



Rapid Assessment of Food and Payment Systems in Sudan for a Coordinated Food Security Emergency Response

November 2023



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of Food and Payment
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Coordinated Food Security
Emergency Response



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Executive Summary

Sudan is facing worsening conflict that is contributing to a food insecurity crisis. The most recent Integrated Food Security Phase Classification (IPC) report identified over 20 million Sudanese who are currently experiencing acute food insecurity – 42% of the population and the highest number ever recorded in the country.¹ Consequently, the Foreign and Commonwealth Development Office (FCDO) Sudan and Financial Sector Deepening (FSD) Africa commissioned a rapid assessment of the agri-food and enabling payment systems in Sudan, to inform a coordinated emergency response that promotes food security.



Challenged critical food security crop value chains in Sudan:



In agri-food systems, there are challenges across the value chain for the key food security crops of sorghum, millet, wheat, horticulture, and oilseeds. Access to inputs has decreased dramatically as a result of the ongoing conflict, mainly due to lack of access to inputs financing. In addition to reduced use of inputs, farmers have abandoned mechanization due to high fuel prices. Planting during the recent summer season has significantly decreased compared to past years due to farmers' fear of conflict and lack of access to inputs, with the Ministry of Agriculture and Forestry reporting only 10 million hectares planted and 3.6 million hectares of land prepared for planting this year versus 23 million hectares planted last year, which represents a potential 41% decrease in planted area.

As Sudan was yet to reach harvest for the summer planting season at the time of the rapid assessment, there was limited real-time intelligence on post-harvest challenges. However, stakeholders consulted agreed that post-harvest management will be key to preserve what is likely to be an already lean harvest and to preserve harvested produce for potentially longer periods of time until it can reach end consumers, due to disruptions in market linkages, including fuel shortages and price spikes that may impact availability of transport linkages.

Agri-processing is key in transforming harvests into food, but a large proportion of Sudan's processing capacity was concentrated in Khartoum and has been destroyed. For example, the oil pressing sector, which is the largest agriprocessing industry in Sudan, operated more than 60 facilities in Khartoum pre-conflict. One stakeholder estimated that 40% of wheat milling capacity was in Khartoum and has been rendered non-operational. There are, however, small and medium agriprocessors still operating in other states, and some larger conglomerates have also relocated processing operations to cities such as Port Sudan since the conflict.

¹ IPC (2023). IPC Acute Food Insecurity Analysis: June 2023 - February 2024.

In payments systems, there is currently a lack of interoperability and few operational financial service providers (FSPs). The operations of the Central Bank of Sudan (CBoS), which enabled much of Sudan's financial sector functioning, have been severely impacted by the conflict. In particular, the CBoS operated a subsidiary company called Electronic Banking Services (EBS), which provided a centralized switch responsible for clearing and settlement for almost all banks and other financial service providers (FSPs) in Sudan's financial ecosystem. Interbank transactions also flowed through the EBS switch, which means that EBS was crucial for interoperability. Based on stakeholder consultations, EBS is currently down, and service is not expected to be restored in the medium-term. FSPs have been very directly impacted by the conflict as well, with the vast majority of financial institutions still non-operational. Similar to CBoS, FSPs were mainly headquartered and held significant assets in Khartoum, which has borne the brunt of the conflict. Forty-three percent of all bank branches in Sudan were in Khartoum. According to financial sector sources, only 5 to 6 out of the 37 banks in Sudan are currently operational; these banks operated their own independent switches pre-conflict and did not rely solely on EBS.

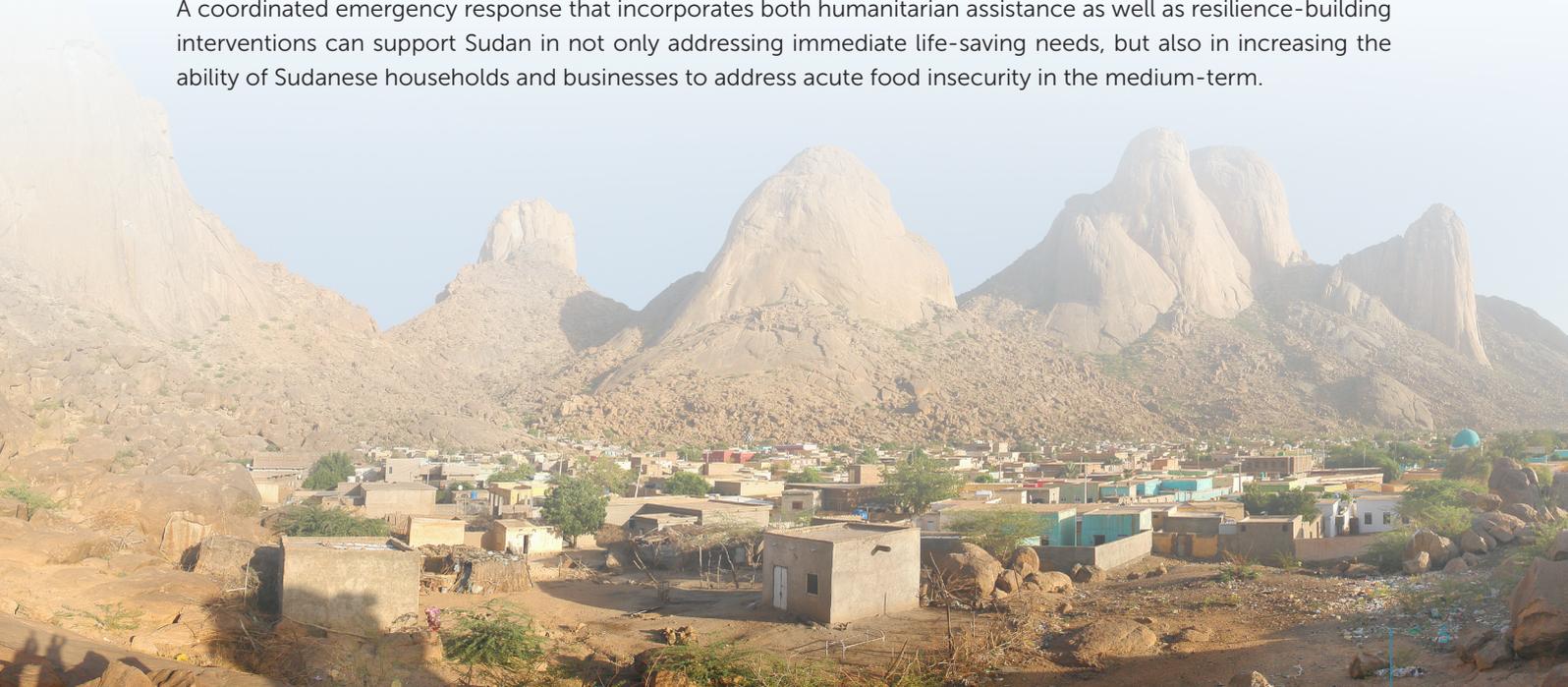
Given that most FSPs are still non-operational, access to financial services is limited. For example, 47% of agriprocessing firms in one survey stated that they had to stop operations due to the disruption in financial services. Sudanese individuals and businesses from both within and outside of Sudan stated that they are able to access financial services intermittently to transfer money to friends and relatives, pay staff salaries, etc., mostly through the Bank of Khartoum's bankak app or by visiting an open bank branch in-person.

The current conflict, and its impact on traditional financial institutions, has prompted a surge in demand for digital financial services. MTN's MoMo (Mobile Money) and a financial technology startup called Cashi have emerged as leading service providers, in addition to the bankak app. However, digital financial services are often disrupted by connectivity issues. The use of informal payments systems, known as hawala, has also risen to fill the gap left by non-operational formal financial institutions.

With an understanding of the current situation and critical challenges across both agri-food and financial & payment systems, this **rapid assessment proposes a long list of intervention ideas** for development partners, including FCDO Sudan and FSD Africa, to take forward into rapid deployment.

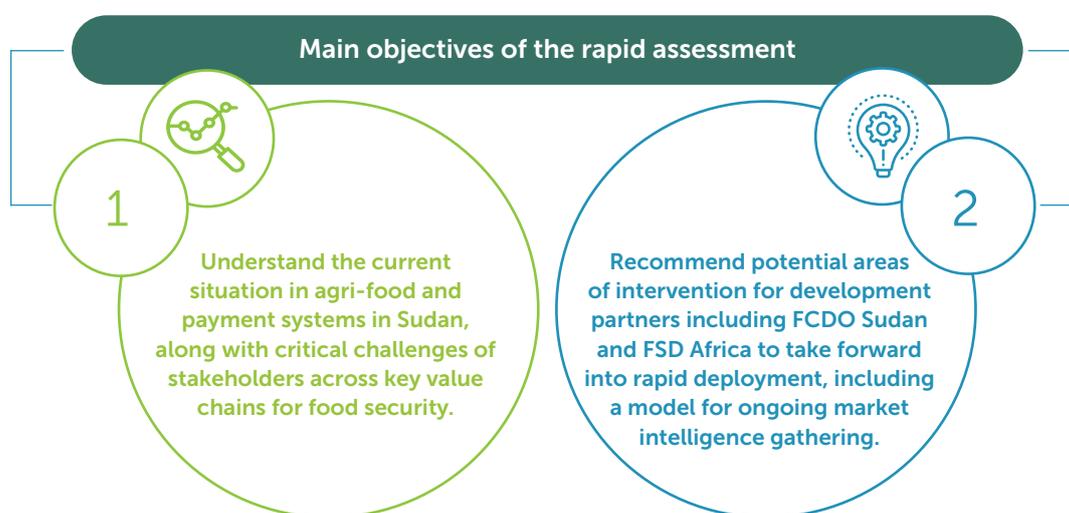
With over 40% of the population facing acute food security and an ongoing conflict that has displaced millions and destroyed physical, financial, and cultural capital, Sudan urgently needs multifaceted support. The ideas shared for resilience-building interventions in this rapid assessment aim to complement the many ongoing efforts of Sudanese farmers, civil society, businesses, financial institutions, international donors and others interested in the welfare of the people of Sudan. FCDO Sudan and FSD Africa are actively considering how they can contribute to these efforts and welcome collaboration.

A coordinated emergency response that incorporates both humanitarian assistance as well as resilience-building interventions can support Sudan in not only addressing immediate life-saving needs, but also in increasing the ability of Sudanese households and businesses to address acute food insecurity in the medium-term.



Introduction

Sudan is facing worsening conflict that is contributing to a food insecurity crisis. The most recent Integrated Food Security Phase Classification (IPC) report identified over 20 million Sudanese who are currently experiencing acute food insecurity – 42% of the population and the highest number ever recorded in the country.² Consequently, the Foreign and Commonwealth Development Office (FCDO) Sudan and Financial Sector Deepening (FSD) Africa have commissioned a rapid assessment of the agri-food and enabling payment systems in Sudan, to inform a coordinated emergency response that promotes food security.



As the current situation in Sudan is constantly evolving, this rapid assessment relied on a methodology that leveraged extensive consultations with 52 stakeholders who had real-time insights, from across agri-food, financial, and enabling sectors such as logistics and energy, as well as civil society, donors, international non-governmental organizations (INGOs), and other multilateral organizations. These consultations were complemented by a review of 46 publications, non-public documents, and recent studies detailing the context of agri-food and financial sectors in Sudan as well as current market intelligence, to the extent available.

There are many long-standing challenges facing Sudan’s food & agriculture and financial sectors, including chronic food insecurity, low agricultural productivity, negative impacts of climate change, lack of access to credit and formal financial services, etc. To prioritise resources for rapid piloting of potential solutions, the intervention recommendations detailed in this rapid assessment focus on solving the challenges caused by the ongoing conflict within key food security value chains, through ‘twin-track’ interventions that aim to both save lives as well as build resilience in the medium-term. The recommended interventions are meant to complement rather than add to ongoing humanitarian relief efforts. Given the difficulties of accessing many regions in Sudan due to the ongoing conflict, the recommendations will also highlight digital technology and financial innovations that can bypass physical access challenges, while being inclusive of other pragmatic interventions.

² IPC (2023). IPC Acute Food Insecurity Analysis: June 2023 - February 2024.

The Current Situation

Agri-food systems

Key value chains & geographies

Agricultural planting in Sudan is divided into two seasons, a mainly rain-fed summer season from May to August, with harvests in November, and a mainly irrigated winter season from October to December, with harvests in March. Sorghum, millet, and wheat are three key staple crops consumed in Sudan, as described below. The eastern states of Gedarif, Kassala, Blue Nile, Sennar, and White Nile, along with South Kordofan, supply 45% of Sudan's food requirements and are viewed as the granary of the country.³

Sorghum

Sorghum is traditionally a summer crop, mainly grown in rainfed areas in eastern Sudan, accounting for 80% of cultivated land in Gedarif, Kassala, Blue Nile, Sennar, White Nile, and South Kordofan,⁴ though Gedarif and Gezira alone account for over 50% of total domestic production.⁵ Sorghum is produced by both smallholder farmers and many large, mechanized rainfed farms, particularly in Gedarif, Sennar, and Blue Nile. It is the most widely consumed staple food and the cheapest cereal available in Sudan,⁶ compared to millet and wheat. Sorghum is viewed as so important for domestic food security that export bans were historically enacted. It is also a key component of animal feed, particularly for the dairy and poultry sectors.

Millet

Millet is also a summer crop mainly grown by smallholders in western Sudan, in the greater Darfur and Kordofan regions, which account for over 86% of national production. It is also produced in some areas of White Nile, Blue Nile, Sennar, Gedarif, and Kassala.⁷ Unfortunately, key areas for millet production are precisely those experiencing the greatest insecurity in the current conflict.

Wheat

Wheat is a winter crop grown around irrigation schemes in Gezira, which represents 60% of domestic production, River Nile, Northern, White Nile, and Kassala.⁸ Wheat is produced domestically by smallholder farmers organized into cooperatives or other groups around irrigation scheme administrations, but also by larger farms using pivot irrigation systems in Northern and River Nile states. Wheat is also imported, mainly by a few large conglomerates, and processed domestically into flour, bread, and pasta. Processed wheat products are key components of the Sudanese diet in urban areas.

However, there is an ongoing debate around the importance of wheat for food security in Sudan, as it is mainly consumed in urban areas and may not be suitable for domestic production. On the one hand, Sudan's domestic wheat production is not cost-competitive against imports, and the type and quality of domestic wheat is often

³ FAO (2022). Special Report 2022: FAO Crop and Food Supply Assessment Mission (CFSAM) to the Sudan, 20 March 2023. Special Report 2022: FAO Crop and Food Supply Assessment Mission (CFSAM) to the Sudan, 20 March 2023 - Sudan | ReliefWeb

⁴ Ibid.

⁵ USDA (n.d). Crop Explorer Country Summary for Major Crop Regions, <https://ipad.fas.usda.gov/countrysummary/default.aspx?id=SU&crop=Sorghum>. Accessed 20 Sept. 2023

⁶ AfDB (2020). Strengthening Wheat Value Chain for Achieving Self-Sufficiency in Sudan.

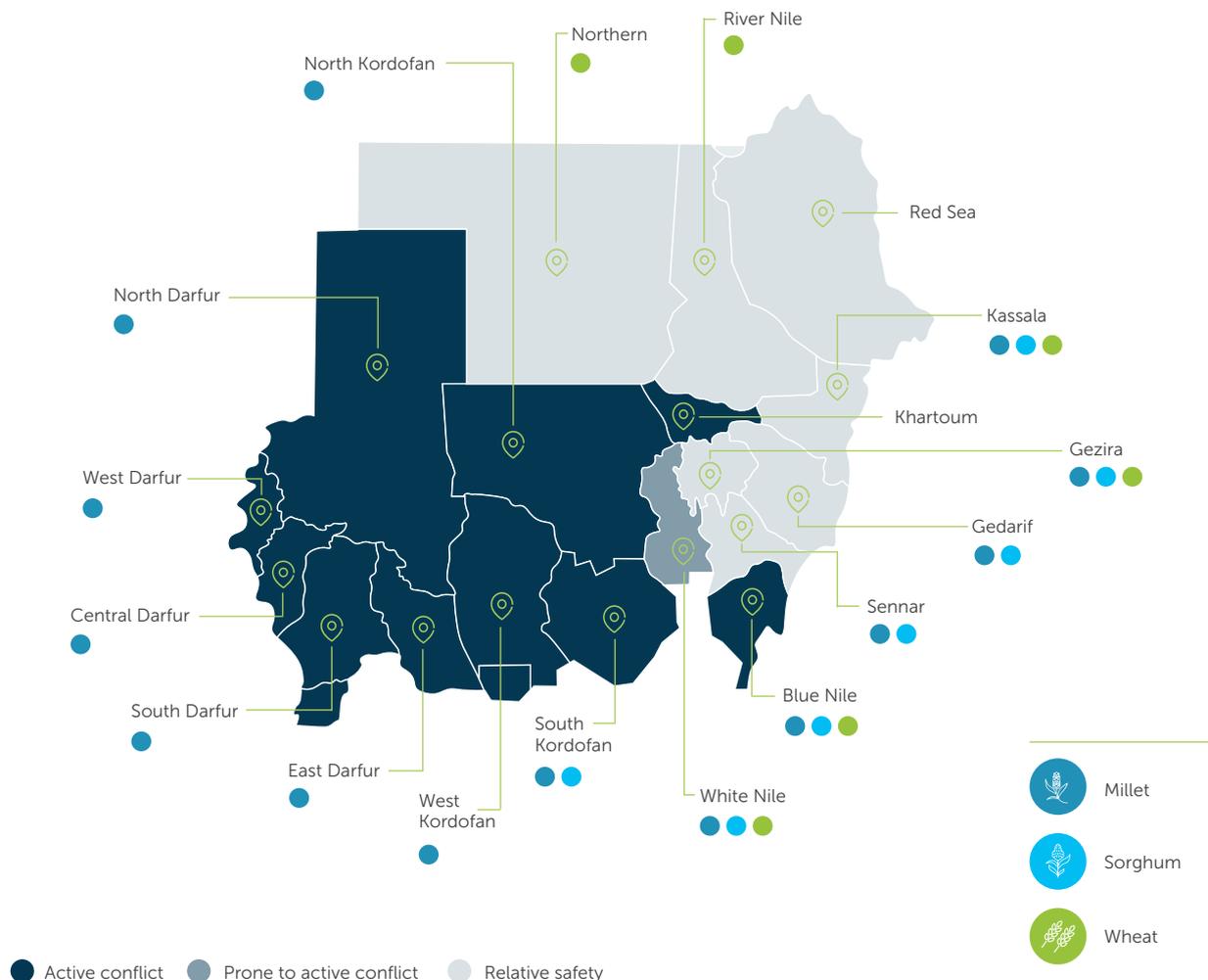
⁷ USDA (n.d). Crop Explorer Country Summary for Major Crop Regions, <https://ipad.fas.usda.gov/countrysummary/default.aspx?id=SU&crop=Millet>. Accessed 20 Sept. 2023

⁸ AfDB (2020). Strengthening Wheat Value Chain for Achieving Self-Sufficiency in Sudan.

not suitable for flour milling. Wheat is also a water-intensive and heat-intolerant crop, leading to low yields in Sudan historically. On the other hand, Sudanese wheat demand is growing, and there is evidence that domestic wheat productivity has doubled in the last 5 years through the provision of improved seeds for new, heat-resistant varieties, other inputs, and extension services.⁹ Wheat imports may continue to be affected by the Russia-Ukraine war, and continued import dependency will worsen Sudan’s trade deficit and current account balances. Some stakeholders are also of the opinion that domestic wheat production may be lower risk for the food system, as wheat is planted in irrigated schemes and less reliant on increasingly capricious rainfall versus sorghum and millet. Wheat has, however, historically been a politicized value chain, with domestic pricing and offtake controlled by the government and subsidized access to foreign exchange provided for large wheat importers. Wheat flour and bread have been heavily subsidized for end consumers, and protests around previous withdrawals of subsidies and rising wheat prices have toppled governments.

It is beyond the scope of this rapid assessment to settle these ongoing debates around wheat. Rather, this assessment of value chains critical to food security in Sudan aims to objectively summarize the different perspectives on wheat.

Figure 1: Locations of key food security value chain activities against states categorized by conflict/ safety as of August 1, 2023



⁹ AfDB (2020). Strengthening Wheat Value Chain for Achieving Self-Sufficiency in Sudan.

Others

In addition to the three main cereal value chains, there are others that may be regionally important for food security, including **horticulture, legumes and pulses, and oilseeds**.

Fruits and vegetables provide critical nutrition and food security benefits, and horticulture cultivation is year-round and widespread. Legumes and pulses include pigeon peas, chickpeas, and lentils, which provide protein- and calorie-dense sources of food and are also grown year-round. Oilseeds include sesame and groundnuts, which have been export-dominated value chains. However, cooking oil is also important for domestic diets, and groundnuts especially may play a growing role in domestic consumption as pathways to export markets have been disrupted for many companies. In addition, a byproduct of groundnut oil pressing, groundnut cake, is a key ingredient in animal feed concentrate, while the rest of the plant is used for animal fodder.

Analysis of value chain segments



INPUTS

Access to inputs has decreased dramatically as a result of the ongoing conflict, mainly due to lack of access to inputs financing. Inputs were historically financed by the government-owned Agricultural Bank of Sudan as well as some private inputs suppliers, microfinance institutions (MFIs), and commercial banks, and repaid using harvested crops via an Islamic finance agreement called salam. However, anecdotally, only three financial institutions are currently providing agricultural loans, including Ebdaa Bank, Nile Bank, and another commercial bank. Most other financial institutions are focused on collections and limiting the deterioration of their existing loan portfolios, rather than disbursing new credit.



Critical challenge:
Lack of access to financing for inputs

The current lack of financing disproportionately affects larger farms rather than smallholders, who already had limited access to inputs and financing prior to the conflict. Traditionally, financing was mainly available to larger scale semi-mechanized rainfed farms, which accounted for 80% of credit provided in 2022.¹⁰

In the absence of inputs financing, farmers report employing traditional farming practices, including use of seeds saved from previous harvests and no use of fertilizers or crop protection.

In terms of inputs supply, CTC, the largest importer of fertilizers and crop protection inputs in Sudan, cites that it still has significant inputs stocks in-country, ready for distribution. However, there has been some conflicting data on the availability of key staple crop seeds. Both Norwegian Refugee Council (NRC) and MercyCorps farmer surveys indicated that there were limited stocks of seeds available for summer season planting, but other anecdotal farmer accounts cite a plentiful supply of seeds, including saved seed from past harvests. The Food and Agriculture Organization (FAO) of the United Nations (UN) has also already distributed improved sorghum, millet, sesame, and

¹⁰ FAO (2022). Special Report 2022: FAO Crop and Food Supply Assessment Mission (CFSAM) to the Sudan, 20 March 2023. Special Report 2022: FAO Crop and Food Supply Assessment Mission (CFSAM) to the Sudan, 20 March 2023 - Sudan | ReliefWeb

groundnut seeds to 971,000 households since the beginning of the conflict. Due to regulatory restrictions around seed importation, many seeds are produced domestically in Sudan, e.g. for sorghum, groundnut, and sesame, although most vegetable seeds are imported.



Critical challenge:
High fuel prices

In addition to reduced use of inputs, farmers have abandoned mechanization due to high fuel prices. Rainfed farming in large areas of Kassala, Gedarif, Blue Nile, Sennar, White Nile and South Kordofan have historically been semi-mechanized,¹¹ but according to interviews with agricultural companies involved in land preparation, use of equipment has been minimal this season. High fuel costs and shortages in some areas have made the use of tractors for land preparation beyond the reach of even larger-scale farmers. Equipment suppliers in some regions reported zero sales and very low rentals of tractors and other equipment. And due to risk of insecurity and uncertainty, anecdotally, farmers have refrained from investing in inputs and renting machinery for fields that they may not be able to harvest.



PRODUCTION

Planting during the recent summer season has significantly decreased compared to past years, likely driven by decreases in large-scale farming areas. Although a MercyCorps survey of 1,397 smallholder farmers in Blue Nile and South Kordofan indicated only a 15% decrease in planted area compared to last year’s summer planting season,¹² the Ministry of Agriculture and Forestry reported only 10 million hectares planted and 3.6 million hectares of land prepared for planting this year versus 23 million hectares planted last year, which represents a potential 41% decrease in planted area.



Critical challenge:
Lack of access to seeds

Farmers participating in the MercyCorps study cited lack of access to seeds and fear of conflict as the top two reasons why they did not plant or plan to plant during this year’s summer season.¹³

Remote sensing by MercyCorps further showed a decrease in vegetation in White Nile and Gezira, in areas where there are large industrial farms. This could be an indication that high fuel prices and shortages have impacted agricultural activities that require machinery. Decreased activities on these large industrial farms, which dominate sorghum production, point towards significant potential disruption in the production of Sudan’s key staple crop.¹⁴

These findings unfortunately indicate a lean harvest to come, which could exacerbate already high levels of acute food insecurity in Sudan. A cause for cautious optimism is that remote sensing also showed generally high levels of vegetation in agricultural areas outside Khartoum other than the areas in White Nile and Gezira described above,¹⁵ which could indicate that non-mechanized agricultural activities in areas viewed as safer from conflict are higher than reported. Remote sensing technology, however, does not differentiate between natural and cultivated vegetation.

¹¹ FAO (2022). Special Report 2022: FAO Crop and Food Supply Assessment Mission (CFSAM) to the Sudan, 20 March 2023. Special Report 2022: FAO Crop and Food Supply Assessment Mission (CFSAM) to the Sudan, 20 March 2023 - Sudan | ReliefWeb

¹² MercyCorps (2023). Survey of Farmer Capacities and Intentions in South Kordofan and Blue Nile, Sudan, August 2023.

¹³ Ibid.

¹⁴ MercyCorps (2023). Remote Sensing to Monitor Impact of Conflict on Agriculture. Sudan Crisis Analysis Briefing Paper.

¹⁵ Ibid.



POST-HARVEST

As Sudan was yet to reach harvests for the summer planting season at the time of the rapid assessment, there was limited real-time intelligence on post-harvest challenges. However, stakeholders consulted agreed that **post-harvest management will be key, as access to jute bags and other storage solutions may be impacted by the conflict**, especially as large-capacity storage facilities are mainly owned by the government and agricultural conglomerates, with many in the Khartoum area and no longer operational. Access to post-harvest storage that minimizes losses will be critical, in preserving what is likely to be an already lean harvest and in preserving harvested produce for potentially longer periods of time until it can reach end consumers, due to disruptions in market linkages, including fuel shortages and price spikes that may impact availability of transport linkages.



Critical challenge:
Inaccessible post-harvest storage



PROCESSING

A large proportion of Sudan's processing capacity was concentrated in Khartoum and has been destroyed. For example, the oil pressing sector, which is the largest agriprocessing industry in Sudan, operated more than 60 facilities in Khartoum pre-conflict. One stakeholder estimated that 40% of wheat milling capacity was in Khartoum and has been rendered non-operational. One survey of 15 agriprocessing firms revealed that two-thirds have either permanently or temporarily ceased operations due to the conflict and loss of their infrastructure.¹⁶ These agribusinesses, both large and small, are now financially unable or unwilling to invest large amounts of capital expenditures (capex) to replace equipment and rebuild facilities, as the risks from continued conflict are too high.



Critical challenge:
Loss of significant processing capacity

There are, however, small and medium agriprocessors still operating in other states, and some larger conglomerates have also relocated processing operations to cities such as Port Sudan since the conflict. For example, some export-oriented firms and those importing key raw materials for processing already had operations in Port Sudan pre-conflict. Anecdotally, there are also wheat millers still operating in Gezira (in the Madani and Managil areas), River Nile, and Northern states, and sorghum millers in Gedarif state.

Although many of these SME millers are still operating, some stakeholders cited that they may only be operating at 50% capacity currently. In the agriprocessor survey mentioned above, eighty percent of processors cited challenges in accessing necessary inputs for their own operations, such as raw materials, power, and fuel for generators and other machinery.¹⁷

¹⁶ Kirui, Oliver K.; Siddig, Khalid; Abushama, Hala; and Taffesse, Alemayehu Seyoum (2023). Armed conflict and business operations in Sudan: Survey evidence from agri-food processing firms. Sudan SSP Working Paper 11. Khartoum, Sudan: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.136835>

¹⁷ Ibid.



MARKETING & DISTRIBUTION

The current conflict has disrupted traditional pathways to market. Many staple crop farmers, especially smallholders, traditionally sold their harvests either to the government through the Agricultural Bank, or to layers of aggregators and traders, who then sold their produce on to processors or agricultural conglomerates. These processors and conglomerates then processed and exported products such as oilseeds, or sold products such as sorghum for domestic consumption. In the case of sorghum, a major buyer was often humanitarian organizations implementing food distribution programmes.



Critical challenge:
Market access disruption

However, the usual Agricultural Bank channels are defunct. The structure of middlemen has been disrupted by conflict especially in the western states, for example, with traders fleeing from certain areas and not returning. And the ability of large conglomerates to source from farmers has also been impacted due to negative financial and operational effects of the conflict, i.e. some large conglomerates have completely paused operations in certain value chains and areas and are also struggling to access working capital in order to pay farmers.

Horticultural produce, on the other hand, is still making its way to local, open-air markets, due to the nature of the year-round and scattered but geographically widespread cultivation of fruits and vegetables. Although many of these markets shut down in the initial days of the conflict, they have largely reopened as local security situations allow, and at least some fruits and vegetables from nearby growers are making their way to these local markets.

Financial and payment systems

The operations of the Central Bank of Sudan (CBoS), which enabled much of Sudan's financial sector functioning, have been severely impacted by the conflict. In particular, the CBoS operated a subsidiary company called Electronic Banking Services (EBS), which provided a centralized switch responsible for clearing and settlement for almost all banks and other financial service providers (FSPs) in Sudan's financial ecosystem. Interbank transactions also flowed through the EBS switch, which means that EBS was crucial for interoperability.¹⁸



Critical challenge:
Lack of interoperability

Based on stakeholder consultations, **EBS is currently down, and service is not expected to be restored in the medium-term.** Due to CBoS regulations around the storage of sensitive financial information, all EBS data was hosted on two sets of physical servers. One set of servers has been destroyed, and the backup servers are currently inaccessible at CBoS headquarters in Khartoum. A source connected to CBoS stated that although CBoS personnel were working on a cloud-based solution, the lack of access to historical transaction data stored on EBS servers means that a cloud-based solution cannot be implemented for the time being. Based on other sources, the current CBoS plan to restore financial sector operations is to encourage Sudanese banks to develop their own independent switches, but the feasibility of currently non-operational banks pursuing this course of action during the conflict is uncertain.

CBoS has since relocated its headquarters to Port Sudan, followed by some banks, and recently announced the resumption of interbank transfers. However, given that EBS is still non-operational, stakeholders have indicated that **banks are facilitating limited interoperability by physically settling balances using checks written from one bank to another.**

¹⁸ Interoperability refers to financial services users' ability to transact across different payment systems and / or FSPs.

Financial service providers (FSPs) have been very directly impacted by the conflict as well, with the vast majority of financial institutions still non-operational. Similar to CBoS, FSPs were mainly headquartered and held significant assets in Khartoum, which has borne the brunt of the conflict. Forty-three percent of all bank branches in Sudan were in Khartoum.¹⁹ According to financial sector sources, only 5 to 6 out of the 37 banks in Sudan are currently operational. One stakeholder cited that 296 bank branches have been re-opened. Operational banks are those who had their own independent switches pre-conflict and did not rely solely on EBS. Most MFIs are also non-operational, with a few still pursuing collections on loans even as other operations remain suspended. Anecdotally, only Ebdaa Bank seemed to be somewhat active, engaging on programmes to facilitate new agricultural loans.²⁰



Critical challenge:
Access to financial services

Given that most FSPs are still non-operational, access to financial services is limited.

For example, 47% of agriprocessing firms in one survey stated that they had to stop operations due to the disruption in financial services.²¹ Sudanese individuals and businesses from both within and outside of Sudan stated that they are able to access financial services intermittently to transfer money to friends and relatives, pay staff salaries, etc., mostly through the Bank of Khartoum's bankak app or by visiting an open bank branch in-person. The limitation, given the lack of interoperability, is that both sender and receiver have to have accounts at the same bank.

Operational banks with international branches or correspondent banking relationships, mostly in the Gulf, are able to receive and transmit international SWIFT transfers. For example, Faisal Islamic Bank, Bank of Khartoum, and Nile Mashreq Bank have branches outside of Sudan in the United Arab Emirates (UAE) and Saudi Arabia and are all able to access and provide SWIFT services. These services, however, face significant delays. One stakeholder cited delays of up to 45 days to clear SWIFT transactions.

In terms of digital financial services, MTN's MoMo (Mobile Money) and a financial technology startup called Cashi have emerged as leading service providers, in addition to the bankak app. MTN is the only mobile money provider (out of two providers pre-conflict) who is still active, as they relaunched in 2022 with a standalone platform that does not rely on EBS. MTN was able to resume basic cash-in/cash-out and bill-pay services in July and now provides services in 15 states through 45 operational service centres.

Cashi is a non-bank digital FSP that launched in 2022, utilizing a merchant network that operates Cashi's Point of Sales (PoS) smartphone app or a physical PoS device to process transactions. Cashi was able to perform bill payments, transact with cash or card, receive remittances, etc. pre-conflict and has been able to continue operating post-conflict with the exception of card-based services, due to the collapse of EBS, as its platform is cloud-based and did not rely solely on EBS nor was it vulnerable to physical infrastructure destruction, e.g. of data servers with customer information.

The current conflict, and its impact on traditional financial institutions, has prompted a surge in demand for digital financial services. Although mobile money penetration was low pre-conflict, at 10% of the population,²² the number of active customers on the MTN platform has been increasing since the resumption of services in July. Contrary to banks, MTN is still able to register new user accounts through mobile phones as well as service centres. Due to displaced populations moving out of Khartoum, MTN has seen the highest demand for mobile money services in River Nile, followed by Gedarif, Gezira, and Northern states.

¹⁹ IFPRI (2023). The Economy-Wide Impact of Sudan's Ongoing Conflict. <https://www.ifpri.org/publication/economy-wide-impact-sudans-ongoing-conflict-implications-economic-activity-agrifood>

²⁰ This may be due to Ebdaa Bank's impact-driven focus on financial inclusion and the development and social needs of marginalized groups, along with support from its founding partners, the Arab Gulf Fund for Development (AGFUND) and the Islamic Development Bank.

²¹ IFPRI (2023). The Economy-Wide Impact of Sudan's Ongoing Conflict.

²² GSMA (2023). Digital Innovations to Enhance Agriculture and Climate Resilience: Opportunities for Sudan.

Cashi has been able to double its merchant network to 10,000 since the conflict began, because it was quick to relocate its sales staff and the technology that underlies its operation was not affected. Cashi has also responded to growing demand for digital financial services by launching a consumer e-wallet called MyCashi, whereas it had been focused solely on providing merchant-centred payment services before the war. Cashi has also opened up its merchant network for internal remittances and humanitarian aid cash transfers.

Consumers can top up their MyCashi e-wallets with cash at merchant partners and from the banking apps of Cashi's partner banks, and use their balances to pay for goods and services, transfer to other MyCashi accounts, as well as receive humanitarian aid transfers and internal remittances. Cashi is now pursuing further direct integration of its platform with telcos and banks to support cash transfers into their digital wallets and bank accounts and create broader interoperability between its platform and other FSPs in the absence of EBS.



Critical challenge:
Inconsistent connectivity

However, digital financial services are often disrupted by connectivity issues. Users of digital financial services cited frequent service outages due to lack of Internet connectivity. The density of telco coverage outside Khartoum needs to be improved, especially as demand has been increasing in previously less populated areas due to the conflict-related and large-scale displacement of people. Unstable connectivity is also often caused by physical infrastructure vulnerability to conflict and by electricity outages, compounded by fuel shortages for back-up generators.

The use of informal payments systems, known as hawala, has also risen to fill the gap left by non-operational formal financial institutions. Sudanese diaspora, businesses, and even donors implementing cash assistance programmes are currently looking for alternative pathways to transact across borders. Informal networks of foreign exchange and other traders operating in both Sudan and countries such as Egypt, UAE, Saudi Arabia, and Lebanon, are stepping in to provide those services. For example, one donor seeking partners with cost-effective cash distribution capabilities and liquidity inside Sudan, has partnered with traders who have cash stocks that they would like to deposit into bank accounts, as holding cash is risky in the current security conditions. However, because the traders cannot physically access bank branches, the donor makes electronic deposits in the traders' bank accounts instead, and the traders then distribute an equal amount to the donor's verified beneficiaries in cash, minus a 3% transaction fee. These traders have thus become 'hawaladars.'

Many Sudanese individuals who have fled the country have also leveraged hawala networks to send money to friends, family, and staff still in Sudan. For example, one stakeholder paid a foreign exchange trader in Cairo, who was then able to locate a trader with cash liquidity in an area of Sudan close to the stakeholder's intended recipient. The foreign exchange trader then, likely through additional middlemen, managed to pay the trader in Sudan to then complete the transfer to the intended recipient.

Technically, CBoS approval is needed to provide hawala services, as hawaladars would be considered FSPs. However, informal hawala networks have been operating outside regulatory control in many countries in the Middle East and North Africa. Use of informal hawala networks, then, does come with heightened know-your-customer (KYC), Anti-Money Laundering (AML), and reputational risks. In some regions such as Lebanon and Somalia, however, hawala networks have formalized over time.

The Path Towards Food Security

With an understanding of the current situation and critical challenges across both agri-food and financial & payment systems, this rapid assessment now turns to articulating potential interventions to support food security in Sudan. To design these interventions, key food security value chains and geographies were first prioritised, and an inter-linked set of interventions were recommended to address critical challenges across these prioritised value chains as well as related challenges in financial and payment systems and other critical services. This section then closes with a brief discussion of potential implementation considerations for the intervention ideas.

Prioritised value chains & geographies

These two topics are interlinked, as prioritised geographies were chosen both based on safety and stability (as of August, though the situation is dynamic) and the presence of agricultural activities within the value chains critical for food security. And conversely, the prioritised value chains are both those important for food security, and those where main activities are located in areas accessible to interventions.

Based on the mapping of both key food security value chains and conflict / safety status provided earlier in this assessment, the following “safe” states were identified as priority geographies for interventions: **Gedarif, Gezira, Kassala, Northern, and Sennar**. Although Northern state mainly produces wheat, it is a stable region with limited potential for internecine conflict and access to the Nile for irrigation, which may make it suitable for horticulture value chain support. It has also historically received less donor attention.

Out of the three key staple crops and other food security value chains assessed, sorghum, horticulture, and oilseeds have been prioritised



Sorghum



Horticulture



Oilseeds

Sorghum remains the most widely consumed staple food in Sudan, and horticulture provides essential food security and nutrition benefits. Fruits and vegetables are also grown year-around, which increases the timeframe for intervention implementation. As mentioned earlier, oilseeds are an important source of cooking oil for household diets, and groundnuts can also be consumed domestically as routes to export markets have been disrupted.

Millet was deprioritised, as it is mostly grown in western states experiencing significant levels of insecurity. Wheat was also deprioritised, although it will be an important value chain for food security, especially as Sudan may be facing a leaner harvest of sorghum and millet, due to decreased planted areas in the summer season and the reduced use of inputs, which may lead to lower yields. However, there are other large-scale donor initiatives focused on supporting wheat production as well as successful ongoing importation and processing of wheat products for domestic consumption, most notably by DAL Group.

An added complication with wheat is the split between Sudanese stakeholders consulted and some international donors, on its importance to food security. Some donors believe that wheat is a politicized crop mainly consumed in Khartoum. Sudanese stakeholders, by contrast, view wheat as a more widespread staple food in Sudan. For example, a donor recently shared that some households did not know what to do with sorghum when they received it as food assistance and requested wheat instead.

Interventions

Guiding principles

As described above, Sudan’s agri-food and payments systems are currently facing many challenges that further jeopardize food security. To generate a list of intervention ideas, several guiding principles were applied. Namely, interventions should:

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| <div style="background-color: #2e7d32; color: white; padding: 10px; border-radius: 10px; margin-bottom: 10px;"> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="background-color: white; color: #2e7d32; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin-right: 10px;">1</div> <div> <p>Contribute to food security, nutrition & resilience in the medium-term (differentiated from purely humanitarian aid that other programmes are better-suited to provide).</p> </div> </div> <div style="background-color: white; color: #2e7d32; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin-left: 10px;">  </div> </div> |
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3

Address critical challenges identified across prioritised food security value chains, especially those that serve as binding constraints.



5

Have the potential to be flexible and adaptable in design and implementation, to respond to the evolving conflict context.

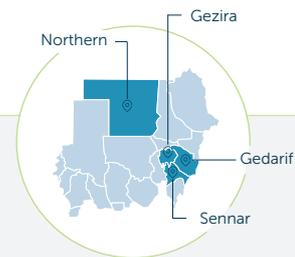


Additionally, the intervention ideas presented below took into account learnings from similar contexts, especially the idea of ‘geobundling,’ which has been adopted by organisations such as the World Bank and the Food and Agriculture Organization (FAO) of the United Nations. Geobundling is the concept of grouping interventions and targeting a few geographies to ensure that interventions reinforce each other and achieve maximum impact.

Potential interventions



Access to inputs financing for offtake (salam)



Provide guarantees or revolving financing facilities for inputs providers, processors, and/or financial institutions to finance seeds and fertilizers for farmers, in return for harvest offtake. Access to inputs interventions have been widely implemented in other conflict situations, to boost farmers' self-reliance and enable communities to restart agricultural activities and enhance their resilience against food shortages.

Support local SMEs in seed production, especially for vegetable and bean/pulses seeds



Support local seed-producing SMEs to restart or scale seed production to increase availability of improved seeds, as regulation requires many seeds to be produced domestically.

Announced price incentive & guaranteed offtake for farmers



Provide guaranteed end purchase and / or other incentives to wheat offtakers, for wheat offtakers to then be able to offer farmers guaranteed prices and offtake.



Land preparation support & financing



Provide access to machinery for land preparation, potentially through rental system enabled by e-booking platform so that farmers can pre-book equipment based on their needs (can request proposals / concept notes for implementing this from potential partners, with co-design process to follow).

Access to financing, e.g. guarantee facility for FIs, for equipment rental.



PRODUCTION
CONTINUED

Access to financing for solar irrigation



Provide access to financing for solar irrigation systems, to increase yields for horticulture and address the challenge of fuel shortages and price increases for diesel-powered irrigation pumps.



Access to pest control inputs and services



Facilitate access to drone-enabled crop spraying services, to enable pest and disease control for sorghum and horticulture value chains. This would replace crop spraying that has traditionally been provided by local plant protection authorities using planes, and address the barrier of fuel shortages and price increases in operating planes.




POST-HARVEST

Access to financing of machinery for harvest



Mechanized harvest common among farmers in irrigated areas and dense areas of rainfed ag pre-conflict; can provide machinery rentals through farmer associations to decrease harvest losses.

Access to financing, e.g. guarantee facility for FIs, for equipment rental.



Provision and access to financing of large capacity hermetically-sealed bags



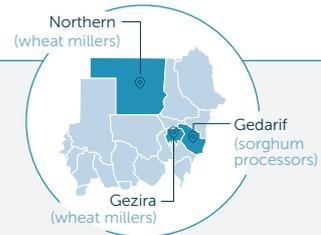
Supply large hermetically-sealed bags to farmers for grain storage, potentially by providing financial and/or technical assistance to an existing Sudanese distributor. Each bag has the capacity to store several tonnes of harvest, as a low-cost and quick-to-deploy substitute for traditional grain silos, which may not be accessible for most farmers. These bags can safely store an entire field's harvest for longer periods, hedging against conflict-related disruptions in market access and logistics. An access to financing pilot could employ World Bank-designed results-based financing for private sector distributors of these bags. However, there may be a behaviour-change barrier (and farmer extension services and training needed) in scaling this intervention, as this technology is new for many Sudanese farmers.





PROCESSING

New processing hubs providing shared infrastructure, facility management, and compliance processes for SMEs



Build hub providing shared equipment for SMEs who had facilities destroyed along with technical assistance on passing inspections, managing facility; potentially leverage new solar-powered mill technology to address high fuel prices & electricity outages.

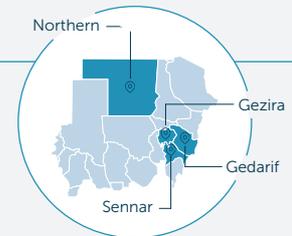
Precedent: Other East African markets have government-funded shared packhouses, cold storage, etc. to capture economies of scale and provide facilities that individual SMEs can't afford.

SME-conglomerate partnerships



Matchmaking platform for agri conglomerates seeking to relocate operations, to find and partner with SMEs in sourcing, distribution, logistics, packaging, etc. who already have operations, resources, and facilities outside of Khartoum.

Processing capacity-sharing platform



Establish match-making platform for agriprocessors who have suffered significant infrastructure and equipment losses in the conflict, to find and rent facilities and production time from agriprocessors who are still operating.

Many agriprocessors who were based in Khartoum are financially unable or unwilling to rebuild destroyed facilities elsewhere, given the risks of continued conflict. Renting processing capacity from other existing firms bypasses this financial hurdle, and also maximizes utilization of remaining capacity, which anecdotally, is currently operating at 50%.

Facility-sharing was already a common practice pre-conflict, and existing tech-enabled market linkage and classified ads platforms can be adapted to make this process more efficient.



MARKETING & DISTRIBUTION

Market linkage platform



Provide financial and/or technical assistance to tech-enabled platforms linking smallholder farmers to off-takers and potentially directly to end consumers, in the case of horticulture. This not only addresses conflict-related disruptions in traditional pathways to market, but also streamlines market access that has historically been mediated by many layers of middlemen in Sudan.



Digital logistics capacity matchmaking



Establish platform matching agri-SMEs and farmers seeking to transport produce to market, with independent logistics providers, i.e. truck owners. The logistics market in Sudan has historically been very fragmented, with 45% of trucking capacity owned by individuals. As some large logistics fleets centred in Khartoum have been victim to looting and equipment destruction, these individual truck owners are likely to become even more important in Sudan's transportation ecosystem.



Remittance platform matchmaking diaspora with local cash distributors (hawaladars)



Remittance solutions have been disrupted, unless both sender and recipient have accounts at the same, operational bank.

Digital marketplace could match diaspora remittance senders with those on the ground who have cash and are trying to move cash into financial institutions; can sort by location of local cash distributor, allow ratings from service users.



Support Central Bank of Sudan (CBoS) in creating new fintech sandbox to respond to conflict-related challenges



CBoS created a sandbox environment in 2016, enabling 64 registered fintechs pre-conflict; opportunity to update sandbox to respond to new conflict-related challenges.



ENABLING FINANCIAL & PAYMENT SYSTEMS

ENABLING FINANCIAL & PAYMENT SYSTEMS
CONTINUED

Lobby for access to CBoS database for new FSPs, to ease KYC process and register new account holders



Many FIs cited inability to register new accounts, some due to lack of access to central database with consumer identity information in order to complete KYC processes.



Framework for due diligence on hawala service providers



As many donors and individuals are already using hawaladars, a shared framework in conducting due diligence on hawaladars may reduce some of the risks of using this informal mechanism.



Establish local banking centres



Train local women, mostly those with existing small shops, as banking centres using mobile PoS, providing them with smartphones.



Access to financing for solar-powered generators



Power functionality of banking access points using solar generators to avoid challenges of high fuel prices and shortages; can also support infrastructure required for connectivity.



OTHER ENABLING SERVICES

Satellite or other solutions for last-mile Internet connectivity



Deploy last-mile Internet access solutions, potentially satellite-based, to reduce strain on existing networks and reduce service disruptions.



Implementation considerations

Implementation partner selection

One high-level implementation consideration is the selection of implementation partners. This rapid assessment has identified potential partners and attempted to overlap them across multiple interventions, to reduce the administrative burden of screening and onboarding new partners. Where possible, implementation partners have also been identified who already have operational footprints within Sudan and can provide access to networks of farmers and SMEs. Given the current situation, entities with government or military associations have been excluded. To offer further assurance around KYC and reputational risks, many of the potential implementation partners identified have ongoing partnerships with other international donors and organisations, indicating that they have already passed high standards of due diligence. However, partner details have been left out of the report since we have not cleared with them to publish it. Those interested in this information, including discussing any of the interventions in detail, can get in touch with FCDO Sudan or FSD Africa.

Local communities are also important potential implementation partners and enablers. Community engagement will be key in ensuring that interventions have the intended impact of contributing to food security, nutrition, and resilience. Local communities can also serve as sources of market intelligence, advisors on conflict sensitivity and implementation adaptations, and early warning signals if interventions may have unintended consequences.

Market intelligence function

Access to current market intelligence will be crucial in adapting interventions and implementation plans for the evolving conflict context. This rapid assessment relied on extensive and time-intensive stakeholder consultations as well as a literature review. However, a more efficient approach will be required to update the findings in this report and for ongoing market intelligence gathering activities – a new function is required to coordinate across the ongoing activities as well as gaps in current market intelligence, as summarized below.

Market intelligence gathering by other stakeholders has so far ranged from more formal, large-scale studies to informal outreach and consultations. In the former category, technology solutions have been useful in reaching large numbers of farmers on-the-ground and covering vast geographical areas. For example, MercyCorps conducted a phone survey of 1,397 farmers using interactive voice response (IVR) to ask questions and record answers, and this survey is now being administered nation-wide. Remote sensing was also used to measure vegetation levels across the whole country.

At a smaller scale, International Food Policy Research Institute (IFPRI) conducted a survey of agribusinesses, with sample size of 15 firms, and 249Startups administered a 15-question SME survey over WhatsApp messages and phone interviews, with a sample size of 80 firms. In terms of informal outreach and consultations, stakeholders cited continuous contact with colleagues, staff, families, and friends via text, call, and WhatsApp. MercyCorps, FAO, NRC and others all have staff in-country who are able to carry out ad hoc physical situation assessments periodically.

Based on these experiences of gathering market intelligence in Sudan to-date, a series of regular surveys using standardized questions to update the 'current situation' analysis of agrifood markets and payment systems will likely be most effective going forward. A standardized, short set of questions can be drafted for each type of stakeholder, e.g. agribusiness, FSP, civil society, etc., to track the evolving situation over time. This approach fills a gap in the large-scale market intelligence efforts to-date that have mostly focused on farmers. These findings can then be used to adjust the intervention approach recommended in this rapid assessment, as well as disseminated to donors and other ongoing initiatives.

Conclusion

With over 40% of the population facing acute food security and an ongoing conflict that has displaced millions and destroyed physical, financial, and cultural capital, Sudan urgently needs multifaceted support. The ideas shared for resilience-building interventions in this rapid assessment aim to complement the many ongoing efforts of Sudanese farmers, civil society, businesses, financial institutions, international donors and others interested in the welfare of the people of Sudan. FCDO Sudan and FSD Africa are actively considering how they can contribute to these efforts and welcome collaboration.

A coordinated emergency response that incorporates both humanitarian assistance as well as resilience-building interventions can support Sudan in not only addressing immediate life-saving needs, but also in increasing the ability of Sudanese households and businesses to address acute food insecurity in the medium-term.



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