

A close-up photograph of several dark-skinned hands working together to mix a thick, yellowish-orange paste in a metal bowl. The hands are positioned around the bowl, with some fingers digging into the mixture. The background is blurred, showing more of the bowl and possibly other people's hands.

# Conflict and Food Systems

## Sudan Report

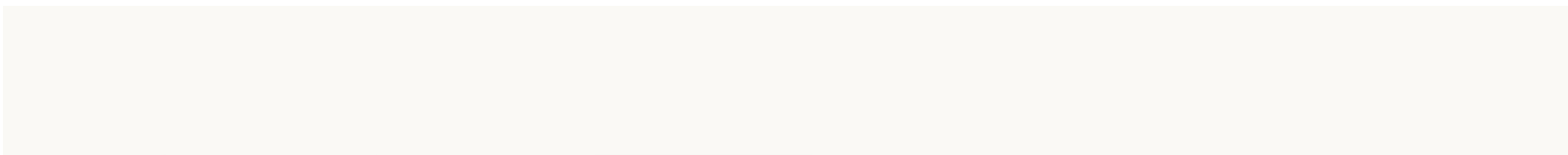
**CONCERN**  
worldwide

ENDING  
EXTREME POVERTY  
WHATEVER  
IT TAKES

**DCU** Ollscoil Chathair  
Bhaile Átha Cliath  
Dublin City University



**HARVARD  
HUMANITARIAN  
INITIATIVE**





## EXECUTIVE SUMMARY

The 2022 *Global Report on Food Crisis* highlights conflict as the major driver of acute food insecurity, which forced approximately 139 million people into crisis-level acute food insecurity (IPC Phase 3 or worse<sup>1</sup>) in 2021 (FSIN, 2022). The scale of this impact on households and communities, which is compounded by economic shocks and weather extremes, spans economic, political, social, and environmental activities, emphasizing that conflict's impacts should be considered through a food systems lens rather than the narrower outcomes of food and nutrition security alone. The 2018 United Nations Security Council Resolution 2417 recognized the link between conflict and hunger, condemning the starving of civilians as a method of warfare and the unlawful denial of humanitarian access to civilian populations (UN Press, 2018).

Overall, this research program sought to **investigate the impact of conflict on various elements of the food system in Sudan to identify those with the biggest influence on food and nutrition security amongst people experiencing extreme poverty**. This research systematically maps components of local and national food systems; identifies specific pressure points where conflict interacts with them; and proposes operational, policy and research actions tailored to supporting and strengthening food systems disrupted and transformed by conflict in Sudan.

A growing body of research examines the links between armed conflict, food security, and food systems. These identify the two-way relationship between food price and conflict, and the influence of excessive risks on transport, harvest, and market security costs (Raleigh et al., 2015; Weinberg & Bakker, 2015; Ismail, 2021). Others focus on how conflict reduces regional food availability by destroying productive assets and infrastructure and creates security risks associated with accessing food markets thus driving up local prices (Bora et al., 2010; Kah, 2017). However, disentangling existing structural challenges – e.g., input supply disruptions, seasonal price volatility, or investment risk

aversion – from those caused by conflict, particularly in places where armed violence is a constant in everyday life, can be difficult and a precise understanding of the specific ways conflict interacts with food systems in many contexts, remains elusive.

In Sudan, shortages of agricultural inputs, above average market food prices, and weakened household purchasing power are contributing to IPC Phase 2/3 outcomes across the country. Several unpredictable factors could further increase food crisis levels nationally, including more armed conflict, natural disasters, disease outbreaks, and economic deterioration (OCHA, 2022). Extended shocks have also eroded the coping capacity of many people, leaving much of the population more vulnerable to a weather or economic emergency than they were several years ago. A rise in criminality and risks to civilians in conflict-affected areas has further had a negative effect on local access to roads, markets, and services and exacerbated the impact of existing insecurity. As the political instability in the country has led international development support to be suspended, government investment in critical areas like health, water, and sanitation have also diminished, and there is significant pessimism concerning the lack of progress in advancing peace processes in the east.

In 2022, Darfur and other states have experienced renewed inter-communal clashes as nearly two decades of protracted conflict have been, in part, fed by high food and fuel imports, poor agricultural prospects, and multiple overlapping crises that span the economic, political, and environmental spheres (ACAP, 2022). Baked into current acute food insecurity are also millions of conflicted-affected people and long-term IDPs who are most at-risk when food stocks dwindle (FAO, 2022). Where distributions of seeds and farm inputs, food assistance, and cash transfers are critical to reducing negative coping strategies and staving off mass hunger, these relief measures are imprecise tools for maintaining a functioning food system and can falter when environmental factors exert pressure on food supplies. With below-average cereal production expected again for 2023, there will continue to be a lot of attention on import prices as these are expected to remain higher than average and will amplify regional precarity.

<sup>1</sup> The Integrated Food Security Phase Classification system (IPC) is a system for estimating the severity of food insecurity. Acute food insecurity is measured on a scale from Phase 1 (None/Minimal) to Phase 5 (Crisis/Famine). Estimates of the number of people in Phase 3 (Crisis) or above, are widely used as a measure of the scale of humanitarian need and the urgency of required response. For further information, see IPC, 2022

In seeking to investigate the impact of conflict on various elements of the food system to identify those with the biggest influence on food and nutrition security amongst people experiencing extreme poverty, this research poses the following question about the Sudanese food system:

- How do various conflicts disrupt food production to marketing linkages and what role do natural resource management and peacebuilding play in conflict and the food system?

To address this question, this research utilizes a mixed-methods design, employing a combination of secondary evidence mapping, qualitative consultations, and quantitative data-gathering through surveys. Together, the data generated were mapped in the form of Fuzzy Cognitive Maps (FCMs). FCMs are a promising area of participatory modeling that can visually translate the knowledge and experience of local stakeholders into an accessible and standardized format (see Gray et al., 2015; Papageorgiou et al., 2019). This data can then be mapped to visualize and document multiple components of complex systems and their interactions; assess the respective direction, connectedness and influence of different components and relationships; and develop scenarios based on changes in complex systems that take account of multiple potential interactions and feedback loops.

The research finds that in Sudan, conflict has a negative impact on the food system throughout the value chain from rural production to urban consumption in three key ways:

First, by **disrupting access to natural resources** (farmland, pastureland, firewood and water). Natural resource management and peacebuilding have interactive effects throughout the food system but are modulated by youth disengagement and climate change. There are structural challenges facing natural resource management in the region. Access to land historically accommodates the needs of farmers and pastoralists who used to effectively negotiate that access through institutions such as *talaig*. However, this is not as respected as it used to be in the past. Tensions arise when, as a response to conflict induced limitations on access, mobile pastoralists' herds graze on crops before harvest is complete (particularly those traveling long distances from other areas, compounded by shorter migration seasons) and farmers grow crops in livestock migratory routes and resting areas. Local and traditional natural resource management

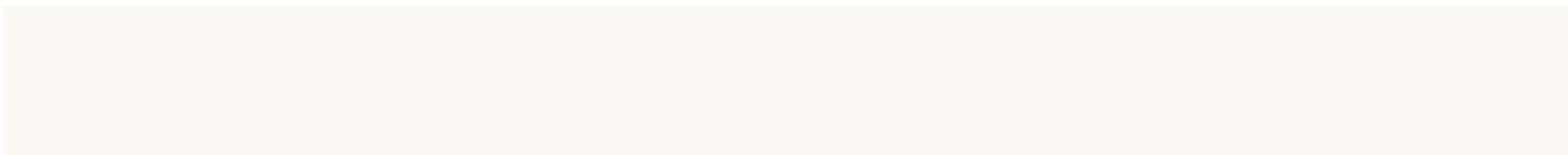
processes may also privilege established community hierarchies, leading to disengagement and a lack of buy-in among more marginalized groups, including young people. Finally, climate change can compound the conflict induced impacts on land access with further stress on limited natural resources and combined with ineffective resolution mechanisms, exacerbates conflict.

Second, by **disrupting access to markets** (physical and financial). A conflict that displaces a community or results in blocked access to a community commonly results in negative impacts on other communities who might be trading partners. In the course of the FGDs, respondents consistently called attention to "shortages of the food items we do not grow in the area" as a result of violence. Accordingly, the prices of these traded food items rise, particularly those foods, such as sugar and vegetable oils, supplied by big traders from other parts of the state. The prices of locally produced food also drop because there is no longer an outside market of consumers to which producers can sell. In some communities, there is no access to alternative markets. People subsist on more limited supplies of what is available locally when market trade is disrupted.

Third, by **limiting the integration of different markets** which is essential resilience mechanism for food systems. Our research highlights the existence of specialized markets by region and the necessity of these integrated markets to improving food security and diet quality. Specialized but integrated market functioning allows efficiencies, increased food availability and an enhanced capacity to produce and store food locally. However, the food system is very fragile due to its networked and specialized nature, and the high level of interdependence between different markets and areas producing and marketing complementary food items. Integrated market functioning is profoundly disrupted by conflict. For example, large central markets such as Geneina are critical for many food system inputs mechanized processing and large food storage facilities. Any conflict impacts on Geneina market, then, has a range of cumulative impacts throughout the food system. Conflict also creates risk for communal tension by disrupting this integration. Normally, farmers and pastoralists can trade goods through loans, but this is undermined during conflict and raises tensions. Finally, as various communities specialize in specific food items, any disruption in one community can lead to acute food shortage of specific items. Ultimately, these combined effects often mean that exchange of goods and services between different communities is lost.

Based on these findings, the report makes six recommendations for those working to support and strengthen the Sudanese food system:

- 1. Support nutrition-sensitive activities in secondary and tertiary markets.** In contexts of market control by armed groups, restricted movement of goods, and often prohibitive transport costs and risks, efforts to support secondary and tertiary markets to fill the gap in food accessibility in local neighborhoods would be valuable.
- 2. Provide targeted support to local peacebuilding and conflict resolution mechanisms that directly engage and empower young people and women.** Mechanisms including Talaig and local authority efforts should be mapped and, at a minimum, considered in program design and activities. Targeted efforts to support initiatives that enhance young people's and women's inclusion and meaningful participation in local conflict resolution processes could help to introduce innovative approaches to conflict resolution from marginalized community members.
- 3. Implement programming to improve relationships between pastoralists and agricultural farmers along migratory routes.** Programmatic efforts aimed at improving local-level relationships through building trust and engagement at the community level are likely to have far-reaching impacts for large-scale peacebuilding and food security in Sudan. By investing in locally-led initiatives to create opportunities for building relationships, sharing information, and building a structure for mutually beneficial credit exchange programs, programmatic interventions can build social cohesion locally that will extend well beyond the community level.
- 4. Pursue humanitarian assistance strategies that support local food systems and minimize negative externalities.** The humanitarian assistance community, including donors, must take a conflict-sensitive approach to understand not only how conflict and food security exist in relationship with one another but how specific humanitarian assistance strategies related to food assistance can reinforce the maladaptive transformations.
- 5. Pursue protection agenda and associated advocacy around cumulative impacts of taxation and mobility barriers (e.g., roadblocks).** Targeted advocacy efforts can make an important contribution by first, raising awareness of the extent to which roadblocks and attacks on food systems stakeholders affect food security for the most vulnerable; and second, calling for policy action to better protect food systems stakeholders.
- 6. Pursue policy and advocacy efforts for the inclusion, engagement, and empowerment of youth in food system livelihoods.** In the context of a booming youth generation, working towards establishing policy and advocacy efforts to engage young Sudanese in these livelihoods can make an important contribution towards improving food security and, importantly, building resilience in the food system to prevent and reduce the impacts of future conflicts.



# 1. INTRODUCTION

Conflict as a key driver of food system dynamics, particularly how chronic and acute violence affect the ability of people experiencing extreme poverty and vulnerability to access and utilize food, is not adequately understood by researchers and humanitarians alike.

In 2018, the United Nations Security Council (UNSC) took up the issue of conflict-induced food insecurity and famine and starvation of civilians as a method of warfare, adopting Resolution 2417, which formally condemned such violations and called on parties to conflict to uphold their obligations to provide safe and unimpeded humanitarian access to civilian populations (UN Press, 2018). This view of the relationship between conflict and food insecurity as a simply humanitarian issue, however, overlooks all of the food system disruptions, lost livelihoods, mass displacement, and psychological terror that fundamentally change how people feed themselves. The scale of this impact on households and communities, which compounds with economic shocks and weather extremes, spans economic, political, social, and environmental activities, emphasizing that conflict should be considered through a food systems lens rather than the narrower outcomes of food and nutrition security.

As of September 2022, the Famine Early Warning Systems Network (FEWS NET) has raised food insecurity concerns to emergency levels (IPC Phase 4) in three regions—Northern Ethiopia, Horn of Africa, and South Sudan (FEWS NET, 2022a). Though conflict may not be the primary driver pushing all these households toward the precipice of famine, it is a structural feature of these complex emergencies,<sup>1</sup> where weakened institutions are unable to lead a response to natural disasters, civil strife, and macroeconomic conditions. Observers in East Africa express concern about barriers to food assistance distribution, large-scale intra- and inter-border displacement, disruptions to trade, multiple disease outbreaks, poor conditions for production and grazing, and significant food price inflation (WFP, 2022a).

Academic research studies demonstrate a reciprocal relationship in which armed conflict contributes to food insecurity, and vice versa (Hendrix & Brinkman, 2013). Changes in land use, access to markets, and resource

extraction through looting and taxation are several consequences of conflict on food systems (Eklund, 2017; Adong et al., 2021; Humphreys & Weinstein, 2006). Conversely, commodity prices, crop yields, and land access are food system drivers that have been shown to influence conflict (Bellemare, 2015; Koren, 2018; El Amin, 2016).

The ‘linkages’ throughout a food system also break or contract as the stress of conflict radiates through society. Fear of attack and of further crisis can encumber flows of foodstuff as various stakeholders must weigh new costs of doing business, trading, or even being seen (Awodola & Oboshi, 2015). Furthermore, formal financial institutions in fragile states are either lacking or not fully equipped to support local demand, leaving social networks, humanitarian assistance actors, and a variety of other informal arrangements to fill this gap in the food value chain (Hiller et al. 2014). The host communities who become home to internally displaced persons (IDPs) can experience new pressures on their livelihoods, as well, such as higher unemployment or lower wages as the local workforce may be displaced (George & Adelaja, 2021).

This research fills a gap that has yet to systematically consider and incorporate the consequences of conflict into food system assistance and development by using available data from existing studies on conflict and food security, as well as novel interview, focus group, and survey data, to model the relationship between the elements in these systems. The practical significance of this approach lies in the possibility of improving decision-making by inputting country-specific data gathered from crisis response, development planning, and other current programming activities to optimize the food system model and forecast degrees of food system disruption due to conflict.

This research programme investigates **the impact of conflict on various elements of the Sudanese food system to identify those with the biggest influence on food and nutrition security amongst people experiencing extreme poverty.**

<sup>1</sup> The Inter-Agency Standing Committee defines a ‘complex emergency’ based on several characteristics emerging from a breakdown of assets, infrastructure, and markets (see IASC, 1994).



## 2. OPERATING CONTEXT - WEST DARFUR, SUDAN

### 2.1 FOOD SYSTEM OVERVIEW

The December 2022 *Food Security Outlook* for Sudan notes several ongoing and compounding macroeconomic factors that have undermined the 2022-23 winter harvest season, including shortages of agricultural inputs, above average market food prices, and weakened household purchasing power (FEWS NET, 2022b). The resulting food environment is contributing to IPC Phase 2/3 outcomes across the country. While access to food has improved in Sudan as the harvest season continues, high production costs that have carried over from 2021 are putting negative pressure on both producers and consumers (WFP, 2022b). The situation across Sudan has also led to below average winter wheat planting, which has been regionally influenced by poor weather conditions and pests (GEOGLAM, 2022).

As indicated by the state of food insecurity, humanitarian needs across Sudan are at historically high levels. Several unpredictable factors could further increase food crisis levels nationally, including more armed conflict, natural disasters, disease outbreaks, and economic deterioration (OCHA, 2022). Extended shocks have eroded the coping capacity of many people, leaving much of the population more vulnerable to a weather or economic emergency than they were several years ago. A rise in criminality and risks to civilians in conflict-affected areas has further had a negative effect on local access to roads, markets, and services and exacerbated the impact of existing insecurity. As the political instability in the country has led international development support to be suspended, government investment in critical areas like health, water, and sanitation have also diminished, and there is significant pessimism concerning the lack of progress in advancing peace processes in the east.

In 2022, Darfur and other states have experienced renewed inter-communal clashes as nearly two decades of protracted conflict have been, in part, fed by high food and fuel imports, poor agricultural prospects, and multiple overlapping crises that span the economic, political, and environmental spheres (ACAP, 2022). Baked into current acute food insecurity are also millions of conflicted-affected people and long-term IDPs who are most at-risk when food stocks dwindle (FAO, 2022). Where distributions of seeds and farm inputs, food assistance, and cash transfers are critical to reducing negative coping strategies and staving off mass hunger, these relief measures are imprecise

tools for maintaining a functioning food system and can falter when environmental factors exert pressure on food supplies. With below average cereal production expected again for 2023, there will continue to be a lot of attention on import prices as these are expected to remain higher than average and will amplify regional precarity.

### 2.2 CONFLICT ANALYSIS

#### 2.2.1 LOCAL AND NATIONAL CONFLICT DYNAMICS

Following the end of the UNAMID mandate on 31 December 2020 in Darfur, there has been an increase in large-scale attacks on civilians in both urban and rural areas of West Darfur by militia groups active in the region (PBF Sudan *et al.*, 2021a; ACLED, 2022; HRW, 2022). It has been reported that looting and attacks on villages of farmers and IDP camps by militias have led to widespread intercommunal tensions between the agro-pastoralist and farming communities, especially in the localities of Kereinik, El Geneina, Kulbus, Sirba, and Jebel Moon (OCHA, 2021a, 2021b, 2022d; ACLED, 2022; HRW, 2022). It is understood that armed Janjaweed militias are primarily involved in these episodes of violence, and it is believed that they are supported by the paramilitaries of the Rapid Support Forces (RSF) (ACLED, 2022; Radio Dabanga, 2022i, 2022n). Identity politics based on ethnic affiliations of agro-pastoralist and agriculturalist communities play a key role as mobilizing factors in these disputes over regional governance, land and natural resources, eventually shaping their course and perceptions. Similar conflicts have been taking place in other regions of Darfur and in other states of the Sudanese federation such as South and North Kordofan (ACLED, 2022; OCHA, 2022a).

As a result of these large-scale clashes, an ever-growing number of people are being displaced in neighboring localities and to Chad since 2021 leading to a renewed displacement emergency in West Darfur (Aljazeera, 2022; OCHA, 2022b). Security remains fragile in the region notwithstanding the deployment of a joint security force composed of the Sudan Armed Forces (SAF), the Central Reserve Police, and the



Rapid Support Forces (RSF) since 21 January 2022 (OCHA, 2022c). Following the signing of a series of RSF-backed reconciliation agreements between agro-pastoralist and farming communities in West Darfur since June 2022 to end intercommunal tensions, the RSF paramilitaries have launched a mass detention campaign in the region targeting community leaders that have been refusing to support or have been withdrawing from their reconciliation initiatives. In this ongoing campaign, the RSF have also been targeting teachers, students, and activists and there have been reports of forced disappearances (Radio Dabanga, 2022b, 2022g, 2022c, 2022d, 2022k).

Subnational conflicts in peripheral territories of Sudan are unfolding against the backdrop of a national political crisis, developed in the aftermath of the military coup of 25 October 2021, which stalled the difficult transition to democratic rule that had started with the end of the al-Bashir regime in 2019. This has reignited a new nation-wide cycle of violence in the capital Khartoum and other major cities of Sudan, where protests for democracy and the establishment of a civilian government are being met with intense repression from the security forces (Burke and Salih, 2022).

### 2.2.2 INTERCOMMUNAL CONFLICTS

In the region of West Darfur, local small-scale clashes over access to agricultural land and natural resources take place between different livelihood groups of mobile pastoralists and local rural communities of settled/semi-settled agro-pastoralists. In particular, the intercommunal tensions are linked to issues pertaining to land use, land ownership rights, and local land governance within a larger context marked by growing pressure on natural resources due to climate change, exploitative economic activities (e.g., extraction of minerals), and population movements (i.e., IDP returnees; returning Sudanese refugees, mostly from Chad) (PBF Sudan *et al.*, 2021a). Both pastoralists and local rural communities usually practice more than one source of livelihood, and they are both equally engaged in livestock rearing and crop farming at diverse degrees of importance and mobility (Takana, Rahim and Adam, 2012; Sulieman and Young, 2019; Satti, Sulieman and Young, 2020; PBF Sudan *et al.*, 2021b, 2021c, 2021a). It has been widely documented how both the effects of climate change and conflict in Darfur have led communities to shift to or combine different livelihood strategies (Young, Satti and Radday, 2020; PBF Sudan

*et al.*, 2021a).

Many years of conflict have also deeply affected intercommunal cooperation as well as community systems of dispute resolution (i.e., *judiya*) run by local mediators (i.e., *ajaweed*) to settle disputes over land and minor criminal offenses occurring at the community level (Takana, Rahim and Adam, 2012; Satti, 2020; PBF Sudan *et al.*, 2021b). Moreover, the mobilization of identities along Arab/non-Arab affiliations in the 2003 Darfur conflict has left deep politicized divisions between these groups notwithstanding their diverse ethnic composition (Takana, Rahim and Adam, 2012).

To date, land relations between pastoralists and local rural communities of Darfur continue to be regulated by the *hakura*, the traditional land tenure system based on customary land rights; this system co-exists with statutory arrangements of land rights (PBF Sudan *et al.*, 2021b, 2021a). However, as per recent estimates, less than 1% of the Darfuri population owns registered land (UN-Habitat, 2020; PBF Sudan *et al.*, 2021a).

In the region, land is traditionally organized in *dar* (i.e., homeland) belonging to a major community. In West Darfur, many communities belong to *dars* whose territories extend beyond the border with Chad, with members living on both sides (PBF Sudan *et al.*, 2021a). In these homelands, land is collectively owned, and it is assigned to community members by leaders, who can reallocate it to other members if not used. Not all Darfuri communities (collectively) own land, those who have collective land ownership rights also enjoy political power by way of participation in local/regional systems of governance (PBF Sudan *et al.*, 2021b, 2021a).

According to the *hakura*, community land ownership rights are traditionally given to local rural communities of agro-pastoralists, whereas most mobile herders are only given rights to access seasonal migration routes as well as lands of farming communities for grazing and water (PBF Sudan *et al.*, 2021b). Within this land tenure arrangement, the customary institution of *talaig* works as a system of natural resources management between pastoralists and local farming communities. More specifically, the *talaig* indicates the date by which farmers of a community must complete harvesting to allow mobile herders to access agricultural land for grazing and water (Satti, Sulieman and Young, 2020). However, over the decades, due to environmental challenges and growing demographic pressure on natural resources, violations of this customary institution are frequent, leading to rising intercommunal tensions with the potential of escalating into violent conflicts (Satti, Sulieman and Young, 2020). Moreover,

as many pastoralist communities have recently been shifting to more sedentary sources of livelihoods due to these same environmental and demographic factors as well as conflict dynamics in the region, the system of customary land tenure rights has come under intense pressure within these communities (PBF Sudan *et al.*, 2021b).

As far as the specific region of West Darfur is concerned, pastoralist communities are characterized by a varied and fluid ethnic composition, also due to the historical and seasonal migration flows of pastoralist groups from North Darfur (i.e., Zaghawa and Northern Rizeigat) and Chad (Takana, Rahim and Adam, 2012). Recent intercommunal clashes in West Darfur have reportedly involved Abbala Northern Rizeigat, a landless mobile group of camel herders. As in the case of other main pastoralist groups in the region, lack of access to customary land tenure rights under the *hakura* system has generated deep-rooted feelings of discrimination and higher levels of impoverishment *vis-à-vis* settled/semi-settled farming communities (Flint, 2009). Perceived marginalization and poverty provided fertile ground for the easy recruitment of some members of the Abbala Northern Rizeigat community into the government-backed Janjaweed militias during the 2003 Darfur conflict as a means to access money and power (Flint, 2009). Relations with self-identifying non-Arab local farming communities remain highly polarized.

The main group of local farming communities in West Darfur are the Masalit, especially in the area of Geneina. They are followed by the Misseriya Jebel and Fur communities (PBF Sudan *et al.*, 2021a). The villages of these self-identified non-Arab communities of mainly sedentary agro-pastoralists have been frequently targeted in recent incidents of large-scale intercommunal clashes occurred in different localities of West Darfur (OCHA, 2021a, 2021b, 2022d; ACLED, 2022; HRW, 2022).

### 2.2.3 RECENT CONFLICT TRENDS

Current dimensions of violence in West Darfur involve the following main, often interlinked, dynamics including predatory attacks on local populations by armed militias, small/large-scale intercommunal tensions over access to land and resources, and criminal acts, robberies within communities escalating in larger incidents of violence.

The region has recently witnessed an increase in

systematic attacks and forced displacement by armed militia on villages and IDPs camps aimed at controlling natural resources, e.g., lands, fertile pastures, gold and minerals, especially in the resource-rich Jebel Moon locality (Radio Dabanga, 2022f). These repeated large-scale attacks often occur during the period of harvesting. It is alleged that this is a pattern of systematic targeting of specific communities by destroying their sources of livelihood. It appears that state authorities have played a limited role in preventing or stopping the attacks (Radio Dabanga, 2020, 2022m).

Localized conflict between nomads and farmers has also increased since October 2021. These disputes have been exacerbating seasonal inter-communal conflict over access to and use of natural resources. Clashes between armed groups from Chad and Sudanese herders have been reported along the Chad-(West) Darfur border since the beginning of August 2022 (Radio Dabanga, 2022a, 2022e, 2022l).

Lastly, individual criminal acts and fights over access to natural resources frequently escalate into intercommunal clashes mobilized along ethnic affiliations. These armed conflicts primarily involve killings, abductions, displacements, attacks on and burning of houses, villages, IDP camps as well as damage to harvest, livestock, and farming infrastructures. Sexual and gender-based violence (SGBV) is often perpetrated in these attacks. Intercommunal conflicts can spill over into other localities (Radio Dabanga, 2022j). Since the 25 October 2021 coup, there has been an increase in robberies along roads in Darfur by armed bandits. Reportedly, these incidents have been taking place almost daily and have also involved killings. In West Darfur, the most targeted roads are those leading to the state capital of El Geneina. The main targets of these robberies are commercial vehicles as well as private vehicles carrying goods returning from weekly markets. Robberies have also been reported along the roads leading to mining sites, between the mining lines and the mining markets (Radio Dabanga, 2022h).

#### **2.2.4 THE IMPACTS OF CONFLICT ON THE PEOPLE EXPERIENCING EXTREME POVERTY IN WEST DARFUR**

As per two recent household surveys (2021, 2022) conducted by the International Committee of the Red Cross (ICRC) to assess the impact of violence on communities in Darfur, conflict-induced loss of farming land, livestock, crops, access to basic services in conjunction with a soaring inflation rate is further exacerbating the deterioration of the living conditions of the most vulnerable communities in the region (ICRC, 2022).

Recent dynamics of violence are adding to the losses experienced in past conflicts, from which communities are yet to recover, especially IDPs, IDP returnees, and pastoralist groups. Lack or loss of land tenure rights represent the main barrier to an effective and lasting recovery of their already vulnerable economic conditions from violence-induced losses (PBF Sudan *et al.*, 2021a, 2021c; ICRC, 2022). Moreover, protracted displacements and constant mobility experienced by IDPs, IDP returnees, and pastoralist groups reduces their options in terms of mitigation strategies (ICRC, 2022).

Other evidence on the impacts of conflict on people experiencing extreme poverty in the specific region of West Darfur remains limited. Conflict dynamics have been analyzed in detail in a 2021 report on the impact of conflict on displaced and non-displaced communities living in the Jebel Moon area produced by the UN Peacebuilding Fund (PBF Sudan *et al.*, 2021a), though generalizing from this area to others in the region is challenging. The analysis presented in the following sections contributes to building this evidence base and learning for future programming and response in the region.

### 3. RESULTS

A full description of the methods used in this research, including all research and data collection tools, can be found in the Synthesis Report.

#### 3.1 FCM MAPPING

Figure 1 visualizes the Fuzzy Cognitive Map (FCM) for conflict and the food system in Sudan.

Each box represents a component (node) in the system, connected to other components through directional relationships (edges) represented by arrows. Blue arrows represent positive relationships (when one component increases, it is associated with an increase in the other component to which it points) while brown arrows represent negative relationships (when one component increases, it is associated with a decrease in the other component to which it points). The direction of the arrow represents the component driving the change (the independent variable). Although not visually represented in the maps below, each relationship (edge) is also weighted according to the

relative importance of that relationship (the relative importance of the independent variable, driving change in the dependent variable).

Two centrality measures—degree centrality and eigencentrality—mapped the contours of these relationships. Degree centrality counts the number of degrees between nodes in a network, showing which node has the most interconnections. Eigencentrality (or eigenvector centrality) creates a relative score of each node’s influence in the network by capturing the importance of a node relative to the importance of the nodes to which it connects, and the nodes to which they connect, and so forth. In other words, while high degree centrality reflects more connections between a given node and others in the network, high eigencentrality highlights the connections between a given node and other highly connected nodes compared to all other nodes. These two indicators help translate relationships into simpler terms and reveal the most influential variables, as well as potential gaps in our understanding of system connectivity.

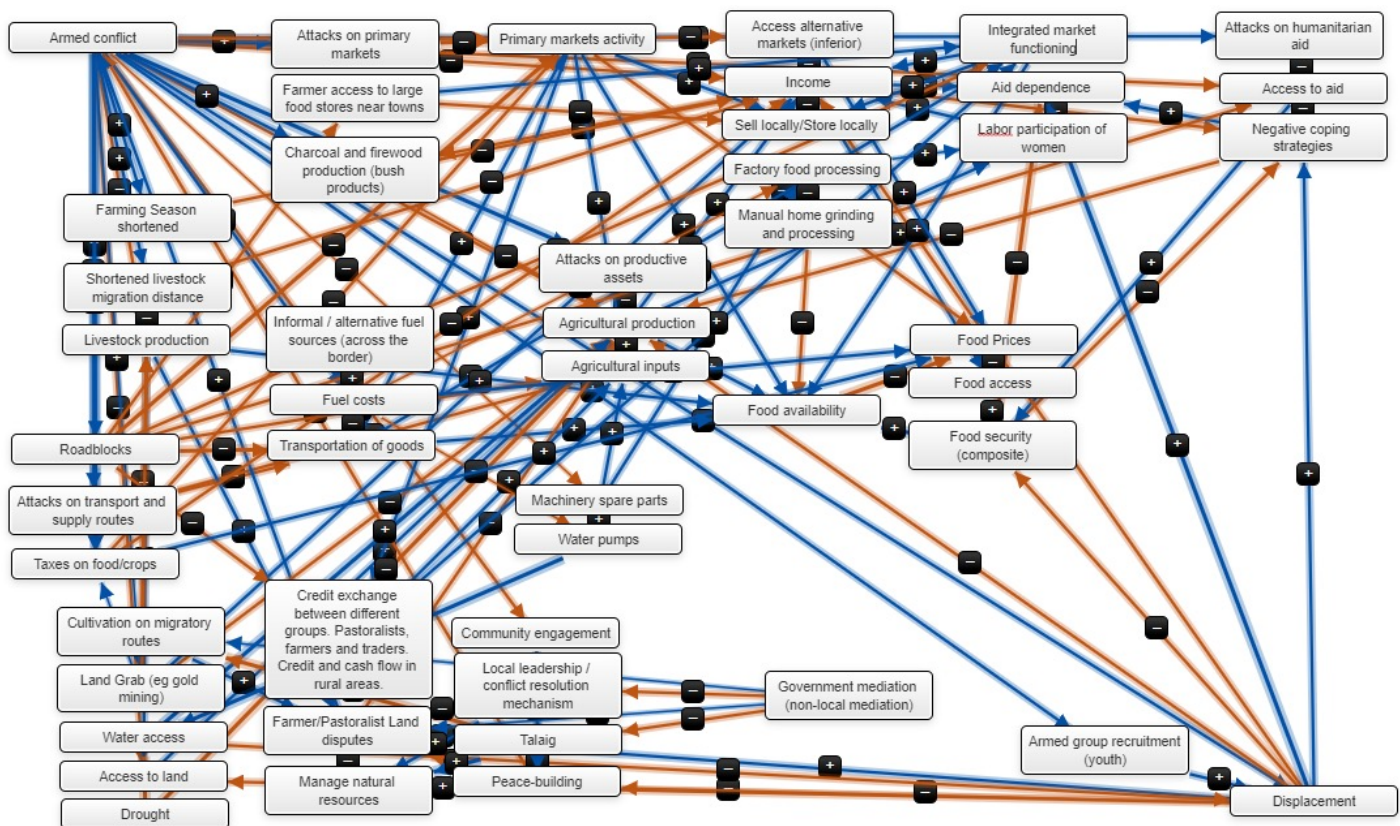


Figure 1. Fuzzy Cognitive Map of Conflict and Food Systems in Sudan



### 3.1.1. MOST-CONNECTED COMPONENTS

The Sudan FCM map has a total of 49 components (nodes) overall, linked by 133 connections (edges) across the network. Armed conflict (23 connections), income (15) and agricultural production (14) are the top three most-connected (central) components in the system. Table II summarizes the top 10 most central components in the system.

**Table II. Top Ten Most Connected (Central) Components in the Sudan Food System FCM**

Rank	Component	Number of Connections (Centrality)	Influence of Connections (Eigencentrality)
1	Armed conflict	23	1
2	Income	15	.7
3	Agricultural production	14	.69
4	Primary markets activity	11	.49
	Displacement	11	.60
6	Roadblocks	10	.46
	Farmer/Pastoralist Land disputes	10	.48
8	Food availability	8	.35
9	Integrated market functioning	7	.30
	Peacebuilding	7	.35

The top three most central factors, Armed Conflict, Income, and Agricultural Production (Table II) were also identified as the top three most influential (eigencentral) factors. This highlights the strong influence that these factors have on the Sudan food system.

Figures 2a and 2b isolate the many factors directly linked to Income in the Sudan food system map.

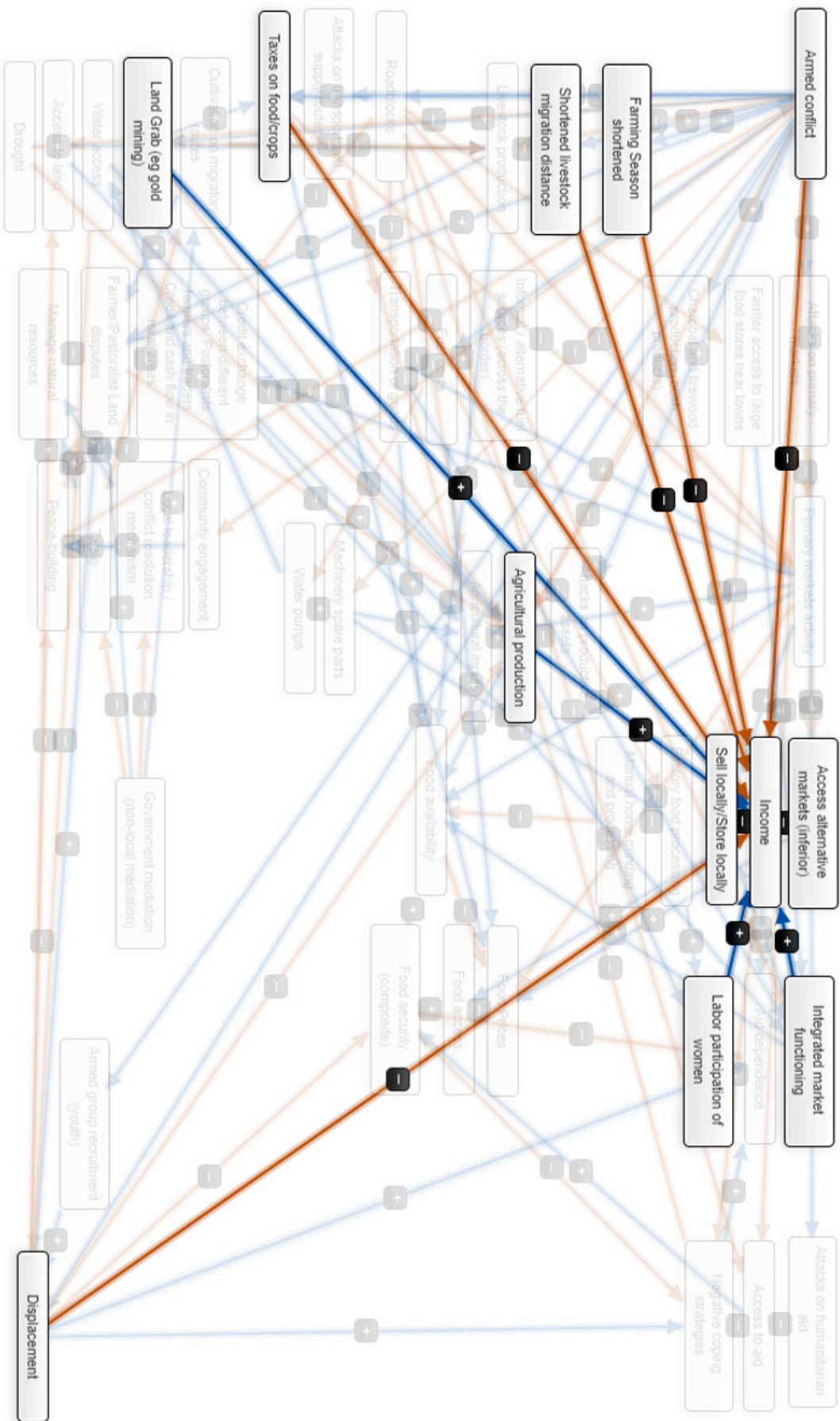


Figure 2a. Fuzzy Cognitive Map of Conflict and Food Systems in Sudan - Impacts on Income Highlighted

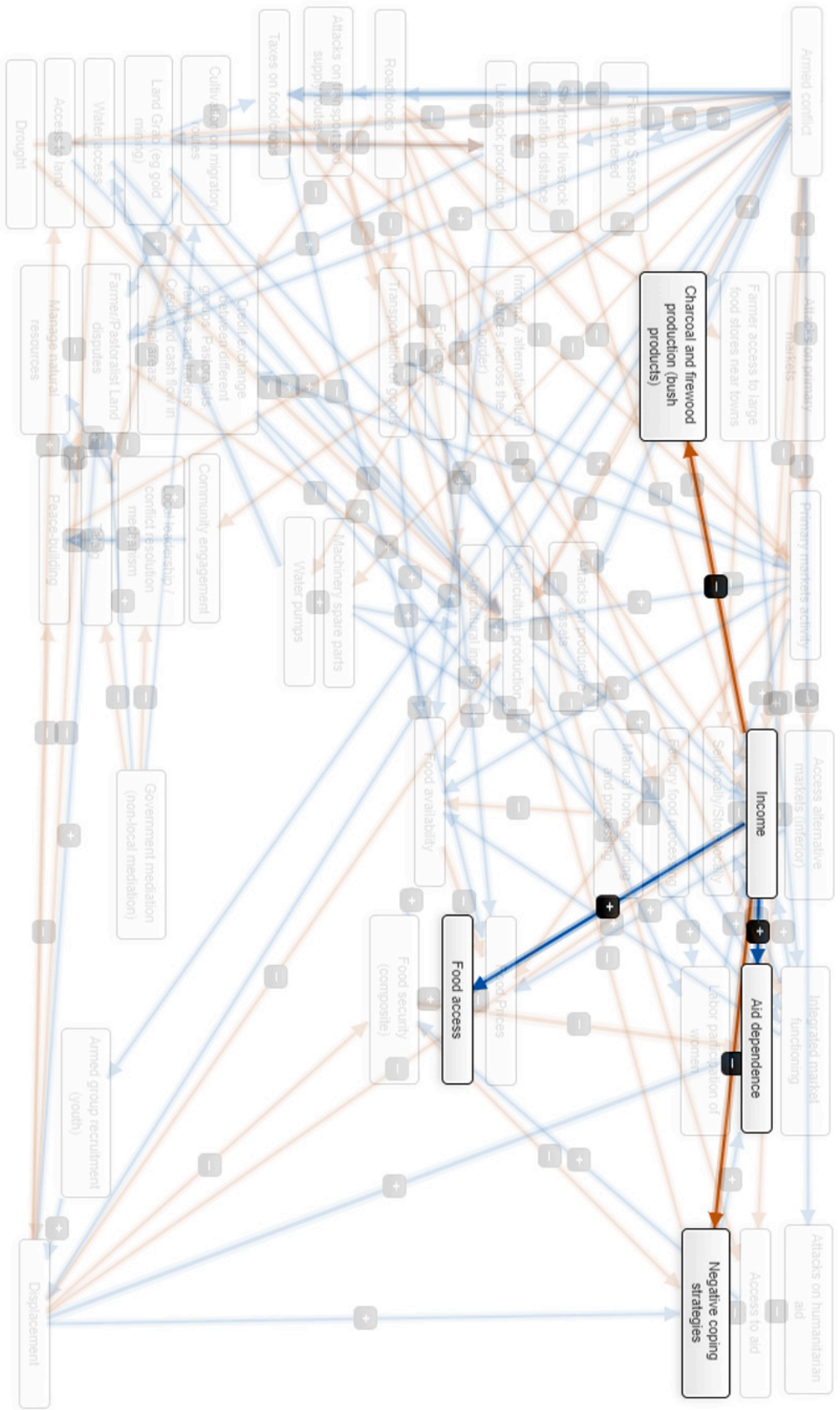


Figure 2b. Fuzzy Cognitive Map of Conflict and Food Systems in Sudan - Income Impacts Highlighted



Figures 3a and 3b isolate the many factors directly linked to Agricultural Production in the Sudan food system map.

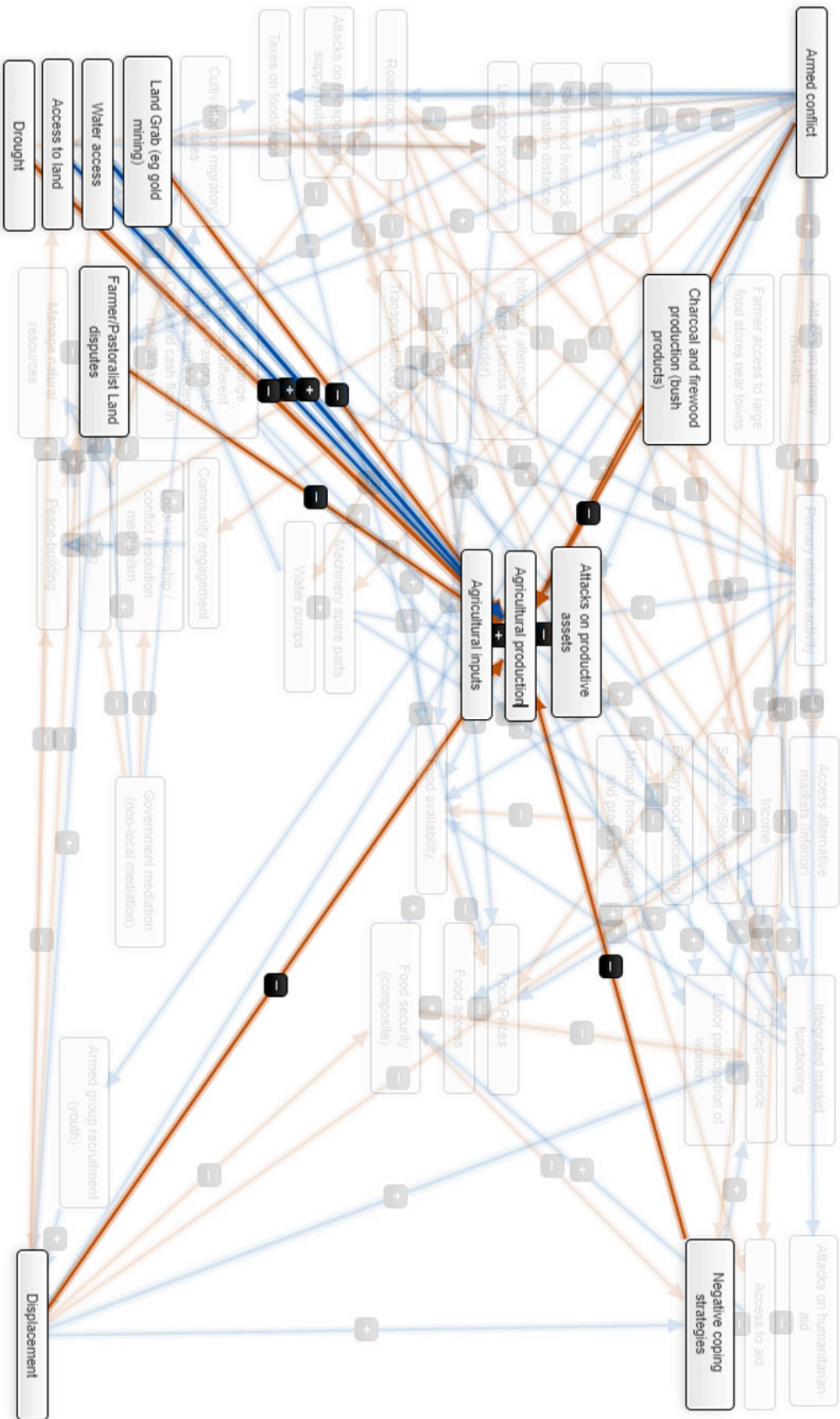


Figure 3a. Fuzzy Cognitive Map of Conflict and Food Systems in Sudan - Impacts on Agricultural Production Highlighted



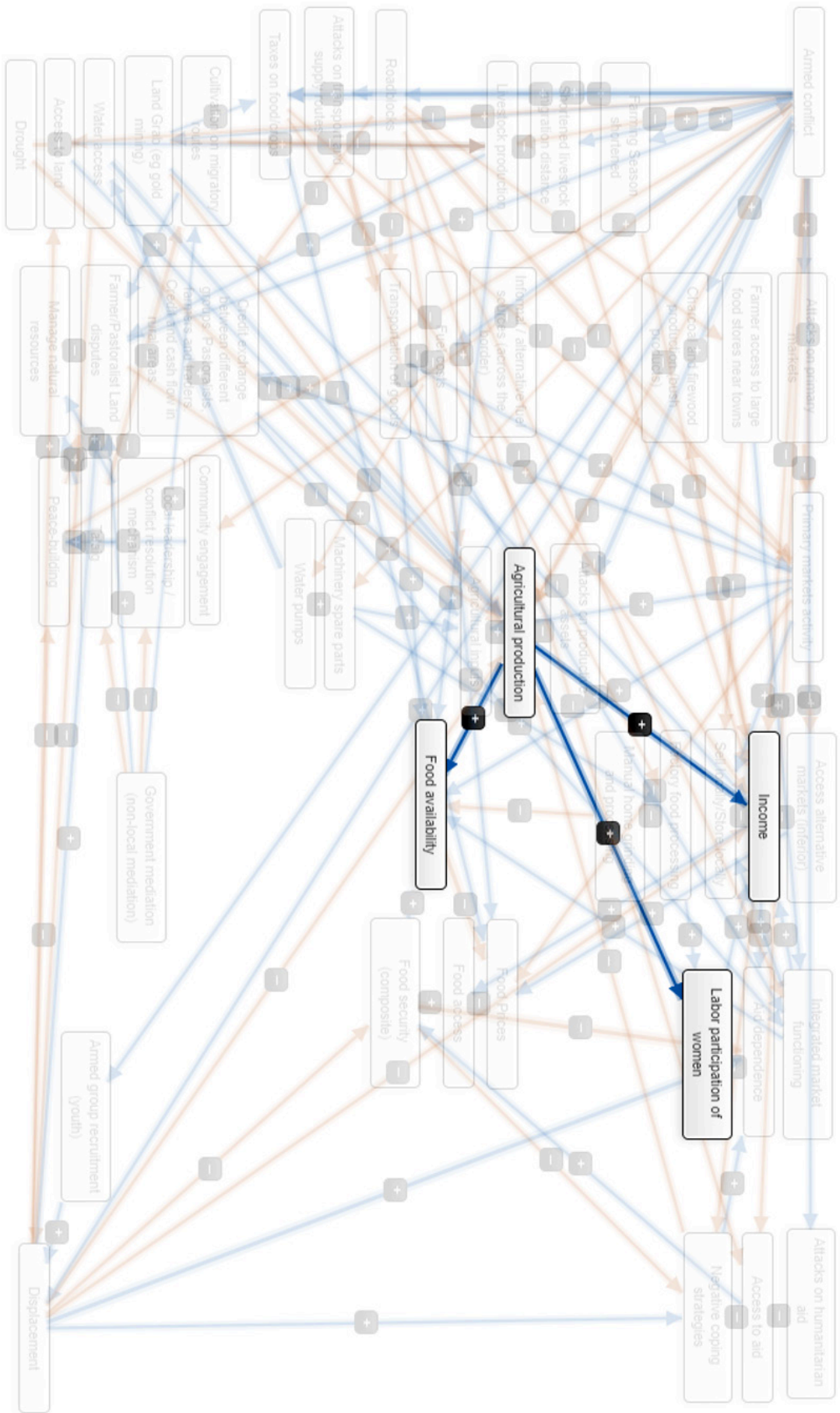


Figure 3b. Fuzzy Cognitive Map of Conflict and Food Systems in Sudan - Agricultural Production Impacts Highlighted

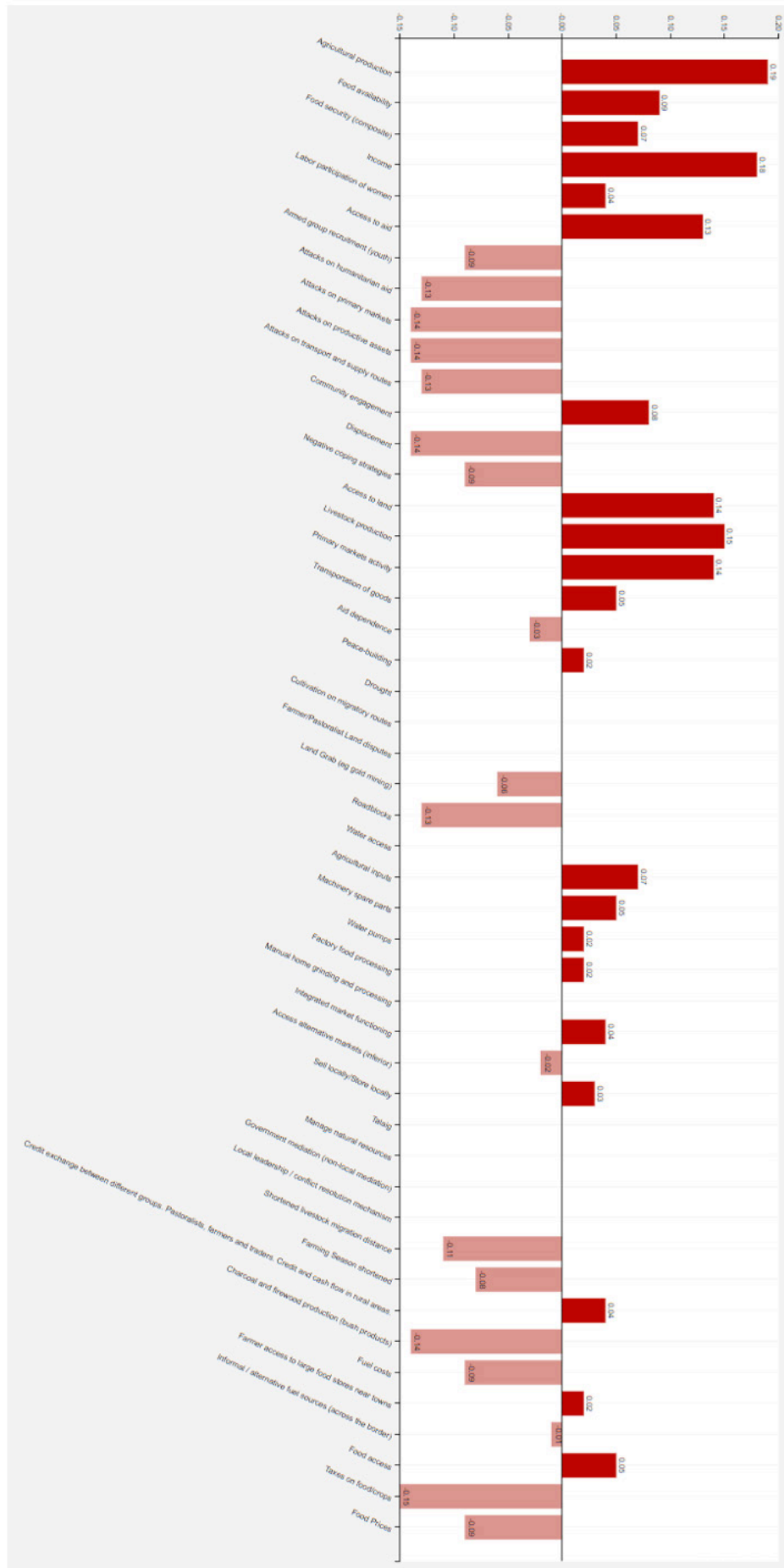
Overall, seven factors (Armed Conflict, Income, Agricultural Production, Displacement, Primary Market Activities, Farmer/Pastoralist Land Disputes, and Roadblocks) appeared in the top ten for both most central and most influential (eigencentral) factors. However, Taxes on food/Crops, Land Grabs, and Livestock Production were all ranked in the top 10 for eigencentral factors but not for centrality factors.

### 3.1.2 SCENARIOS

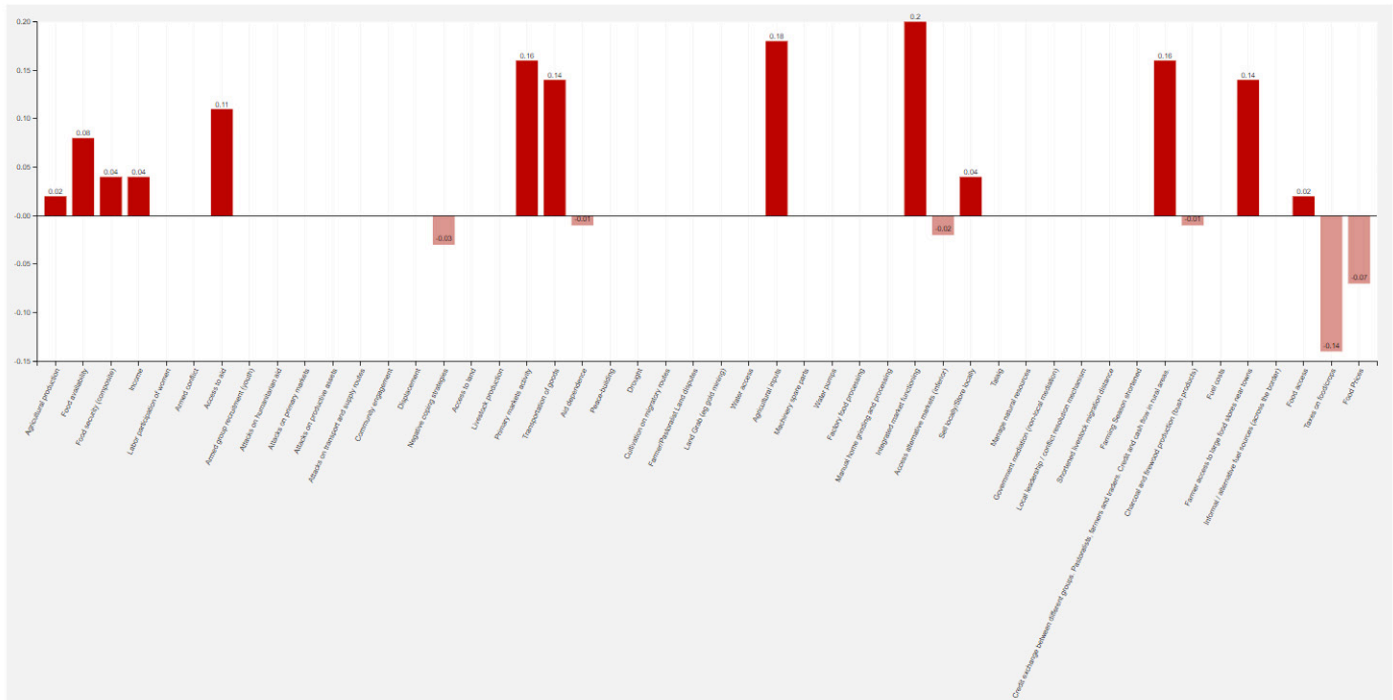
In addition to visualizing and weighting the relative importance of factors in the Sudan food system, the FCM approach also facilitates an analysis of scenarios if specific factors were increased or reduced by a certain amount.

For instance, a scenario which sees a reduction of 20% in armed conflict has widespread and significant impacts across the food system (see Figure 4). Among the most notable of these are increases in agricultural production (19%), income (18%) and livestock production (15%), alongside reductions in taxes on food and crops (-15%), and attacks on primary markets, attacks on productive assets, displacement, and reliance on bush products such as charcoal (all -14%).

Figure 4. Fuzzy Cognitive Map of Sudan Food System Scenario: Impacts of Reduction of Armed Conflict by 20%



While a reduction in armed conflict generally may be highly desirable, it is likely beyond the scope of any individual organization to achieve a reduction of this size. However, the food system map can still illustrate the sizable effects of more specific and concrete changes. Taking a narrower example of roadblocks, which are linked to reduced transport of goods and its wider impacts in the Sudan food system, a reduction of approximately 20% in the significance of roadblocks results in decreases in taxes on food and crops (-14%) and food prices (-7%), at the same time as we see increases in integrated market functioning (20%), agricultural inputs (18%) and primary market activity and credit exchange between different groups (both 16%) - see Figure 5.

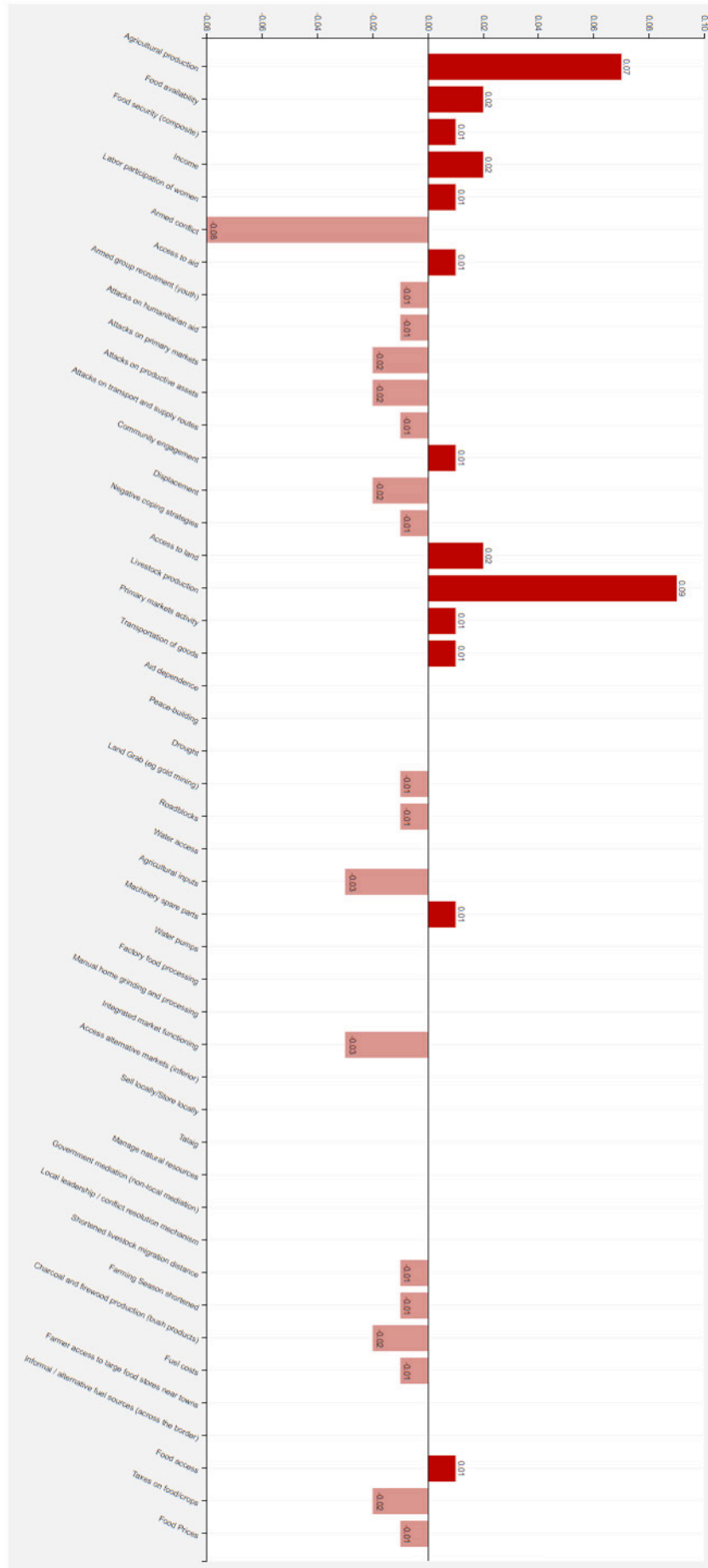


**Figure 5. Fuzzy Cognitive Map of Sudan Food System Scenario: Impacts of Reduction of Roadblocks by 20%**

Turning to a second prominent feature of the conflict and food nexus - the interactions between pastoralist and agricultural producers - a scenario in which a suite of changes take place including a 20% reduction in pastoralist-agricultural land disputes and in cultivation on migratory routes, alongside an 20% increase in credit exchange between different communities, result in wide-ranging impacts across the system (see Figure 6). These include increases in both livestock and agricultural production (9% and 7%, respectively), and a reduction in armed conflict more generally (-8%), attesting to the interconnected nature of different forms of violence and unrest in the context.



**Figure 6. Fuzzy Cognitive Map of Sudan Food System Scenario: Impacts of Reduction of Land Disputes and Cultivation on Migratory Routes by 20%, and Increase in Credit Exchange between Groups by 20%**



## 3.2 SURVEY TRIANGULATION

### 3.2.1. MOST-AFFECTED FACTORS

Overall, approximately one-in-five respondents (21.9%) reported that, of the various impacts listed, conflict most affects (Affected Most), taxes on food and crops; followed by sale of household assets (9.8%); planting and harvesting activity (8.5%); forced displacement (7.7%) and roadblocks or checkpoints (7.6%).

When disaggregated by sex, several key areas of convergence and divergence are apparent. Of the top five factors respondents identified as most-affected by conflict, two were common across both male and female respondents. These are taxes on food or crops (reported by 16% of male respondents, and 24.5% of women respondents), and planting or harvesting activities (8.7% of male respondents; 8.4% of women respondents).

When survey respondents' reported most-affected factors are disaggregated by age categories, taxes on food or crops feature as the single greatest impact across all age groups, although younger respondents reported this at slightly higher rates (25.2%) than older age groups (20.9% and 16.2%, respectively). This observation was found to be borderline significant ( $p=0.0535$ ), indicating that this observation may be indicative of a difference between these age groups.

While taxes on food and crops are a major reported impact across male and female respondents and all age groups, there is a noticeable difference in the frequency with which this impact is reported by location. Specifically, respondents surveyed in camp locations in both El Geneina and Mornei were considerably more likely to report taxes on food and crops as the most-affected factor, than their counterparts in villages (see Table III). Statistical analyses confirmed these observed differences and indicated a difference both in response by location ( $p=0.001$ ) and by camp locations vs. village locations ( $p=0.003$ ).

Kernik		El Geneina	
Mornei Camps	Mornei Villages	Geneina Camps	Geneina Villages
23.51%	14.23%	28.23%	21.82%

**Table III. Percentage of Respondents who Identified 'Taxes on Food and Crops' as the Factor Most-Affected by Conflict, by Location**

### 3.2.2. NATURAL RESOURCE MANAGEMENT

Overall, 27.9% of respondents strongly agreed with the statement, "Thinking about your own community [...] Conflict reduces the ability to maintain/access agricultural land," followed by 60.2% who agreed. Male respondents were more likely to strongly agree than female counterparts (32.8% and 25.7%, respectively), while older respondents were more likely to strongly agree than younger people (21.4% of respondents 29 and younger strongly agreed, rising to 30.9% among respondents 30-59, and 35.1% among respondents 60 and older). Meanwhile, responses were broadly comparable across locations. A similar pattern is found in responses to the statement, "Thinking about your own community [...] Conflict reduces the ability to build/access water infrastructure."

Just under two-fifths (39.7%) of respondents strongly agreed with the statement, "Thinking about your own community [...] Conflict is caused by disputes over

natural resources," followed by 41.5% who agreed. Male respondents were more likely to strongly agree than female counterparts (48.2% compared to 36%), while older respondents were more likely to strongly agree than younger respondents (with 31.7% of respondents 29 and under strongly agreeing, rising to 44.4% among 30-59-year-olds, and 45.3% among those aged 60 and over).

Just under one-fifth of respondents (17.7%) strongly agreed with the statement, "Thinking about your own community [...] "Conflict over natural resources is exacerbated by climate change," followed by 58.6% who agreed. Male respondents were slightly more likely to strongly agree than female counterparts (20.2% compared to 16.6%, respectively), while younger respondents were less likely to strongly agree (at 13.8% of respondents 29 and younger, rising to 20% among those 30 and older).

Together, this pattern of responses suggests that older, male respondents are more acutely concerned with

conflict's impacts on agricultural land access, and on the role climate change and natural resources play in driving and exacerbating conflict. Meanwhile, younger respondents and women respondents are less likely to highlight these factors. Further research into the drivers that women and younger community members perceive as key to conflict would be particularly valuable in understanding how vulnerable groups navigate conflict's impacts on the food system, and how to engage them in peacebuilding efforts that seek to address climate-related factors.

### 3.2.3. PEACEBUILDING

38.4% of respondents strongly agree with the statement, "Thinking about your own community [...] Peacebuilding activities reduce conflict over natural resources," followed by 44.9% who agree. Male respondents are somewhat more likely to strongly agree with the statement than female counterparts (44% to 36%, respectively), while younger respondents appear considerably less likely to strongly agree than older counterparts (29.5% of respondents 29 and younger, compared to 43.8% of those 30 and older). Younger respondents are also more likely to disagree and strongly disagree with this statement. This observation was confirmed with statistical analyses, indicating significant differences in views on peacebuilding activities impact on reducing conflict over natural resources by younger and older respondents.

With responses broadly comparable across location, the above pattern of responses may indicate that peacebuilding efforts have largely failed to engage and impact upon young people in a way that has had a tangible impact on conflict over natural resources. Together with the apparent diverging opinions among younger and older community members as to what drives conflict (above), consequently, considering approaches to peacebuilding that would more directly engage young people and address what they perceive as critical drivers of conflict would be valuable.

## 3.3 ILLUSTRATIVE ISSUES FROM KEY INFORMANT INTERVIEWS AND FOCUS GROUP DISCUSSIONS

### 3.3.1. RISING PRICES

The FGDs highlighted a significant increase in food prices at markets. For example, the price of staple crops like sorghum recently increased seven-fold from SD 5,000 to SD 35,000. Inflation of local goods can be influenced by production and market access. The FGDs indicated that when access to markets becomes more difficult – or, more specifically, when they are cut off from transportation networks that connect producers and consumers – prices rise. Large-scale traders then increase the price of inputs and other goods because they need to adjust to rising costs or they want to exploit the situation. Therefore, food prices across multiple geographies and scales can become elevated for an extended period. Local small-scale traders, however, reportedly do not raise their prices as much. This high price environment is worse when food production is low, creating a situation in which the food supply cannot meet demand.

### 3.3.2. IMPORTS

According to the FGDs, the challenges of obtaining goods locally is further exacerbated by a reliance on food that is imported from other regions within Sudan. Because the main market for agricultural inputs, including seeds, is in Geneina, conflict in Geneina has a severe impact on domestic trade. While local foods – e.g., sorghum and millet – are available in local markets, staple foods – e.g., oil, sugar, pasta, and tea – all come from large cities like Geneina. Thus, while local markets may remain open and accessible during times of crisis, foods typically received from Geneina are not available.

### 3.3.3. MOBILITY

One direct example of mobility disruptions includes the use of violence or threat of violence to keep farmers from accessing their farmlands or prevent pastoralists from moving with their animals for grazing. In fact, many pastoralists have shortened their seasonal migration to avoid conflict and attacks on their livestock. These disruptions can have clear effects on production and future yields, but restricted mobility also impacts consumption. Vegetables can deteriorate and spoil at farms because they cannot be taken to markets after harvesting, and livestock lose out on critical pastures that would improve their prospects at market.

During the FGDs, participants highlighted the heightened disruptions to market access during times of conflict. Very few vehicles travel to the markets when violence intensifies. Increased fuel prices also serve to reduce market travel. Combined with criminal activities along high traffic routes, all these factors reduce the frequency with which traders go to major markets and increase the cost of trade. Restricted mobility thus drives producers and consumers alike to rely on localized and secondary (inferior) markets. This situation can impact both the incomes of local traders and food availability in a community. Without reliable access to consumers through the market, producers are put in a worse economic position as well.

Moreover, households cannot safely access woodlands for firewood when facing the threats of armed conflict. Access to water for household consumption might be disrupted, particularly if there is a need to fix a water pump but access to the Geneina market is interrupted. Mobility during conflict also comes with a high risk to personal safety, including the risk of robbery and particular gendered risks through women's exposure to gender-based violence. If fewer people are willing to travel, then women have fewer assurances while they are on the road. These disruptions to mobility can also impact humanitarian actors, hampering the distribution of relief that might otherwise fill the gaps of a reduced food supply.

Thus, due to mobility challenges and unpredictable use of roadblocks, timing can be everything. For example, in early 2022, the Kreinik conflict kept residents from harvesting their rainy season crops due to tribal militia blockades of the nomads. As a result, only those farms who harvested early were able to secure some produce from their lands, leaving the majority without a harvest. Additionally, pastoralists fear not being able to move their livestock and access the markets, so many do not travel as far as they once did to reduce their vulnerability to unpredictable conflict events, according to the FGDs. Both groups must carefully consider the risks that any attempt to travel might carry and realize that they could be displaced if they leave their land.

### 3.3.4. MARKET DISRUPTIONS

A conflict that displaces a community or results in blocked access to a community commonly results in negative impacts on other communities who might be trading partners. In the course of the FGDs, respondents consistently called attention to "shortages of the food items we do not grow in the area" as a result of violence. Accordingly, the prices of these traded food items rise, particularly those foods, such as sugar and vegetable oils, supplied by big traders from other parts of the state. The prices of locally produced food also drop because there is no longer an outside market of

consumers to which producers can sell. In cases like the Sisi community, there is no access to alternative markets. People subsist on what is available locally when market trade is disrupted. Typically, these foods are boiled cereals and beans.

In terms of regional effects, markets of different villages are often integrated with each other and with Geneina. Sometimes these market relationships also cross the border into Chad. Evidence from the FGDs demonstrates the existence of specialized markets by region and the necessity of these integrated markets to improving food security and diet quality. However, according to the FGD participants: "if any of these markets becomes inaccessible, the whole food system is disrupted." A much larger breakdown of the food system can follow under sustained stress and multiple broken trade linkages.

These so-called market disruptions also impact multiple levels of the food value chain including processing and purchasing. During times of conflict in Geneina, the large-scale processing of foods such as tomatoes, okra, and groundnut can come to a halt. Such large-scale processing is only done at the Geneina market so, when these disruptions occur, processing of these staple foods is severely compromised. As a result, secondary markets are impacted as they have no alternative source for acquiring the processed end food products. These events are particularly hard on women, who typically manage the processing of the staple crops. The FGDs noted that the only alternative is for women to process these foods at much smaller scales manually at their homes. The resulting reduced output thus cuts into both their time and income.

### 3.3.5. NATURAL RESOURCES AND CONFLICT

The livelihoods of farmers and pastoralists are reportedly less integrated in Sudan than they were in the past. FGD participants spoke of the inherent connection between natural resource management and peacebuilding, noting that the eruption of conflict is often spurred when the interests of farmers and pastoralists collide. Farms will often overlap with livestock migratory routes, which hinders the ability of mobile pastoralists to pass through farming zones. Moreover, pastoralists are expected to move on once the rainy season begins, but this is not always the case. This competition over natural resources can evolve into local level conflict. Peacebuilding efforts exist locally (the *Ajaweed*) to mitigate these conflicts, or these conflicts are resolved by local leaders (such as the Sheikh and the Omda).

Conflict can lead to displacement and farm abandonment, which exacerbates land access



challenges. The FGDs indicated that accessing farmland during times of conflict is difficult and that the violence is compounded by the entrance of new settlers in the area who compete for access to high-quality clay soils. Participants also noted difficulties in accessing water during conflict due to increased barriers to finding and acquiring spare parts for fixing water pumps. Finding and accessing adequate firewood for cooking is another resource issue, which often necessitates a move to charcoal for fuel.

### **3.3.6. COPING STRATEGIES**

Participants in both the FGDs and KIIs gave evidence of negative coping strategies, indicating that livestock theft increases during conflict. Many of these animals are also killed and breeding lines are lost when general insecurity increases. Field abandonment by farmers is another byproduct that results in livelihood losses due to crop damage and the destruction of farmland. Pastoralist animals may pass through abandoned fields as well, damaging farm infrastructure. The FGDs further emphasized the necessity of turning to charcoal making and firewood collection as alternative sources of income to cope with reductions in livelihood productivity.

Furthermore, food consumption patterns shift as a method of coping with increased food prices and disruptions to the food system. Initially, asset sales are used to offset losses and cover household costs. Broadly, however, the consumption of staple crops such as sorghum and millet is significantly reduced during times of conflict as a method of coping with supply shortages and price inflation. Women may also skip meals to feed their husbands or children. Men are often afraid of being targets of the armed conflict leaving women to both take care of the children and pursue other livelihood activities to provide for the household.

## 4. DISCUSSION

### 4.1 DISCUSSION OF RESULTS

Overall, the research reveals conflict has a negative impact on the food system of West Darfur primarily through a) disrupting access to natural resources (farmland, pastureland, firewood and water); b) disrupting access to markets (physical and financial); and c) limiting the integration of different markets (which is essential resilience mechanism for food systems). Access to Geneina market is particularly important for rural areas for inputs as well as marketing. The food system's long-term instability is a result of the fragile peace processes of the region.

The sections below explore these in further detail, distinguishing between impacts of conflict on the food system that are -

- **Connected** - complex interconnections between different nodes in the food system;
- **Cumulative** - successive, repeated exposure to specific distortions and disruptions in the food system that intensify impacts; and
- **Compounding** - combined impacts of co-occurring effects on the food system that act together to multiply impacts.

#### 4.1.1. CONNECTED

##### IMPORTS AND INFLATION

Imports have an important role to play in food security by supplementing local food production with food imports as well as providing key inputs in the form of seeds, fertilizer, fuel and other supplies that may not be available in sufficient supply locally. Food imports can help meet the need for food quantity and dietary diversity in combination with local food production but can also be harmful when suppressing local food systems. There are connections between local food production, imported food and agricultural inputs that inflation can modulate. Conflict acts to drive inflation on both agricultural inputs and local food prices to degrade local food systems. In the food system map, rising agricultural input prices contribute indirectly to food import dependence by undermining agricultural production when the cost of agricultural inputs rise. If food imports are of low-quality calories such as processed carbohydrates, they can disincentivize local nutritious food in the short term and change diets in the long term.

The cost of local foods, to make it from farm to table, is also inflated by conflict due to illegal taxation, roadblocks and limited mobility, as described below.

When imported foods are relatively lower priced and replace local foods directly, they also disincentivize local food systems. The cost of agricultural inputs also contributes to a more systematic abandonment of agricultural livelihoods, as landless producers abandon production because inputs outweigh profits, particularly when renting land. The abandonment of food system-related livelihoods, discussed below, has a further, mutually reinforcing impact on agricultural production as it heightens import dependence, contributing to a less sustainable, more volatile and fragile food system in both the short and longer-term.

#### 4.1.2. CUMULATIVE

##### ROADBLOCKS, TAXATION AND MOBILITY

While roadblocks are a direct manifestation of armed conflict, illegal taxation and mobility are closely linked. The impacts of illegal taxation and restricted mobility due to conflict accumulate throughout the food system in various ways. Their food security impacts are transmitted through a) decreased food availability by disincentivizing production and restricting the movement of goods; b) diminished food accessibility by from increased transport and production costs transmitted to consumers in higher prices; and c) poor food consumption indirectly by driving food spoilage and forcing households to depend to a greater extent on smaller, local markets with more limited selection and often, nutritionally inferior food.

Inputs into the food system, such as seeds, oil and fuel transports from central or port cities are also illegally taxed by armed groups raising the cost of food production and processing. Armed groups may impose taxes at every stage of the food system from production to processing to transport, and trade. This burden combined with taxes from the government can add up to make food system activities prohibitively expensive or significantly diminish returns and ultimately degrade local food systems.

##### SPECIALIZED AND INTEGRATED MARKET FUNCTIONING

Specialized but integrated market functioning allows efficiencies, increased food availability and an enhanced capacity to produce and store food locally. However, the food system is very fragile due to its networked and specialized nature, and the high level of interdependence between different markets and areas producing and marketing complementary food items.

Integrated market functioning is profoundly disrupted by conflict. For example, large central markets such as Geneina are critical for many food system inputs including seeds, water pumps, pesticides, fuel, and others. Large scale processing of food items such

as dried okra, dried tomatoes, groundnuts and hot pepper also requires big markets such as Geneina. Any conflict impacts on Geneina market, then, has a range of cumulative impacts throughout the food system. In some cases, there are alternative markets for inputs and for processing, but they differ in their size and function with fewer vendors and lower capacity. Trading in these secondary markets drives up costs for inputs and processing while lowering returns. Farmers also store their produce in Geneina to protect it against theft in case a conflict erupts. However, if conflict affects Geneina, then they cannot have access to their produce which leads to spoilage. Access to a larger market such as Geneina is also critical for marketing and importing specific food items, a function which is not replicated in smaller markets during periods of conflict. These markets are also important for lending and exchange of benefits between different producers, and these are also affected by market shutdowns.

Conflict also creates risk for communal tension by disrupting this integration. Normally, farmers and pastoralists can trade goods through loans, but this is undermined during conflict and raises tensions. This also affects the circulation of cash in communities, meaning access to cash and subsequent financing is disrupted. Trade is dependent on credit and traders are expected to return to their markets to pay in due amounts, so suppliers are also affected. Finally, as various communities specialize in specific food items, any disruption in one community can lead to acute food shortage of specific items. Ultimately, these combined effects often mean that exchange of goods and services between different communities is lost.

### 4.1.3 COMPOUNDING

#### MALADAPTIVE LIVELIHOOD TRANSFORMATION

The most striking revelation enabled by this holistic mapping analysis is that food and livelihood systems are transformed by conflict into maladaptive states that undermine endogenous food systems and food security. Conflict initiates maladaptive cascades – a combination of mutually reinforcing negative coping strategies that have cumulative consequences. These maladaptive cascades initiated by conflict lead to pathways that diminish, degrade or disable local food systems. Often, the coping strategy used to deal with conflict navigates people into behavior that disrupts the food system in the medium to long-term, by reducing local food production, availability and access.

As conflict drives production, processing, transport and market costs higher or simply makes transport or doing business more risky or difficult, stakeholders in the system often reduce their activity. Farmers will cope by growing less crop or switching to cash crops

if profits decline or limited mobility leads to excess waste. Some turn to bush products such as charcoal to compensate for income which further degrades the environment and undermines future food production. Manual processing as a coping strategy for lack of mobility to machine processing sites or diminished capacity among industrial processors leads to less food availability. Transporters reduce their risk with fewer trips or alternative cargos. All stakeholders may resort to alternative markets with less business.

These coping strategies, however, cannot meet the needs required of the local food system, generate enough return for risk and expense among food system stakeholders and undermine the flows of capital that allow that system to run and reinvest in itself. Ultimately, this leads to displacement and abandonment of food system livelihoods for alternatives which disables local food systems further increasing food import dependence. In addition to the cyclical relationship between conflict and food security as drivers of one another, the map reveals these more destructive pathways that can be difficult to overcome and are not easily ameliorated by simply addressing conflict.

#### NATURAL RESOURCE MANAGEMENT, PEACEBUILDING, CLIMATE AND YOUTH

Natural resource management and peacebuilding have interactive effects throughout the food system but are modulated by youth disengagement and climate change. There are structural challenges facing natural resource management in the region. Access to land historically accommodates the needs of farmers and pastoralists who used to effectively negotiate that access through institutions such as *talaig* (discussed further above in the conflict analysis). However, this is not as respected as it used to be in the past. Tensions arise when, as a response to conflict induced limitations on access, mobile pastoralists' herds graze on crops before harvest is complete (particularly those traveling long distances from other areas, compounded by shorter migration seasons) and farmers grow crops in livestock migratory routes and resting areas.

Local peacebuilding committees indicated that they can resolve disputes between different users, but that capacity appears to be limited to certain cases. In particular, while committees have some capacity to resolve disputes between local communities - including by charging fines to pastoralists who damage crops, for example - it is far more difficult to secure accountability from groups who are passing through an area and are unknown to local committees and leaders.

Conflict has also transformed to such an extent that disputes that were historically amenable to traditional conflict mechanisms may no longer be, given changes

in the circulation and availability of light arms, intensity of conflict, and legitimacy of local authorities. Local and traditional natural resource management processes may also privilege established community hierarchies, leading to disengagement and a lack of buy-in among more marginalized groups, including young people. Youth disengagement is another compounding factor that arises from conflict's effects on the food system in multiple ways. The survey data revealed a clear skepticism among younger respondents about the efficacy of peacebuilding activities as well as impacts of climate on food systems, suggesting a potential legitimacy crisis for peacebuilding actors and efforts in the region. Finally, climate change can compound the conflict induced impacts on land access with further stress on limited natural resources and combined with ineffective resolution mechanisms, exacerbates conflict.

#### Health disruptions and specific risk for Sudan's youth

As conflict erupts and both food systems and livelihoods are disrupted, food prices rise, and both income and food availability suffer. As a result, rates of malnutrition and undernutrition rise, particularly among children. The damaging impacts on livelihoods documented throughout this study, lead to significantly reduced income which is critical to maintaining health and wellbeing from adequate shelter and basic needs as well as self-care. Coping strategies employed in response to livelihood disruptions are also often specific to health from skipping meals to forgoing medication and even basic hygiene.

When either food prices or income are independently altered, the health status of a population deteriorates; in the context of a country that is highly reliant on agricultural livelihoods, as in Sudan, the joint and compounding impacts of rising food prices and disruptions to income are vast. These synergistic effects have the potential to increase the rates of morbidity and mortality in an already-stressed healthcare system. As a result, the health status of the population suffers not only from direct combat-related morbidity and mortality, and the multiplicative effects from reduced food and income, but also from health care system and public health deficiencies. These risks include an increase in the spread of infectious and chronic diseases (such as diarrhea and respiratory infections), increased rates of mortality for pregnant women, increased under-5-mortality, and a higher risk of SGBV.

While these health impacts are felt by all, the ongoing conflict in Sudan makes youth particularly vulnerable and to both engaging in violence and as victims of violence. Longer lasting indirect drivers of poor

health and wellbeing also exist due to poor access to education and social structures that would provide support to Sudan's youth population.

## 4.2. CONCLUSIONS AND RECOMMENDATIONS

### 4.2.1 PROGRAMMATIC RECOMMENDATIONS

#### 1. Support nutrition-sensitive activities in secondary and tertiary markets.

In light of widespread mobility restrictions in all three country contexts, supporting access to more nutritious foods to be sold in smaller, local markets could have positive effects throughout the food system.

FCM, KIIs and FGDs all highlighted key distortions in market functioning that disrupted the food system. This is reflected in limited market integration: in periods of conflict, markets which specialized in particular items were inaccessible to certain or all communities, with ripple effects throughout the system. In these contexts of market control by armed groups, restricted movement of goods, and often prohibitive transport costs and risks, efforts to support secondary and tertiary markets to fill the gap in food accessibility in local neighborhoods would be valuable.

Any intervention of this kind should be designed after careful analysis of conflict dynamics and the potential for unintended consequences throughout the conflict system - specifically, the risks of making smaller markets more attractive to armed groups and drawing conflict actors into more localized markets.

#### 2. Provide targeted support to local peacebuilding and conflict resolution mechanisms that directly engage and empower young people and women.

The research consistently indicates that top-down, national authority-led efforts at peacebuilding are likely to be ineffective in the absence of locally-owned initiatives with buy-in from local leaders. Mechanisms including *talaig* and local authority efforts should be mapped and, at a minimum, taken into account in program design and activities, to ensure that any livelihood-related activities do not disrupt or undermine ongoing peacebuilding efforts (for example, through the introduction of resources that may be subject to dispute, and/or through provision of assistance to select communities but not others involved in peace processes).

Beyond this, targeted support to young people's and women's engagement with peacebuilding activities and



conflict resolution centered around natural resource management would be valuable. Younger and women respondents were typically more skeptical of the potential impact of peacebuilding efforts, and of the relationship between natural resource disputes, conflict and climate crisis, when consulted. Targeted efforts to support initiatives that enhance young people's and women's inclusion and meaningful participation in local conflict resolution processes could help to address this, and potentially introduce innovative approaches to conflict resolution from marginalized community members.

### **1. Implement programming to improve relationships between pastoralists and agricultural farmers along migratory routes.**

Findings from this research support the wider literature indicating the interconnected nature between local- and national-level conflicts. Programmatic efforts aimed at improving local-level relationships through building trust and engagement at the community level are likely to have far-reaching impacts for large-scale peacebuilding and food security in Sudan. Reductions in pastoralist-agricultural tensions will likely have wide-ranging positive impacts across the food and conflict systems, including improving food production and reducing armed conflict.

By investing in locally-led initiatives to create opportunities for building relationships, sharing information, and building a structure for mutually beneficial credit exchange programs, programmatic interventions can build social cohesion locally that will extend well beyond the community level.

### **2. Pursue humanitarian assistance strategies that support local food systems and minimize negative externalities.**

The humanitarian assistance community, including donors, must take a conflict sensitive approach to understand not only how conflict and food security exist in relationship with one another but how specific humanitarian assistance strategies related to food assistance can reinforce the maladaptive transformations described above. There are unintentional negative consequences to long term food security and perpetuating conflict that may be avoided with a holistic understanding of how humanitarian assistance impacts local food systems. Donors should understand the food import pricing relative to local food and the relationship with challenges in producing, processing and accessing local food. Directed strategies

at overcoming these challenges and preventing maladaptive transformations should be considered as part of a holistic humanitarian assistance strategy. An FCM approach can reveal potential avenues for supporting local food systems rather than dependence on food imports.

For example, as many of the maladaptive coping strategies are centered around changing livelihoods, programming that can support food system livelihoods present an avenue for intervention. More specifically, the prohibitive costs of continuing to do business relative to profit drive these transformations and subsidies targeted at specific local food system businesses may be reasonable at times of stress. Accompanying cash transfer programming, a voucher system for use only on local food vendors or suppliers could help support local food systems. Finally, direct food assistance should be the least preferred mode of humanitarian assistance made available and used under very specific criteria.

### **3. Prioritize re-integration of markets and flow of finance between producers and traders.**

The key fragility of the food system in West Darfur derives from the specialized and integrated nature of where specific food is grown, processed and how key inputs and money are traded and exchanged with a critical importance of the main market in Geneina. While reorganizing this system and moving away from specialization to build resilience may be undesirable or unfeasible in the near-term, prioritizing interventions that can re-integrate key aspects of the food system and developing alternatives to the Geneina market represents the best option for regaining function. A potential area to explore would be replicating the capacity found in Geneina for food processing and storage through the current secondary markets in a more distributed fashion. Another possibility may be creating corridors for the flow of key agricultural inputs and financial exchanges when access to Geneina is blocked or enhancing peer-to-peer electronic payment exchanges. Both approaches leverage redundancy as a strategy to build resilience.

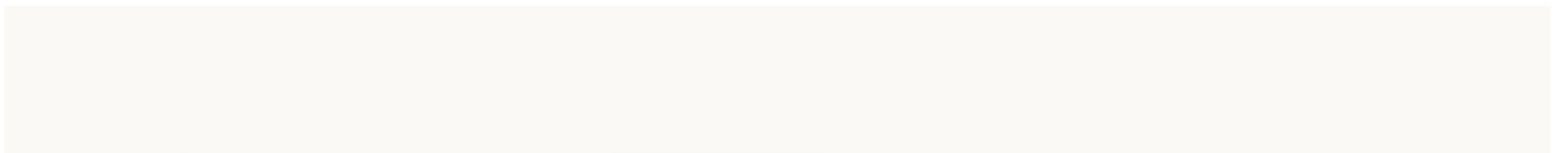
### 5.2.2 POLICY AND ADVOCACY RECOMMENDATIONS

#### 1. Pursue protection agenda and associated advocacy around cumulative impacts of taxation and mobility barriers (e.g., roadblocks).

Humanitarian and development responses alone cannot fully address the depth and complexity of many of the obstacles affecting food security for people experiencing extreme poverty in Sudan. Political actors within Sudan primarily, and in the wider international system secondarily, have an important role to play in protecting food systems stakeholders. Targeted advocacy efforts can make an important contribution by first, raising awareness of the extent to which roadblocks and taxation affect food security for the most vulnerable; and second, calling for policy action to better protect food systems stakeholders. Potential policy asks to explore include greater consideration of roadblocks, transport barriers, resource extraction and attacks on food systems stakeholders in transit under the remit of UN Security Council Resolution 2417 and associated reporting; greater consideration of the gendered and youth-specific effects of roadblocks, transport barriers and attacks on women food systems stakeholders under the remit of the Women, Peace and Security and Youth Peace and Security agendas and associated reporting and briefings; and/or exploring international legal and accountability provisions related to attacks on food systems stakeholders and the gendered impacts where appropriate.

#### 2. Pursue policy and advocacy efforts for the inclusion, engagement, and empowerment of youth in food system livelihoods

Approximately half of the population of West Darfur is under the age of 24. In the context of a booming youth generation, investment in policy measures to include young Sudanese into food systems livelihoods has the potential to greatly benefit all aspects of the food system in Sudan. Youth disengagement with and absence from food-systems livelihoods may confer further challenges with conflict and food security in Sudan, particularly as those engaged in food systems livelihoods become unable to work. Working towards establishing policy and advocacy efforts to engage young Sudanese in these livelihoods can make an important contribution towards improving food security and, importantly, building resilience in the food system to prevent and reduce the impacts of future conflicts.



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