from Khartoum to Gezira, however, tensions and fears over expansion of conflict to the White Nile State persist[48].

The Trade routes outside of Khartoum, between Gezira, Gedaref, Kassala, and White Nile are operating as normal[49]. However, some respondents have highlighted incidents of robberies and theft from local communities along the road to Haya and Portsudan. In recent weeks, reports on SAF militarization in those regions and increased security in the north-east trade routes in Sudan has made the route more accessible by producers, traders, and exporters.

The trade routes to and from Darfur and Kordofan are marked with significant security risks and in turn the movement of commodities in and out of these regions is on hold[50]. This poses threats to delivering input materials to local markets and movement of export crops from those regions. Exports of groundnuts, sesame, cotton, and gum Arabic from Darfur and Kordofan are expected to drop in quantity and revenue. Prior to the combat in Darfur and Kordofan regions, trade routes for movement of agricultural products for exports and to other states (other than Khartoum) persisted. However, since the eruption of the conflict, the movement of commodities within state and locality levels has become more difficult. Our respondents have identified that the route through Bara and the route to Kadugli in South Kordofan are not accessible, making Kosti, in the White Nile State, the last stop for commodity mobility[51]. Our respondents have highlighted influx of food produce and from Libya and Chad in El-Fasher markets, and products from South Sudan in Ed-Daein, confirming that these regions are more accessible from other countries rather than from within Sudan[52]. Additionally, Logistics of livestock exports are sensitive, particularly for live animal exports. The approved processing authorities for meat are mostly located in Khartoum, and one authority in Port Sudan. However, the reduced access to quarantine for animals, vaccines, and lack of vet medicine has implications on livestock exports.

The conflict has major implications for the exports and imports of food products. At the onset of the conflict, the port in Portsudan reduced operations to a near stop. Imports of goods have continued, albeit with more difficult terms for importers of produced foods, and input materials like fertilizers[53]. One key attribute of the slowdown of imports is the increased demand from suppliers to receive advanced payments – in the face of domestic buyers who are operating in a non-banking environment[54]. Additionally, the slowdown of imports is attributable to the uncertainty around in-land trucking routes and purchase power of consumers in view of the expected drop in income across various levels of society, both rural and urban populations – however imports and import prices are driven by the demand for goods. Nonetheless, imports of food products such as wheat, and other processed foods are expected to increase considering the limited domestic production capacity (Siddig et al., 2023).

[47] KII.13, large-scale farmer and agro-processor, July 16th, 2023.
[48] KII.15, Political expert, July 13th, 2023.
[49] KII.4, agri-food expert, July 16th, 2023.
[50] KII.13, large-scale farmer and agro-processor, July 16th, 2023., KII.6, agri-food logistics expert, July 17th, 2023.
[51] KII.5, agri-food expert, August 3rd, 2023.
[52] KII.5, agri-food expert, August 3rd, 2023.
[53] KII.16, large-scale farmer and agri-food expert, August 4th, 2023., KII.4, agri-food expert, July 16th, 2023.
[54] KII.4, agri-food expert, July 16th, 2023.

Although the CBoS[55] has replaced the electronic exportation system with a paper-based system to allow exports to resume through Portsudan, exports of agricultural food products have effectively commenced operations as of mid-July 2023[56]. Thus, the conflict has caused both direct and indirect export revenue to drop for the second quarter of 2023, with reports of severe food waste at the port due to the lack of sufficient storage facilities. Exports from Gedaref, Kassala, Gezira, White Nile and Blue Nile States are feasible to date. However, the significant drop in prices of exported commodities will bear losses for farmers and for exporters[57]. The difficulty of export documentation issuance and approvals also reduces the quantity and frequency of exports from Portsudan. Moreover, the slowdown of exports due to high transportation costs to Portsudan, storage, and shipping costs, allows room for cross-border smuggling and illicit transfer of goods[58].

4.4. Consumers

At a national level, households are expected to lose nearly have of their income compared to 2021 income levels, if the conflict between the SAF and the RSF continues until the end of 2023 (Siddig et al., 2023). Furthermore, the economywide analysis conducted by Siddig et al. (2023) showcases that the losses in income for urban populations compared with rural populations are more dire, given the Khartoum-centric nature of the ensuing conflict. The impact of the conflict has affected the middle-income class in view of forced displacement of urban populations in Khartoum to other states and cross borders, which drives down consumer demand for many foods products previously consumed in the capital city of Khartoum[59.]

The conflict has measurable adverse impacts on the disposable incomes of urban populations, particularly in Khartoum State, and to a lesser extent in other urban centers across Sudan. The prices of food commodities have increased five-fold, particularly for processed foods, in view of the increased demand and limited supply[60]. The reduction in household income, combined with the increases in commodity and services prices, in addition to the damage of household assets and infrastructure drives changes in poverty depending on household ability to mobilize resources, as well as the flexibility to substitute consumable items (Siddig et al.,2023). In view of the shrink in private sector employment and increased job losses, in addition of the public sector not being able to pay the salaries of its employees since April 2023, a larger proportion of Sudan's population is subject to income and food vulnerability and disrupts the levels of consumption. The poverty rate at a national level is expected to increase by 4.5 percent compared with 2021, pushing an additional 1.8 million people into poverty, if the SAF and RSF conflict continues through to end of 2023 (Siddig et al., 2023).

Khartoum state formulates 40-50 percent of the addressable market for several primary agricultural products and processed foods[61.] The Khartoum-centric nature of the conflict affects the consumption and nutrition levels of populations both still residing in rural Khartoum and in other regions in Sudan. In regions outside of Khartoum, local markets have flourished with food commodities that were predominantly traded to Khartoum markets prior to the eruption of the conflict and closure of key trade routes[62], however, due to the depletion of income levels even in rural areas, positive changes to consumption

[55] CBOS. 2023. post-April 15 controls and publications.
[56] KII.17, large-scale farmer and agro-processor, July 16th, 2023.
[57] KII.6, agri-food logistics expert, July 17th, 2023.
[58] KII.5, agri-food expert, August 3rd, 2023., KII.10, medium-scale farmer, July 17th, 2023.
[59] KII.6, Logistics and supply-chain expert, July 17th, 2023.
[60] KII.10, medium-scale farmer, July 17th, 2023.
[61] KII.5, Agri-food expert, August 3rd, 2023.
[62] KII.2, Political Expert, August 2nd, 2023., KII.10, Medium-scale farmer, July 17th, 2023., KII.6, Logistics and Supply Chain expert, July 17th, 2023.

remain unclear. The lack of disposable income limits individuals' capability to purchase food products despite the increase in supply in regions beyond Khartoum[63]. The drop in income levels, alongside the increase in poverty, is directly associated with lower consumption levels – whereby the drop in consumption facilitates an increase in export of raw materials compared with processed agricultural products[64].

4.5. Labor Market Dynamics

Overall, the contraction of the agri-food system reduces employment by 23 percent compared to the levels of employment in 2021 (Siddig et al., 2023). The industrial sector, including the agro-processing firms operating in Khartoum and other states has been the most starkly affected sector in view of the ensuing conflict (Siddig et al.,2023; Kirui et al., 2023). Moreover, employment in the civil service has been impacted due to the centralized governance structure in Sudan, whereby the MoFEP remains unable to pay salaries of civil servants as of April 2023, leaving a considerable proportion of the active workforce severely underemployed or unpaid. Additionally, the conflict has led to hundreds of thousands of individuals fleeing Sudan, resulting in stark brain-drain of high caliber professionals across sectors[65]. The implications on the labor market dynamics continue to shift and change given the dynamism of the conflict in intensity and according to geographical dispersion.

The violent conflict and the forced displacement of populations in food production states is a key driver for shifting labor away from agriculture, in addition to the shortages of access to finance, input materials, and the disruption of food markets. Labor shifts from agriculture to other activities such as mining, particularly in West Kordofan, existed even before the conflict erupted[66]. In West Darfur, namely in Geneina, internal displacement and cross-border migration to Chad has direct implications on the agricultural labor force in those regions, and on food production. Reports of travel ban for young men from the Blue Nile State were highlighted, further affecting the agricultural labor force in the region, which signifies the potential of large shifts in the composition in the agricultural work force[67]. Additionally, locality level migration affects land holding as well as land cultivation particularly in regions of Blue Nile and South Kordofan, further dismantling the agrarian labor market composition[68]. However, in non-conflict regions, it is expected that the reverse migration from urban to rural and displacement of people from Khartoum will result in labor (and family worker) abundance in the agricultural sector (Siddig et al., 2023; '*KII.7., former government official, July 31st, 2023*').

The labor market dynamics are further challenged by the on-going conflict due to the increased recruitment of youth for militant activities. Prior to the conflict, studies conducted on youth employment particularly in the Darfur and Kordofan region signify the increased recruitment of youth to join the RSF[69]. This has historically led to the reduction in the numbers of farmers and herders who actively engaged in the agricultural workforce and are now fighting alongside the RSF in Khartoum and other states. Joining the RSF has grown to be considered an income generating job, straining a large proportion of youth away from agricultural production particularly in view of farming not being lucrative due to low produce prices, and fragmented agri-food systems[70].

[63] KII.18, INGO Expert, August 30th, 2023.
[64] KII.18, INGO Expert, August 30th, 2023.
[65] KII.11., Logistics and Supply Chain expert, August 3rd, 2023., KII.17., large-scale farmer and agro-processor, July 16th, 2023.
[66] KII.1, INGO Expert, July 12th, 2023., KII.12, Agri-food expert, August 7th, 2023.
[67] KII.1, INGO expert, July 12th, 2023.
[68] KII.1, INGO Expert, July 12th, 2023.
[69] KII.7, Former Government official, July 31st, 2023., KII.1, INGO Expert, July 12th, 2023.
[70] KII.7, Former Government official, July 31st, 2023.

The agro-processing sector losses are equally dire on employment, whereby 47 percent of the agro-processing firms operating in Khartoum and other states have set their employees on unpaid leave, 20 percent are working at reduced capacity, 20 percent have been laid off, 7 percent are on paid leave, and only 7 percent working as usual (Kirui et al., 2023). Moreover, the agri-food industry's centralization in Khartoum provided indirect jobs to farmers, traders, and intermediaries, meaning that the conflict impacts employment at each of these segments of the workforce[71]. Additionally, SMEs (small and medium enterprises) operating in Khartoum, most of which are engaged in support services provision and light manufacturing[72], have been severely affected due to the ensuing conflict, resulting in near-complete closures and complete lay-offs of employees at a larger scale than large agro-processing firms[73.] Similarly, micro-business and the small informal sector such as street vendors, teasellers, and small-scale retailers have also been affected by the violent conflict both in form of displacement from conflict zones (possible areas of operation), and because of reduced demand on their products[74].

[71] KII.17, large-scale farmer and agro-processor, July 16th, 2023.
[72] KII.18, INGO Expert, August 30th, 2023.
[73] KII.17, large-scale farmer and agro-processor, July 16th, 2023.
[74] KII.18., INGO Expert, August 30th, 2023.

5. CONCLUSION AND POLICY RECOMMENDATIONS

5.1. Conclusion

This study highlights the political economy drivers of the conflict between the SAF and RSF and identifies the overall implications of the conflict on different actors in the agri-food system in both conflict and non-conflict regions in Sudan. Specifically, the objectives of this study are twofold. First, the analysis highlights the different ways in which both protagonists in the conflict have accumulated assets within the agri-food system over time and how rivalries over those assets are partially responsible for the outbreak of conflict. Second, it shows the channels through which the war is affecting different parts of the country's agri-food system, which can provide indicators about which regions of the country and which policy interventions will need to take priority when the conflict is resolved. The analysis draws on in-depth interviews conducted with 18 key informants in different components of Sudan's agri-food system, from production, agro-processing, and trade conducted between July and August 2023.

The economic competition between the SAF and the RSF has sharpened in recent years, allowing both factions diverse alleyways of political financing and further entrenching their power. The Omar Al-Bashir regime laid the roots of the political rivalry between the SAF and RSF by allowing each party to become more entrenched in commercial enterprises in diverse sectors. With the RSF's expansion into productive economic sectors, such as agricultural development and the banking sector, the SAF leadership increasingly resented the growing economic power of the RSF. Moreover, the fiscal autonomy of the RSF facilitated its ability to establish an enclave economy, which enabled the paramilitary group to further expand its accumulation of economic rents. The RSF possesses deeply embedded economic motivations for trying to capture entities and resources in Khartoum, Kordofan, and Darfur in the current conflict. Such entities in Khartoum include the Sudan Gold Company and the Khartoum Printing Company. The expansion of the conflict in Darfur and Kordofan facilitates land and water resource capture by the RSF as well as potential control over key crop and livestock markets. The RSF has gained a strong foothold across Darfur, facilitating further conflict not just with the SAF but also with non-government actors and leaders of other armed forces. SPLM/A under the leadership of Abdulwahid Nur, and SPLM/N under the leadership of Abdelaziz El-Hilu became two factions involved in the combat, in South Kordofan and Blue Nile States, respectively. The development of the conflict to incorporate more warring factions poses serious complications to the on-going combat and the capture and use of agricultural land and water resources.

The conflict has severely affected the agri-food system actors (producers, processors, and exporters) directly and has also had significant effects on input access, banking system, and manufacturing and trade infrastructure. Smallholder farmers in conflict regions and agro-processing firms in Khartoum are significantly affected both in short and medium terms. The agro-processing firms have been drastically affected by the conflict in two ways: the loss of finished goods for sale in warehouses due to looting and burning of warehouses across the country, and secondly, the physical destruction, looting and burning down of production plants in Khartoum. These two segments of the value chain actors require strategic medium to long term interventions to promote their operations in view of cessation of violence in the conflict regions.

Smallholder farmers and livestock producers in Darfur and Kordofan are faced with two key challenges. Firstly, security and safety risks are likely to promote forced displacement and labor migration from those regions. Secondly, the destruction of local markets and blockage of trade routes to other regions in Sudan for domestic use or for exports further amplifies the dire situation faced by these smallholder farmers. The rural populations in Darfur and Kordofan have been severely affected by the on-going conflict. Particularly, in West and South Darfur, where internal displacement and cross-border migration to Chad has direct implications on the agricultural labor force in those regions, and on food production. It is expected that the cultivated acreage in these regions has dropped by over 65 percent[75].

Populations in non-conflict areas, particularly those engaged in agricultural production and farming, have been negatively affected by the significant drop in demand – and price - for their agricultural produce, alongside significant reduction in access to finance for agricultural activities. Previously, most of the food crops produced would be transported to Khartoum as a key market for consumption and processing, or to Port Sudan for export. The blockage of trade routes pushes prices downward and promotes uncertainty within farming communities – making them shift from cash crops to consumer crops like sorghum and wheat.

The SAF and RSF conflict is likely to dismantle the existing power structure. An end to the conflict will require significant control over SAF's and RSF's economic resources and utilization of funds, which are currently being used to further combat between the two factions. At the same time, the on-going conflict has immense implications on the agri-food system and its actors. Our analysis finds that smallholder farmers in non-conflict regions are the most resilient in face of the shock, despite limitations of reduced cultivated acreage, uncertainty, drop in primary crop prices, and changes of food market systems. The smallholder farmers in non-conflict regions are more likely to recover quickly, particularly if productive inputs (such as improved seeds) are availed and there is greater certainty about the marketability of their produce.

The Khartoum-centric nature of the conflict may lead to decentralization of market structures, businesses, and promote competition in Sudan's economy. Many small and medium enterprises have shifted their operations from Khartoum to other states like Gezira, Gedaref, and the White Nile state. In the long term, the move of businesses and labor to other regions in Sudan may lead to positive development outcomes in those regions. However, trade routes and supply chain costs, exports, and imports, have all significantly been affected negatively due to the fluctuation in prices, exponential increase in in-land transportation costs, and the increased complication of import procedures and exportation documents and facilitation. All these pose serious concerns to Sudan's balance of payments and macro-economic trajectory.

5.2. Conflict Scenarios and Recommendations

As the conflict between the SAF and the RSF continues, alongside the on-going regional and international mediation efforts, it is increasingly urgent to identify different scenarios going forward and their implications for recommendations to strengthen the country's agri-food system. We see an optimistic scenario in which the violent combat ceases before the end of 2023, and a pessimistic scenario in which the conflict continues beyond 2023.

Scenario (optimistic) 1: In the event of the success of the international efforts to ceasefire permanently, and the violent combat stops by the end of 2023, some of the key recommendations would be:

- The peace negotiations and efforts to reconcile power stability should incorporate a broad base of actors beyond the SAF and RSF, with clarified mandates for economic and fiscal resources

[75] KII.10, Medium scale farmer, July 17th, 2023.

and use, such as transparency and accountability of fiscal resources, to promote institutional compatibility that promotes a stable political settlement.

- Funding and financing the peace process should include private sector investments, with measures such as longer grace periods for finance and lowered transactional costs to promote private sector competition, particularly in the agro-processing sector.
- Legal and regulatory frameworks by the Federal Government, to oversee foreign investments and partnerships by both the SAF and the RSF, and to facilitate and activate the Public-Private Partnerships Act 2021 to promote private sector development in the agri-food system.
- Dismantling SAF-RSF monopolies in the agri-food system and streamlining value chain processes, to promote private sector competition in the agri-food sector.
- Financing and building capacity of local governments' agricultural extension services, to promote capacities of agricultural cooperatives and increase labor productivity in primary agricultural production.
- Investments across different agri-food sectors and capacity development for youth in agriculture can promote increased interest by youth to engage in agricultural production and services.
- Training and capacity building for youth in IDP camps to engage this part of society with the agricultural sector and promote labor upgrading in the sector.

Scenario (pessimistic) 2: In a prolonged conflict scenario, some of the key recommendations would be:

- Posing sanctions on SAF and RSF companies, and individuals embedded in both factions' commercial clientelist networks; both in Sudan and abroad, is a necessary step to tighten the grip on the militant and political financing of the current status quo.
- Stopping SAF-and-RSF-specific tax breaks, custom exchange rate adjustments, and instilling pricing mechanisms that apply to all the agri-food actors equally, to promote private sector competitiveness in export and import markets amidst the on-going conflict.
- Training and capacity development of community-based organizations and civil society organizations to promote their effective involvement in ceasefire negotiations, monitoring and reporting, and facilitation of emergency responses.
- Coordinating with local government at locality level and community-based organizations (CBOs) can further facilitate the seed distribution efforts by the FAO to reach the most vulnerable farmers.
- The transport and logistics of agri-food primary products and value-added products can be facilitated through UN and development organizations' convoys to ensure safe inter-state movement of agri-food products, particularly in the Kordofan and Darfur regions.
- Restoration of the Central Bank of Sudan and the Electronic Banking Services (EBS) is contingent on continuous power supply, stable connectivity, and data centers which require collaborative efforts between the different government institutions. Commercial banks switching to private switches and data centers can support the banking sector with continuing to provide financial services.

In addition, the various challenges that have been constraining the development of the agri-food system for decades will persist under either of the two scenarios. Here are some examples of relevant recommendations:

- Agricultural strategy and planning should be led by the Ministry of Agriculture in coordination with local agri-food related ministries and support from development partners, with the goal of diversifying crop production and crop market structures across Sudan.
- Strengthening farmers associations and cooperatives to promote farmers bargaining power and control over commodity prices.
- Crowding out of unproductive intermediaries in the agri-food system through establishing direct linkages between producers and value adders or exporters from Sudan.
- Amidst forced displacement of Khartoum population to other regions, many of which are agrarian states, training and capacity building on farming and farming support services can promote agricultural production.
- Short-term subsidies for agricultural inputs for farmers; particularly herbicides, pesticides, and fuel costs particularly in non-conflict regions with higher labor capital proportions to promote higher yield rates.
- Developing Research and Development Centers in different regions to improve the quality of local seeds produced can have positive prospects for future planting seasons.
- Demarcation of land and customary land laws alignment in Sudan, and most importantly in regions of conflict, to allow efficient utilization of land for agricultural purposes.
- Extrapolating soil maps and soil readings are necessary to better understand crop protection and crop nutrition levels in the different regions in Sudan.
- Investing in infra-structure and rural development in Sudan is conducive to the development of the agricultural sector in Sudan to reach its potential.

In sum, this paper has examined how the growing competition between the SAF's and RSF's businesses became a major source of contention between the two groups, and one of several factors that contributed to the outbreak of conflict in April 2023. An important segment of each of their business enterprises is within particular elements of the agrifood system, including natural resource ownership, processing, and abattoirs and solidified by their control over licenses for agricultural inputs and key trade infrastructure. In turn, the violence caused by the conflict is having disparate impacts across different regions and among various agrifood system actors. Obviously, the best-case scenario is the cessation of the conflict followed by multifaceted policy and investment approaches to revive the agricultural sector from this shock. However, even in the face of continued conflict, we have proposed several possible interventions that could be adopted by the international community to help mitigate the devastating effects of the conflict on agricultural production, food security, employment, and the overall welfare of Sudanese people.

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