SUDAN

IFPRI

SUDAN STRATEGY SUPPORT PROGRAM WORKING PAPER 25 DECEMBER 2025

Rural Livelihoods Under Prolonged Conflict

Evidence from a Panel Household Survey in Sudan

Halefom Yigzaw Nigus, Hala Abushama, Tarig Rakhy, Shima Mohamed, Khalid Siddig, and Oliver Kirui

EXECUTIVE SUMMARY

This report presents evidence from the Sudan Rural Household Survey of 2023 and 2024, a two-wave panel survey that assesses how rural households are navigating prolonged conflict. By tracking the same households over time, the survey provides longitudinal insights into livelihoods, food security, access to markets and productive resources, and exposure to shocks across an insecure and rapidly evolving context.

The findings from the survey data analysis point to an uneven pattern of economic adjustment by households rather than sustained recovery. Rural households are actively adapting through changes in livelihood strategies, income diversification, and increased participation of household members in income-generating activities. Compared to 2023, fewer households reported in 2024 having no employment. Engagement in salaried work and agriculture also rose. Despite these shifts, income losses remain widespread. Only a small share of households reported improved earnings in 2024, indicating that adaptation is largely driven by necessity rather than durable recovery.

Food consumption outcomes improved markedly between survey waves, with substantial declines in the share of households in 2024 reporting poor or borderline diets. At the same time, experience-based measures show that food insecurity remains pervasive, with more than half of rural households facing moderate or severe food insecurity. There has been little change in the prevalence of severe food insecurity. The continuing food insecurity challenges underscore the fragility of recent gains and the continued vulnerability of many households.

Households' capacity to manage shocks has improved modestly, reflected particularly in larger holdings of food stocks or savings. Yet, most households can meet food needs for only a few days, and reliance on negative coping strategies remains common. Notably, the increased proportion of households in 2024 selling their productive assets and household goods suggests that their current consumption is often maintained at the expense of the future sustainability of their livelihoods.

Access to agricultural land and markets has improved in some areas. These gains are associated with better food consumption outcomes. However, such improvements are uneven and remain sensitive to displacement, insecurity, and market disruptions. Ongoing population movements further highlight the fluidity of rural livelihoods and uneven access to productive resources.

Exposure to shocks is increasing. Reports of climate-related shocks remained high in 2024. Security-related shocks, including violence and theft, also increased. The accumulated adverse impacts of these shocks help explain why improvements in several economic indicators for Sudan have not translated into sustained reductions in food insecurity.

Overall, the evidence shows that rural households in Sudan are demonstrating resilience under extreme economic pressures. However, this resilience is fragile and often grounded in costly coping strategies. Effective responses to the economic challenges the conflict is imposing on rural households in Sudan will require balancing immediate assistance with measures that protect livelihoods, assets, and human capital. The panel nature of the survey further underscores the value of continued evidence generation to track evolving conditions, refine targeting, and support adaptive responses over time.

CONTENTS

TABLES

FIGURES

1. INTRODUCTION

The armed conflict between the Sudanese Armed Forces (SAF) and the Rapid Support Forces (RSF) has yielded devastating impacts on the livelihoods of Sudanese households. The conflict, which erupted on 15 April 2023 in Khartoum, soon spread to other regions, including Aj Jazira, Sennar, Darfur, and Kordofan. As fighting continues, Sudan finds itself in an unprecedented humanitarian crisis that has had adverse impacts on both social and economic structures. The multifaceted shocks induced by the ongoing clashes have impacted both rural and urban households, affecting their safety, security, and overall livelihoods.

The conflict ranks as the fourth deadliest globally, with over 30,000 fatalities recorded by the end of November 2025, including over 5,000 civilians killed (ACLED, 2025), while many others have died due to indirect effects of the fighting (Yibeltal and Rukanga 2024). The fighting between the SAF and RSF has resulted in massive displacement of the population of Sudan, both internally and to Sudan's neighbors (Abushama et al., 2024; UNHCR, 2025). By November 2025, over 11.8 million people were estimated to have been forcibly displaced, of which 7.3 million were displaced within Sudan (UNHCR, 2025). Moreover, 53 percent of the internally displaced population in Sudan is made up of women and girls, who are commonly subject to gender-based violence (UN Women, 2025). It was estimated in October 2025 that 30.4 million people in Sudan require humanitarian assistance (OCHA, 2025).

Alongside the severe deterioration in social and economic conditions and institutions in Sudan, the conflict has led to the destruction and disruption of critical infrastructure and services, including roads and other forms of transportation, telecommunication networks, electricity and water supply, and access to healthcare and education. The delivery of health services is severely hampered by the fighting—there have been 156 confirmed assaults on healthcare facilities since the start of the conflict (WHO, 2024). These direct attacks are occurring alongside outbreaks of cholera, malaria, dengue fever, measles, and rubella, coupled with critical shortages of medical supplies and funding needed to maintain healthcare operations and pay staff. In the states most affected by the conflict, fewer than one-third of health facilities are operational. Many of those still operating are at risk of closure due to shortages of medical staff, essential supplies, safe water, and electricity (WHO, 2025a). In late 2025, around 11 million people were in urgent need of health assistance (WHO, 2025b). Similarly, educational activities have been severely disrupted. In late 2024, 13 percent of schools were being used as shelters for internally displaced people, while 19 million school-aged children were out of class (UNICEF, 2025a). Efforts are being made to alleviate these dire healthcare and education crises—by the end of 2025, about 2 million children were reached with either formal or non-formal education services (UNICEF 2025b).

Conflict-induced shocks on rural households intensified and expanded across Sudan over the course of 2023, resulting in massive displacement, deteriorating livelihoods, and increased poverty and food insecurity (IFPRI and UNDP, 2024). The economic downturn caused by the fighting impacted both households that were forcibly displaced and those that hosted them. Thirty percent of displaced rural households reported experiencing severe losses and acute declines in incomes. Non-displaced households also experienced significant income declines, albeit to a lesser extent. At the end of 2023, 73 percent of rural households were living in inadequate housing facilities, with the lack of access to water, electricity, and sanitation being pronounced challenges (IFPRI and UNDP, 2024).

To mitigate the adverse effects of the conflict on their income, food security, and access to essential services, rural households adopted several coping strategies. These strategies include selling household and productive assets and livestock, borrowing money, expanding their engagement in economic activities, migration, obtaining support from friends and family either within Sudan or beyond, and relying on community and humanitarian support (IFPRI and UNDP, 2024). In the face of deteriorating livelihoods, many households have reduced their consumption levels by cutting back on the amount of food they consume daily, limiting their diets to only inexpensive and often less preferred foods, or pulling their children out of school. Although these coping strategies may offer temporary relief, they often lead to long-term negative consequences if households are unable to recover their livelihoods. For example, selling productive assets or livestock may provide immediate help but reduce the future earning potential of the household, leaving it stuck in a cycle of vulnerability and dependency (Ndip and Touray 2019, Sassi 2021).

The conflict has resulted in high inflation, increased unemployment, the collapse of social safety nets, and significantly higher risks of food insecurity and malnutrition (Ahmed et al., 2024; Kirui et al., 2024). Food prices have surged due to low market functionality, reduced cultivated area leading to diminished crop production, restrictions and blockages on market supply routes, and a rapid devaluation of the Sudanese pound (IFPRI, 2025). The factors collectively have sharply diminished food affordability and access in Sudan. Nonetheless, food insecurity outcomes are uneven across Sudan. This is due to variation in conflict intensity and urban households being more likely than those in rural areas to have reasonable access to food. Since the fighting started, rural households have consistently been found to face greater food insecurity than urban households (Kirui et al., 2024).

By July 2024, 15 months after the start of the conflict, it was estimated that 54 percent of the population, 25.6 million people, were at high levels of acute food insecurity—Integrated Food Security Phase Classification (IPC) Phase 3 or worse. Fourteen areas across Sudan were then at risk of famine (IPC, 2024). Due to planned humanitarian interventions, it was projected that the number at risk of acute food insecurity would decline to 45 percent in 2025 (WFP, 2025a). The most recent IPC analysis underscores the depth and persistence of Sudan's rural food-security crisis, but also found some limited easing in acute food insecurity—in September 2025, it was estimated that 44.6 percent of the population were facing IPC Phase 3 or worse. More than 19 million people are projected to remain in IPC 3 or worse through mid-2026, even during the period following the harvest. This persistent acute food insecurity is driven by conflict-related displacement, disrupted livelihoods, soaring food prices, and the near-collapse of local markets. North, South, and Central Darfur, South and West Kordofan, Sennar, and Blue Nile states all have more than half of their populations in IPC Phase 3 or worse (Siddig and Omamo, 2025).

In January 2025, prices of food commodities showed some modest declines, with the cost of the local food basket monitored by the World Food Programme (WFP) decreasing by 7 percent from the previous month. However, the cost was still 142 percent higher compared to January 2024 (WFP, 2025b). The conflict reinforces food price inflationary factors by making it very difficult to put in place a conducive environment for the recovery of agricultural production to sustain the livelihoods of rural agrifood producers and mitigate food insecurity.

Data from IFPRI's Sudan Price, Availability and Quality Monitoring System (SPAMS) similarly showed that between February and September, the prices of key staples, including sorghum,

millet, wheat, and wheat flour, increased between 10 and 31 percent across the monitored markets (IFPRI, 2025). Largest price increases were reported for sorghum and coincided with acute shortages of the grain in conflict-affected areas where insecurity, road closures, and sieges disrupted normal trade flows. Fuel prices rose even more steeply over the same period—prices for regular diesel increased by 34 percent, while prices of diesel in the parallel market increased by 20 percent. These fuel price spikes have driven up transport and distribution costs, further intensifying food price inflation and weakening the purchasing power of rural households (IFPRI, 2025).

This report is based on an analysis of data collected through waves one (2023) and two (2024) of the Sudan Rural Household Survey to assess changes in the socio-economic conditions of Sudanese rural households due to the ongoing conflict. The report examines the livelihoods and multifaceted dimensions of the welfare of rural households and traces how their income levels, employment, food security, access to markets, and use of household assets have changed between 2023 and 2024. Broadly, the analysis shows that the rural households are adapting to conflict-related shocks over time, with some improvements in livelihoods in 2024 relative to 2023. However, significant challenges to their welfare persist.

The report is structured as follows. Section 2 describes the panel survey, including its design, the sampling strategy used, and how it was implemented. Section 3 examines migration patterns, while section 4 assesses the economic resilience of rural households. Section 5 focuses on food security conditions and coping strategies adopted by households. Section 6 analyzes agricultural land ownership, and section 7 explores market access. Finally, section 8 synthesizes the findings and offers conclusions and policy recommendations.

2. METHODOLOGY

2.1 Survey design and sampling

The Sudan Rural Household Survey was designed as a panel survey, enabling a longitudinal analysis of the socio-economic conditions of rural households amid conflict. Wave 1 of the survey was conducted in late 2023, with Wave 2 following in early 2024, tracking the same households. Both survey rounds employed computer-assisted telephone interviewing (CATI), a methodology chosen to overcome the in-person data collection challenges inherent in conflict-affected settings. This approach allowed for timely and flexible interviews of members of the survey sample households, ensuring continuous monitoring of key economic and social indicators under crisis conditions.

In Wave 1, the sample size was set at 4,504 households, distributed across Sudan's 18 states in proportion to their share of the national population. The sample was drawn from a database of telephone numbers linked to previous Food Security Assessment Surveys of the World Food Programme (WFP). To enhance coverage, particularly in areas where the WFP's database was limited, additional contacts were sourced from the databases of the survey firm contracted to administer the survey (IFPRI and UNDP, 2024).

For Wave 2, efforts were made to re-interview the same households from Wave 1, ensuring panel consistency and allowing for robust trend analysis. However, due to network and connectivity challenges, some Wave 1 sample households were unavailable for follow-up. The final balanced sample across both rounds stood at 4,411 households, representing an attrition

rate of less than 9 percent. A stratified random sampling approach was used to recruit the sample households.

Despite efforts to ensure representativeness, some limitations persist. The reliance on telephone-based sampling means that households without mobile telephone access—often among the poorest and economically most vulnerable members of rural communities—may be underrepresented. While adjustments were made to mitigate this, the findings from the survey data analyses should be interpreted with this potential caveat in mind.

2.2 Data collection

Data collection for both waves followed a consistent methodology to ensure comparability between the two rounds. Enumerators were trained extensively before interviews began under each wave, focusing on interview techniques, ethical considerations, and the use of CATI survey tools. Given the conflict environment, the training was conducted remotely. The use of Sudanese Arabic in interviewing was emphasized to ensure effective communication with respondents.

The Wave 1 survey was conducted between 09 November 2023 and early January 2024. Data collection for Wave 2 was carried out in April and May 2024. The three-month gap between the survey rounds was sufficient to assess changes in household conditions under the dynamic context of conflict in Sudan.

The CATI system allows real-time data monitoring, which both reduces errors and improves data integrity. The CATI software also incorporates quality control measures, such as random call-backs and internal consistency checks, to ensure data consistency and accuracy. Respondents were provided with opt-in and scheduling flexibility in order to reduce non-response rates and improve engagement.

Among the challenges encountered during data collection were network instability and security-related access limitations. To address these, enumerators adopted adaptive scheduling of interviews with the sample households, extending interview windows where necessary. Expanded contact lists from Wave 1 helped mitigate attrition while preserving the panel structure of the survey.

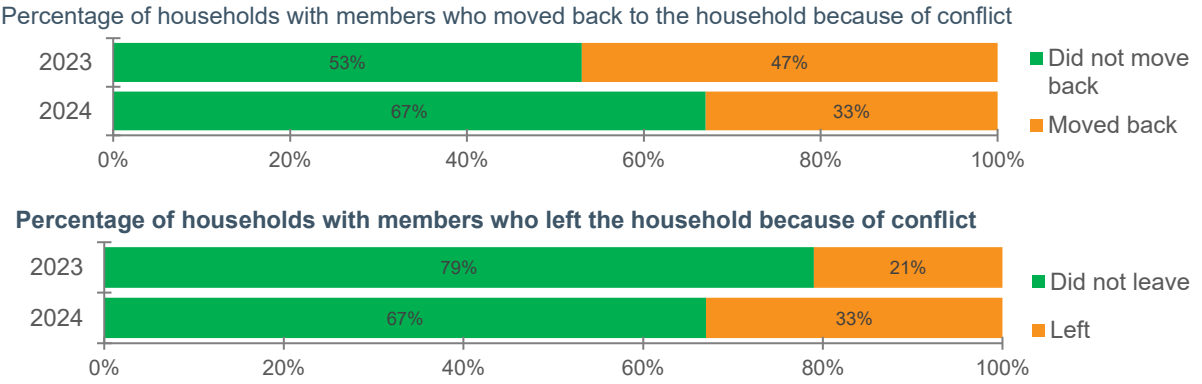
Despite these challenges, methodological consistency across both waves ensures that the survey provides a reliable and continuous assessment of Sudan's rural households amid the ongoing conflict. The longitudinal design, combined with careful sampling and rigorous data collection procedures, enables users of the survey data to undertake objective examinations of key dimensions of rural livelihoods with a high degree of comparability across time. The following sections present the main findings from the survey, beginning with patterns of migration among rural households.

3. MIGRATION DYNAMICS

The protracted ongoing conflict in Sudan, which began on 15 April 2023, has caused significant population displacement, both internally and cross-border. Figure 3.1 shows the share of households reporting that family members, due to the conflict, either moved back to the household or left the household in 2023 and 2024. Forty-seven percent of households in 2023 reported that family members had moved back to the household as a result of the conflict. The

proportion of households experiencing such movement declined to 33 percent in 2024. The decline in households having members move back between 2023 and 2024 is attributed to the concentration of fighting in urban centers and the initial shock of the start of the conflict, which resulted in very high displacement from urban to rural areas. Over time, conflict dynamics did not change much, thus slowing the rate at which individuals moved back to the rural areas.

Figure 3.1 Migration dynamics amid conflict in rural Sudan, 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

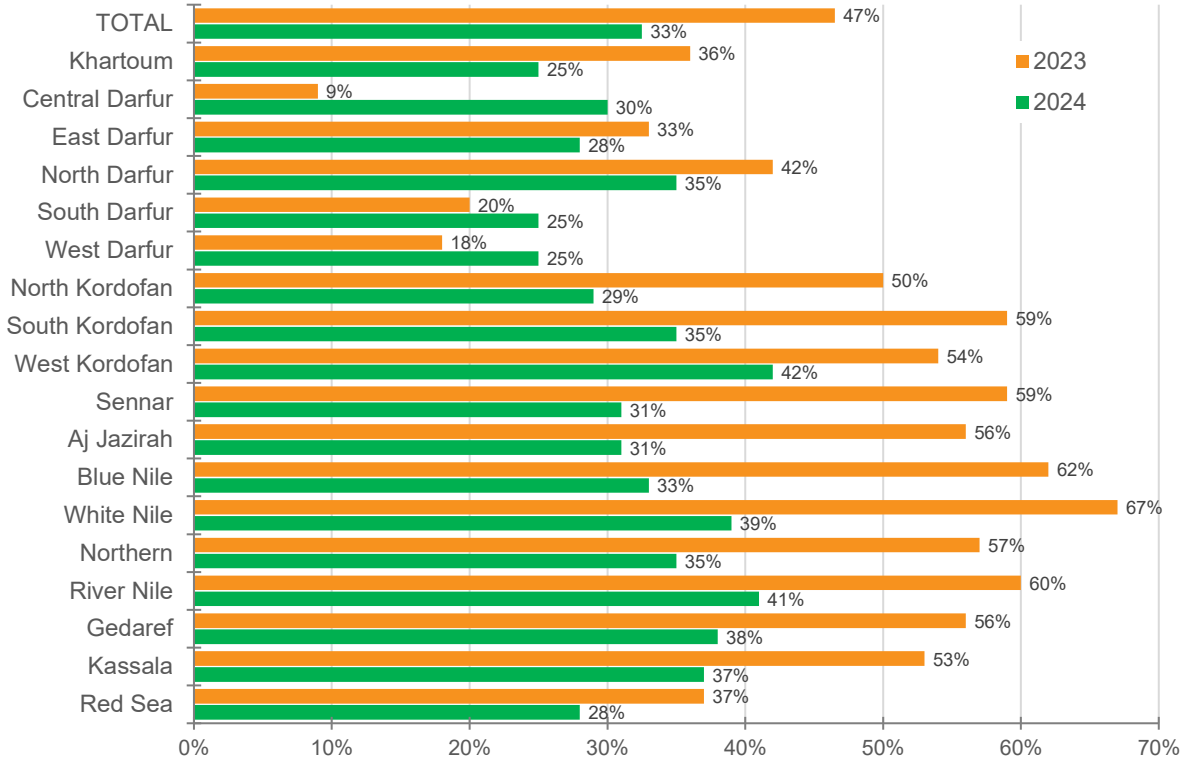
In contrast, the bottom panel of Figure 3.1 shows a different trend. In 2023, only 21 percent of the households reported that family members had left the household because of the conflict. However, in 2024, the percentage of households experiencing departures increased to 33 percent. These patterns suggest a shift in migration among conflict-affected households in rural areas of Sudan, possibly explained by rural household members' need to migrate for work and income-generating activities in the face of deteriorating income levels in rural communities, lower farm production, and overall greater livelihood opportunities in urban areas.

Figure 3.2 and Figure 3.3 present trends in conflict-induced displacement across Sudan's states between 2023 and 2024. Figure 3.2 shows that across nearly all states, there was a noticeable decrease in conflict-induced movement back to the household in 2024 compared to 2023. Blue Nile, Aj Jazirah, Sennar, and White Nile states recorded the highest decline in displacement rates in 2024, suggesting improvements in rural economic conditions or living conditions in those states.

Figure 3.3 shows the share of rural households by state that reported members who left the household, either internally or cross-border, due to conflict. The most significant increases in households with members leaving were observed in Aj Jazirah, North Kordofan, Central Darfur, and Blue Nile states. These patterns suggest heightened violence or reduced access to basic services in states with higher outmigration of household members. However, notably, Northern states saw a decline in households reporting members leaving between 2023 and 2024.

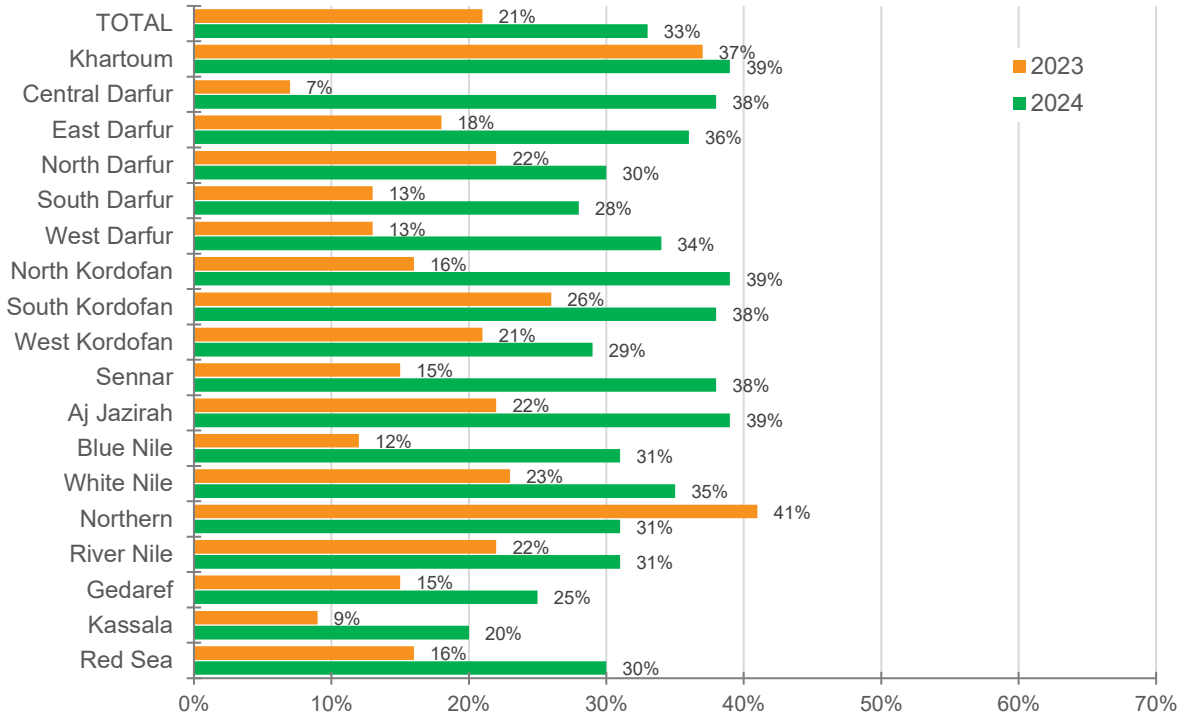
Together, Figure 3.2 and Figure 3.3 highlight the high prevalence of population displacement in Sudan during the current conflict. The broad geographic spread and year-on-year changes in conflict dynamics underscore the need for urgent humanitarian assistance, conflict resolution, and targeted protection strategies in the most affected areas.

Figure 3.2 Share of rural households with members who moved back to the household because of conflict, by state, 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

Figure 3.3 Share of rural households with members who left the household because of conflict



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

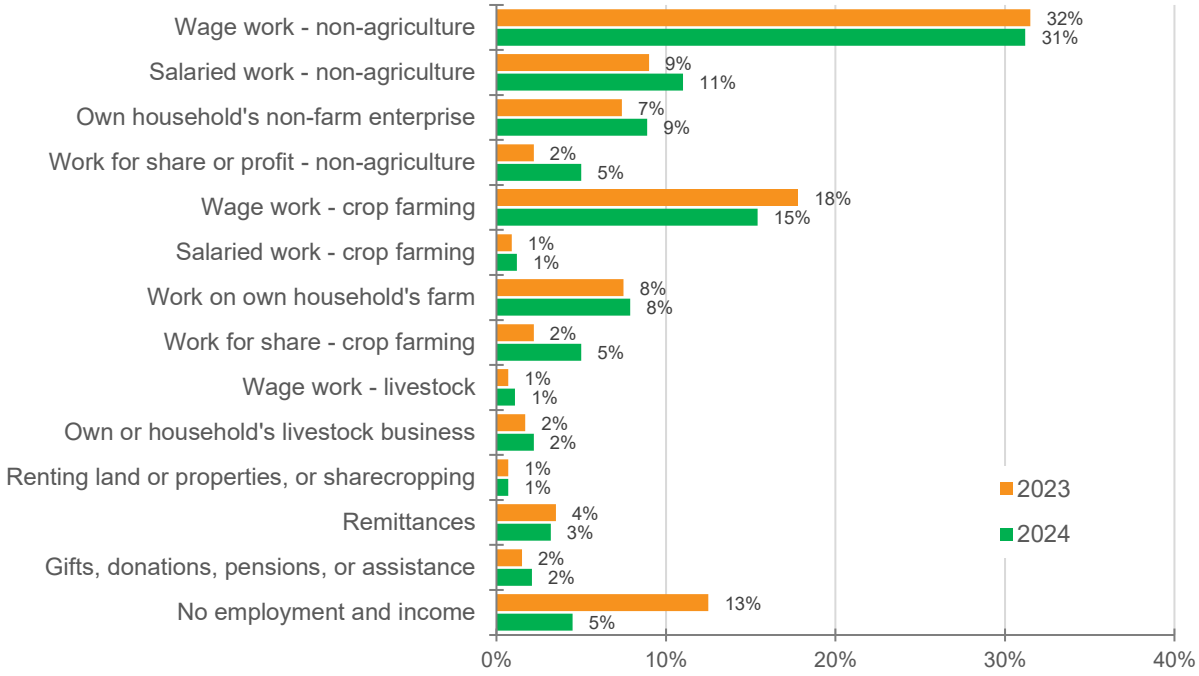
4. ECONOMIC RESILIENCE

This section discusses the main sources of income and the economic resilience of rural households in 2023 and 2024. Specifically, it discusses any shifts in income sources, overall perceived changes in income between the two survey rounds, and the increased use of child labor as a coping strategy in response to the adverse effects of the armed conflict.

4.1 Main sources of income

Figure 4.1 shows the main sources of income reported by rural households in 2023 and 2024. “Wage work in non-agriculture” remains the largest source of income for rural households, with little change between the two years. This persistence possibly reflects the role of informal labor, such as construction and other semi-skilled manual labor, transport, and loading services. Households reported wage work in crop farming as the second most important source of rural household income in both time periods. There was a decrease over time in the share of households reporting such agricultural wage work as their main source of income. This drop could reflect disruption in farming activities due to conflict-related displacement, reduced access to inputs, and insecurity when working in farm fields.

Figure 4.1 Main source of household income in rural Sudan, 2023 and 2024, share of households



Source: Authors’ analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

The share of households engaged in salaried work in non-agriculture increased by 2 percentage points from 9 percent to 11 percent. Sharecropping as the main source of income also increased between the two rounds, although it is not immediately clear what accounts for this increase. This shift may reflect rural households’ efforts to continue their farming activities despite resource limitations and labor constraints. Other income sources showed only limited changes. While the share of households receiving remittance showed a slight decline, support from gifts, donations, or pensions showed a slight growth between the two survey rounds, highlighting the continued reliance of rural households on external assistance.

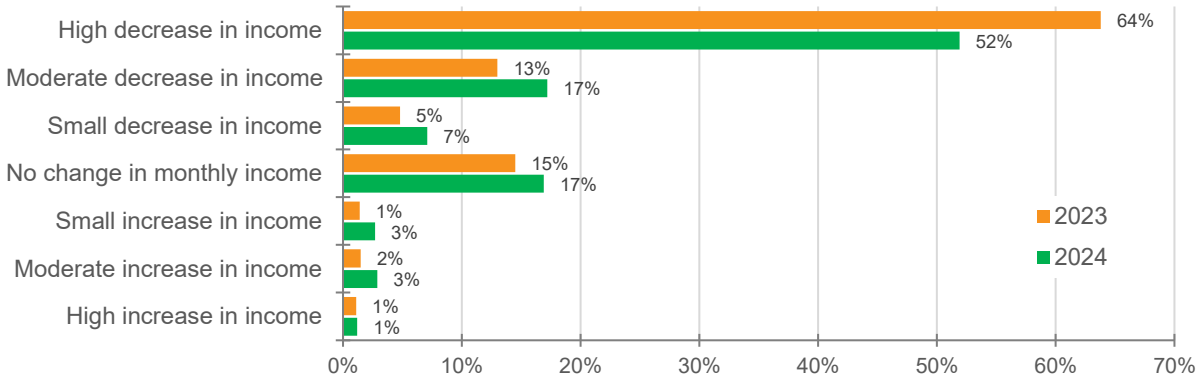
One of the most significant changes in these data on income sources is the sharp decline between 2023 and 2024 in the proportion of households reporting no employment or income. This suggests an overall improvement in the availability of income-generating opportunities, potentially driven by enhanced access to social assistance and livelihood programs, changes in economic conditions, households' adaptation to the existing situation, and increased efforts to generate income for the household through any available means. These trends highlight the evolving labor dynamics and economic resilience of rural households over the past two years.

4.2 Change in household income

The ongoing conflict severely disrupted household income by destroying critical infrastructure, forcing the closure or downsizing of businesses, and slowing down public sector functionality. In consequence, there are now far fewer jobs available than before the conflict began. Displacement of households and the surging inflation further impact households' income across sectors and forms of employment. Conflict affects rural households by disrupting farming income due to the disruption of cropping and harvesting activities, losses in livestock, lack of access to productive assets, limited market access, and displacement of primary producers in conflict regions. These impacts exacerbate widespread poverty, reduced economic activity, and severe food insecurity, underscoring the devastating economic consequences for rural households.

Figure 4.2 shows that a substantial share of Sudan's rural population reported experiencing a significant decrease in income, reflecting the severe economic implications of the prolonged conflict. A relatively large share of rural households also reports a moderate decrease in monthly income. Smaller income declines were reported by about 5 percent of households in 2023, increasing to 7 percent in 2024. Overall, over three-quarters of households reported that their income had decreased to some degree in both survey rounds.

Figure 4.2 Relative change in household income reported in rural Sudan, 2023 and 2024, share of households

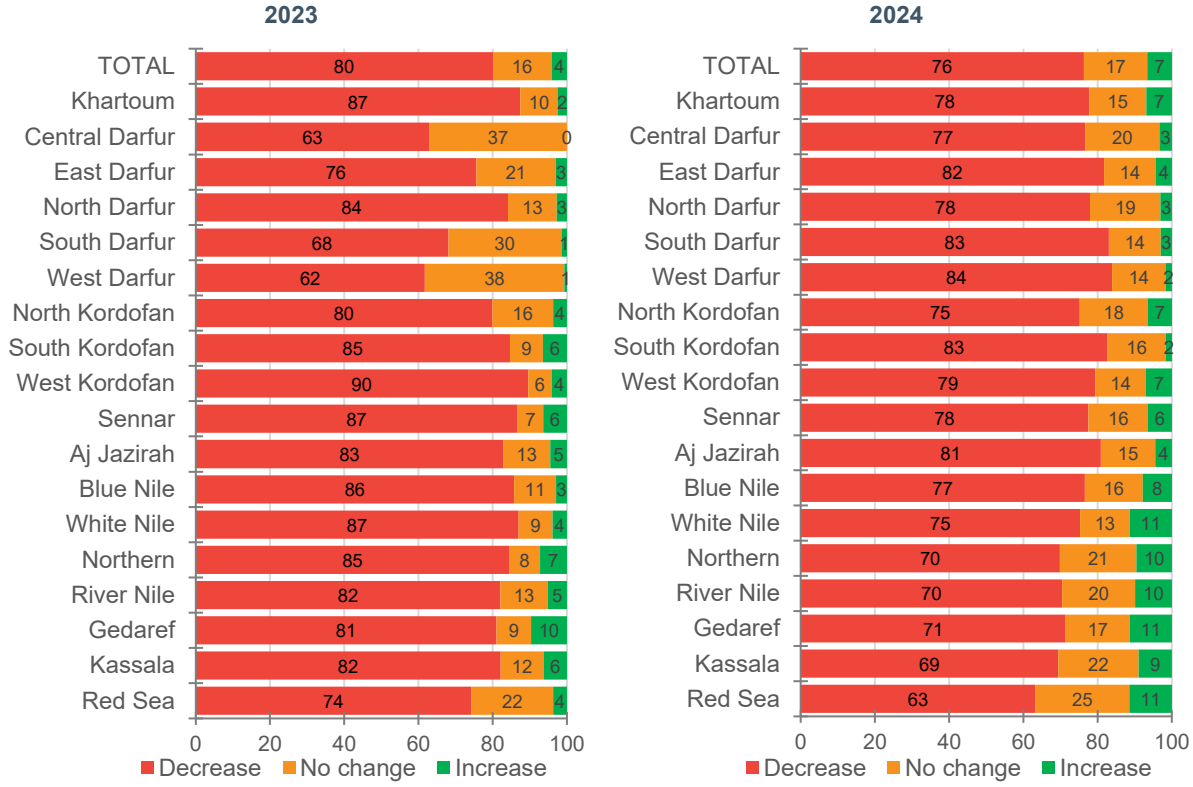


Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

A few households reported improvements in income. The proportion of households reporting no change in income slightly grew from 2023 to 2024, suggesting some increased resilience for these households. Reported increases in income remained trivial, collectively accounting for less than 5 percent of the rural households reporting this in both years. These findings highlight the stark economic consequences of the ongoing conflict and underscore the pressing need for stabilization and recovery measures.

Figure 4.3 displays income dynamics in 2023 and 2024 across different states of Sudan, highlighting the impact of the conflict on income changes. Across most states, the majority of individuals reported a decrease in monthly income. The share of rural households experiencing no change or an increase in income is relatively small. Conflict-affected states, such as those in Darfur and Kordofan, show particularly high levels of income reduction. These states have repeatedly experienced active conflict, road blockages and closures, and looting and destruction of productive assets, all of which have limited the potential for economic stabilization and maintaining or increasing earlier income levels. In contrast, households in states in which the adverse impact of the conflict has been relatively light, including Gedaref, White Nile, Northern, River Nile, and Red Sea states, are more likely than households in other states to report increases in income. These more peaceful states are more likely to have functional market systems that offer employment and income-generating opportunities.

Figure 4.3 Relative change in household income reported in rural Sudan, by state, 2023 and 2024, share of households



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

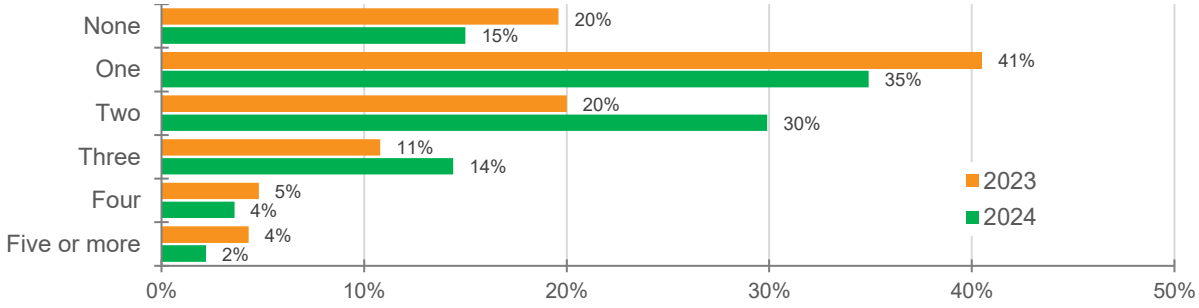
4.3 Household members engaged in income-generating activities

In fragile settings, where ongoing conflict, food insecurity, and economic instability persist, households may induce their children aged 15 years or below to engage in income-generating activities as a vital coping mechanism to sustain household livelihoods and meet their basic needs. The economic and social consequences of conflicts are more pronounced among children and women. A growing body of research shows that sustained exposure to conflict increases the probability of households relying on the labor of their children to supplement and maintain sufficient income flows into the household (Di Maio and Nandi 2013; Kofol and Ciarli 2017).

Survey respondents were asked whether any member of their household, including children aged 15 years or below, had engaged in income-generating activities. These activities could include assisting with household farming activities, animal herding, fetching water and firewood, business-related work, street vending, construction, and gold mining, among others. Figure 4.4 shows the changes in the share of households reporting how many of their members engaged in income-generating activities in 2023 and 2024.

In 2023, approximately 20 percent of households reported that no members, including children under the age of 15 years, were engaged in any income-generating activities. However, by 2024, this share had declined to 15 percent, indicating that a growing share of household members had started participating in such activities. While this trend may reflect improved household economic resilience and adaptive capacity, it also raises concerns about potential increases in child labor.

Figure 4.4 Household members, including children, engaged in income-generating activities in rural Sudan, 2023 and 2024, share of households



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

The most common number of members in rural households engaged in income-generating work was one. However, the share of households with only one worker fell between 2023 and 2024, while the share of households with two members and with three members involved in income-generating activities both increased significantly between 2023 and 2024. This trend aligns with the overall decline between 2023 and 2024 in households reporting no or only one member engaging in income-generating activities.

These results suggest that rural households are increasingly mobilizing multiple members, including children, to obtain the income they require to meet their basic needs, such as food. This suggests the possibility of increased use of child labor. Although engaging children in work to obtain income may help mitigate income losses for the household in the short run, it could also result in school dropouts, psychological and social pressures, overwork, or lower productivity per worker.

5. FOOD SECURITY AND COPING STRATEGIES

Conflicts drive and intensify poverty and food insecurity, with their impact being especially pronounced in low-income countries, particularly in sub-Saharan Africa (Corral et al 2020). Agricultural production is severely affected as farmers are unable to plant their fields or harvest their crops, and livestock are killed or stolen (Abushama et al. 2023; Kirui et al. 2023a; George et al. 2021). Ongoing fighting disrupts transportation networks and markets, which limits food availability, drives up prices, and makes essential goods unavailable or unaffordable for many households. In conflict-affected contexts, government agencies and other institutions struggle

to regulate markets or provide social safety nets, exacerbating the poverty and food shortages for affected populations. Infrastructure destruction, including that of roads, irrigation systems, and storage facilities, further impedes food production and distribution.

A recent study by Abay et al. (2023) documented for Ethiopia that exposure to fighting led to a significant increase in the probability of moderate or severe food insecurity, as measured using the Food Insecurity Experience Scale (FIES). They found that conflict affects food security through its impact on households' participation in major economic and livelihood activities, including farming, non-farm business, and wage employment, adversely affecting households' access to food and food markets. Additionally, Muriuki et al. (2023) studied the direct and indirect effects of violence on food security in Uganda and Ethiopia. The authors find exposure to violence to be associated with a reduction of about 5.6 points in the Food Consumption Score (FCS) among Ethiopian households and 4.9 points among households in Uganda. Similarly, Vesco et al. (2025) show that conflict can disrupt food security by deteriorating food production and output.

To investigate the extent and dynamics of food insecurity among rural households amid the ongoing conflict, data collected under the Sudan Rural Household Survey permitted the estimation of both the FCS and the FIES for sample households. Information was also collected on the availability of food stock or savings to satisfy food needs in both survey rounds. The findings from these indicators, which provide a multidimensional understanding of dietary diversity, adequacy of food intake, and household coping strategies, are reported in the following subsections.

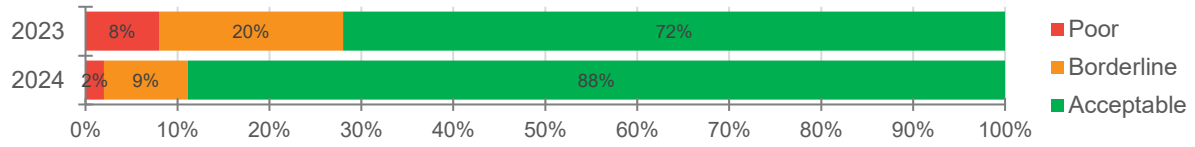
5.1 Food Consumption Score (FCS)

The FCS is a widely used indicator of household food security developed by WFP that considers dietary diversity, food consumption frequency, and nutritional intake over the past seven days. FCS is computed based on the consumption of eight food groups: cereals, pulses, vegetables, fruits, meat and fish, dairy, sugar, and fats. Each food group is assigned a weight based on its nutritional value. The number of days foods from each food group were consumed is multiplied by this weight and summed to obtain the total score. A low FCS indicates a higher level of food insecurity, with households consuming fewer food groups and less nutrient-rich diets, while a higher score indicates better dietary diversity and food access. Households with FCS scores below 21 are considered to have poor food consumption, those with scores above 21 and less than or equal to 35 are considered borderline, while households with scores above 35 are viewed as having an acceptable level of food consumption. FCS is particularly useful in contexts where food security conditions fluctuate rapidly, as in conflict-affected and crisis settings, such as Sudan. The measure serves as a key tool for assessing household vulnerability to food insecurity, monitoring trends, and designing targeted food aid interventions to address nutritional deficiencies and hunger.

Across the two survey rounds, Figure 5.1 shows the distribution of rural households in Sudan across three FCS-based food security categories—poor, borderline, and acceptable. There was a notable improvement in food consumption and security outcomes in 2024 relative to 2023, with declines in the share of households categorized as having both poor and borderline food security situations. These improvements in dietary access and food availability across rural Sudan could be attributed to several factors, among which are continuing adaptation by households to conflict conditions. These adaptations include settling in and being economically

productive at displacement destinations, identification of new income-generating activities, increased resilience of food markets, increased food production in relatively stable areas and continued social cohesion and support during difficult times.

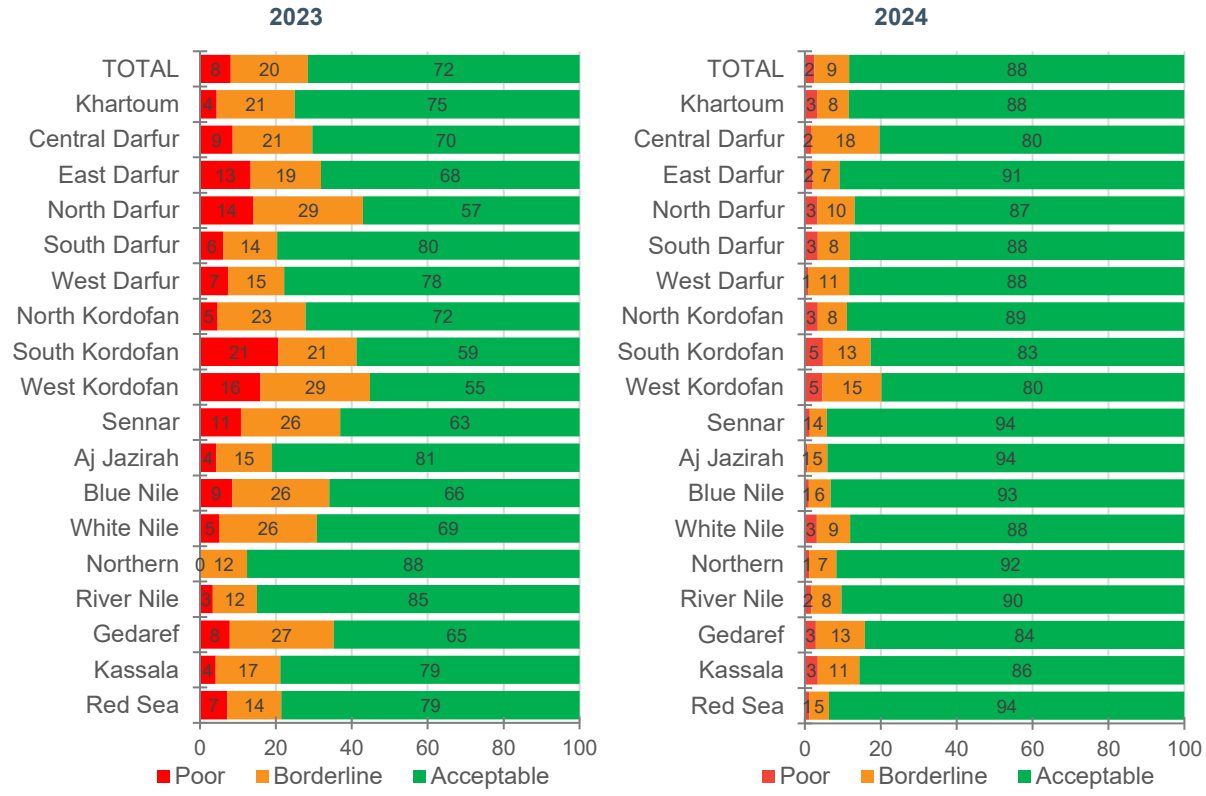
Figure 5.1 Food security situation of households in rural Sudan, 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

Figure 5.2 shows the share of rural households in the three food security categories across the two survey rounds by state. A substantial improvement is seen in food security across the states in 2024.

Figure 5.2 Food security situation of households in rural Sudan, by state, 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

In 2023, several states, including South and West Kordofan, North, East, and Central Darfur, and Blue Nile, had a relatively large share of their populations with a poor food security status. However, by 2024, the share of households in these states with poor food security decreased considerably to 5 percent or lower. However, several of these states still report below-average food security. This likely reflects pre-existing conditions of limited food access and lower levels of food consumption compared to other states. These unfavorable conditions have been compounded by the ongoing conflict.

The states with the most improvement in the share of households with acceptable food security based on the FCS include Aj Jazirah, River Nile, Blue Nile, East Darfur, and Sennar. Sennar,

in particular, saw the share of all households in the acceptable food security category rise from 63 to 94 percent between 2023 and 2024, with only one percent of households remaining in the poor category in 2024. North Kordofan demonstrated a similar strong performance between the two survey rounds.

Despite these improvements, some states still face food security challenges. A relatively large share of households in South and West Kordofan and Central Darfur continue to be classified as having poor or borderline food security, though conditions have improved in all compared to 2023. Nonetheless, overall, the FCS results show a positive trend over the two survey rounds. Only a few states still require focused intervention to address the needs of households with poor food security.

5.2 Food Insecurity Experience Scale (FIES)

To corroborate the findings on the FCS-based food security status of rural households, we use the FIES to measure the proportion of households reporting moderate or severe food insecurity. FIES is an experience-based food insecurity measure developed by the Food and Agriculture Organization of the United Nations (FAO) to assess the prevalence and severity of food insecurity at the individual level. It is widely applied to measure the perception and prevalence of food insecurity (FAO 2014; FAO 2020). Based on their FIES scores, households are categorized as being food secure, moderately food insecure, or severely food insecure.

FIES is based on an eight-question survey module that focuses on individuals' experiences in accessing adequate and nutritious food in the past 30 days. The eight yes/no questions include whether the respondent or any other household member (1) was worried about not having enough food to eat, (2) ate less food than they otherwise would have eaten, (3) was unable to eat healthy and nutritious food, (4) ran out of food, (5) ate only a few kinds of foods, (6) hungry but did not eat, (7) had to skip a meal, and (8) went without eating for a whole day because of a lack of money or other resources. The FIES index is calculated by summing responses to the eight questions—0 for "no" responses: 1 for "yes"—resulting in a score ranging from 0 to 8. A score of zero indicates that a household has not experienced food insecurity across any of the eight dimensions.

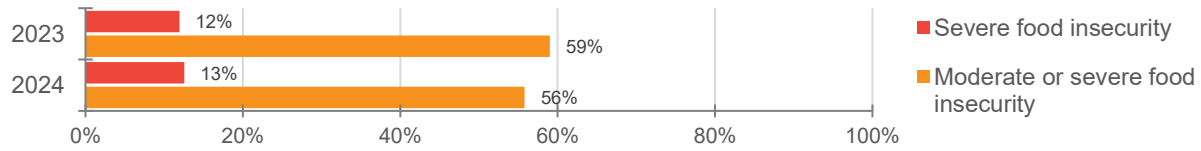
While the raw FIES provides a simple aggregation method to provide a direct measure of food insecurity, an alternative approach used by the FAO is the Rasch Model, a statistical method that estimates food insecurity by accounting for the relative severity of each survey question, with severity increasing with each subsequent question from 1 to 8. The Rasch Model places individuals on a latent food insecurity scale, allowing for more precise cross-country comparisons and measurement consistency. The raw summed-score FIES method provides an intuitive and straightforward measure of food insecurity, while the Rasch Model improves comparability and reliability by adjusting for differences in how food insecurity is experienced and reported across diverse populations.[1]

Figure 5.3 shows the share of rural households in Sudan experiencing moderate or severe food insecurity and severe food insecurity in 2023 and 2024. Only a small increase in the share

[1] The following steps are used to analyze individual-level food insecurity and estimate prevalence rates. We begin by compiling the binary responses for all eight FIES questions. The resultant data file is uploaded to the FIES Shiny App (managed by FAO) for processing (https://fies.shinyapps.io/ExtendedApp/). Key food insecurity indicators are generated, including the raw score that is the sum of responses to the eight FIES questions, the severity score, which is an interval measure from 0 to 8 used to classify households as experiencing moderate or severe food insecurity, and probability estimates indicating the likelihood of moderate/severe or severe food insecurity.

of households reporting severe food insecurity was seen between 2023 and 2024, while those facing moderate or severe food insecurity declined slightly during the same period. These trends suggest the need for targeted interventions to address severe food insecurity despite some progress in reducing moderate cases.

Figure 5.3 Households' food insecurity status based on Rasch Model estimates of Food Insecurity Experience Scale (FIES) score, 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

Table 5.1 Household food insecurity based on raw Food Insecurity Experience Scale (FIES) score, ranked by state, 2023 and 2024

	2023		2024	
	Food Insecurity Experience Score (FIES) Raw Scores		Food Insecurity Experience Score (FIES) Raw Scores	
State	Score	Rank	Score	Rank
TOTAL	4.10	NA	3.95	NA
Khartoum	4.39	5	3.95	8
Central Darfur	3.83	13	4.23	7
East Darfur	4.17	7	4.96	1
North Darfur	4.41	4	4.26	6
South Darfur	4.02	10	4.61	2
West Darfur	3.77	14	4.27	5
North Kordofan	3.86	12	3.71	14
South Kordofan	4.74	3	4.34	4
West Kordofan	4.92	1	4.41	3
Sennar	4.16	8	3.54	16
Aj Jazirah	3.74	15	3.86	11
Blue Nile	4.78	2	3.67	15
White Nile	4.38	6	3.94	9
Northern	3.37	17	3.22	17
River Nile	3.50	16	3.79	13
Gedaref	3.95	11	3.84	12
Kassala	4.05	9	3.88	10
Red Sea	3.16	18	3.19	18

Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.
Note: The rank columns rank the states based on their food insecurity level, with 1 being the most food insecure.

Table 5.1 shows the state-level variation in food insecurity based on raw FIES scores for rural households in 2023 and 2024. A slight overall improvement over time is observed. The average raw FIES decreased from 4.10 to 3.95 between 2023 and 2024, suggesting marginal progress in food security over time. However, the trend in the average masks some states experiencing worsening food security conditions, even as others showed substantial improvement. In 2023, the most food-insecure states were West Kordofan, Blue Nile, and South Kordofan. In 2024, food insecurity was greatest in East and South Darfur and West Kordofan, indicating a shift in the most affected regions, and underscoring the devastating impact of continued conflict, limited agricultural activity, trade routes disruptions, and local markets accessibility issues. Households in these regions were more likely to face difficulties in access to their farms, loss

of livestock and other productive assets, rising food prices, and insufficient humanitarian assistance.

Conversely, Red Sea state was the least food-insecure state in both years, followed by Northern. These states served as important hosts for displaced households and benefited from comparatively greater economic stability with functional markets and the continued availability of key services. Blue Nile and Sennar states showed substantial improvement in food security between 2023 and 2024. White Nile and Khartoum recorded slight improvements. Despite these positive trends, food insecurity remained a significant challenge in many states in 2024, highlighting the need for targeted interventions to support the most vulnerable populations.

Table 5.2 shows the state-level variation in the probability of food insecurity based on the Rasch Model FIES scores for rural households in 2023 and 2024. At the state level, the most food-insecure states in both survey rounds are largely the same. In 2023, West Kordofan had the highest probability of moderate or severe food insecurity and severe food insecurity, which corresponds with its highest FIES raw score (Table 5.1). Similarly, Blue Nile and South Kordofan had high probabilities of food insecurity in 2023 and also ranked among the states with the highest raw FIES scores. In 2024, East Darfur emerged as the most food-insecure state, with a sharp increase in the probability of moderate or severe food insecurity and severe food insecurity, matching the rise in its raw FIES between the two survey rounds. The food security of rural households in South Darfur also worsened—this, too, is consistent with changes in its raw FIES score.

Conversely, states that showed a decline in food insecurity probabilities between 2023 and 2024 included Blue Nile, Sennar, and Red Sea. The latter consistently remained the least food-insecure state in the country in both 2023 and 2024, with the lowest raw FIES scores and the lowest probabilities of food insecurity. Northern and River Nile states also had relatively low food insecurity levels for both types of FIES measures.

In the FIES module of the Sudan Rural Household Survey questionnaire, households were asked whether anyone in the household had skipped a meal at least once due to lack of food or other resources in the household. In 2023, 47 percent of households reported that a member skipped a meal at least once, while in the 2024 round, this figure was 45 percent.

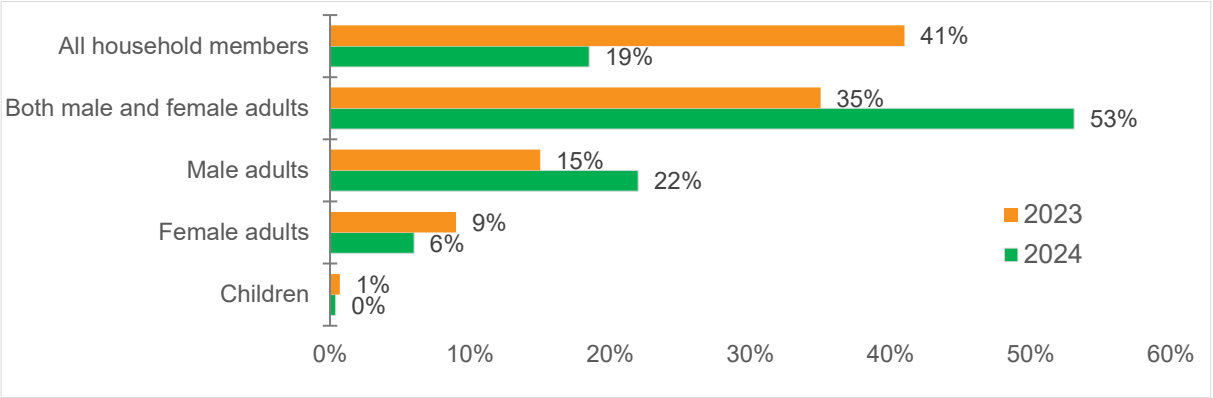
Table 5.2 Household food insecurity status based on Rasch Model Food Insecurity Experience Scale (FIES) score, by state, 2023 and 2024

	2023				2024			
	Probability of Moderate or Severe Food Insecurity		Probability of Severe Food Insecurity		Probability of Moderate or Severe Food Insecurity		Probability of Severe Food Insecurity	
State	Prob.	Rank	Prob.	Rank	Prob.	Rank	Prob.	Rank
TOTAL	0.59	NA	0.12	NA	0.56	NA	0.13	NA
Khartoum	0.64	5	0.13	7	0.56	8	0.12	10
Central Darfur	0.56	12	0.04	18	0.58	7	0.17	1
East Darfur	0.59	9	0.11	10	0.72	1	0.20	1
North Darfur	0.64	4	0.15	5	0.61	5	0.14	8
South Darfur	0.60	8	0.07	16	0.65	2	0.19	2
West Darfur	0.53	14	0.05	17	0.60	6	0.15	6
North Kordofan	0.56	13	0.10	12	0.51	14	0.12	11
South Kordofan	0.69	3	0.17	3	0.63	3	0.15	5
West Kordofan	0.71	1	0.20	1	0.63	4	0.17	4
Sennar	0.60	7	0.13	8	0.50	16	0.08	16
Aj Jazirah	0.52	5	0.11	9	0.53	13	0.14	7
Blue Nile	0.69	2	0.18	2	0.50	15	0.11	12
White Nile	0.63	6	0.16	4	0.56	9	0.13	9
Northern	0.47	17	0.10	13	0.46	17	0.07	17
River Nile	0.50	16	0.08	15	0.54	12	0.10	15
Gedaref	0.58	10	0.10	11	0.55	10	0.10	14
Kassala	0.57	11	0.13	6	0.55	11	0.11	13
Red Sea	0.43	18	0.09	14	0.46	18	0.05	18

Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.
Note: The rank columns rank the states based on their food insecurity level, with 1 being the most food insecure.

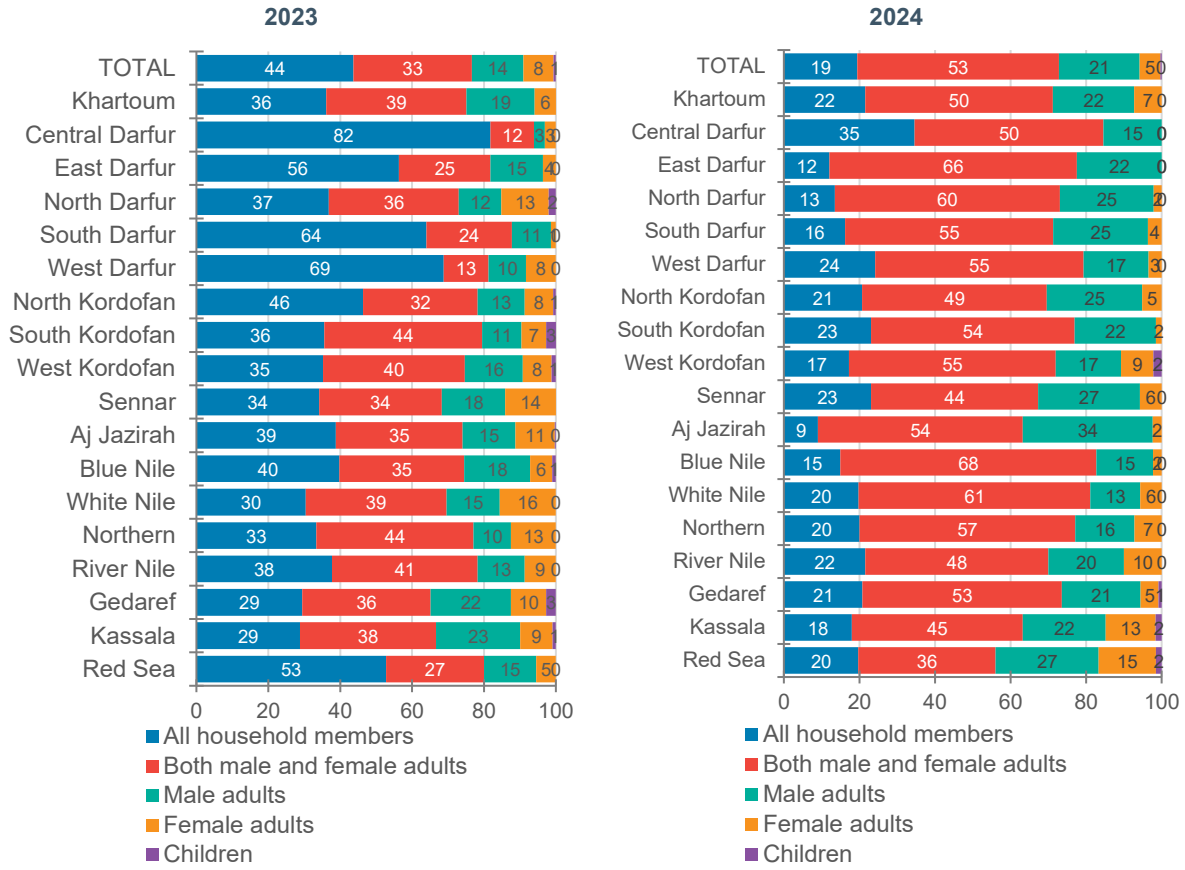
If a household reported skipping meals due to a lack of money or other resources, they were also asked to specify who in the household was affected—whether it was adult male members, adult females, both adult males and females, children, or all household members. Figure 5.4 shows the share of households with members who had to skip a meal in 2023 and 2024 by the demographic category of the members who skipped a meal. Mixed trends in food security among the different household members are revealed. Reports of all household members having to skip a meal fell considerably from 44 percent of households reporting that anyone skipped a meal in 2023 to 19 percent of such households in 2024. However, over this period, a larger share of those skipping meals was made up by male adult members. In addition, the percentage of households that reported both male and female adult members skipped meals increased sharply from 33 to 53 percent between 2023 and 2024. In contrast, the share of female adult members who skipped a meal dropped over this period. Children were rarely reported to have been the only members to skip meals. These trends indicate some improvements in access to economic resources, assistance, and community support. But such improvements are not realized universally, given the continuing reports of adult members in many households, particularly men, continuing to have to skip meals in the 2024 survey round.

Figure 5.4 For households with members reported as having skipped a meal due to lack of resources in the household, members involved, 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

Figure 5.5 For households with members reported as having skipped a meal due to lack of resources in the household, members involved, by state, 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

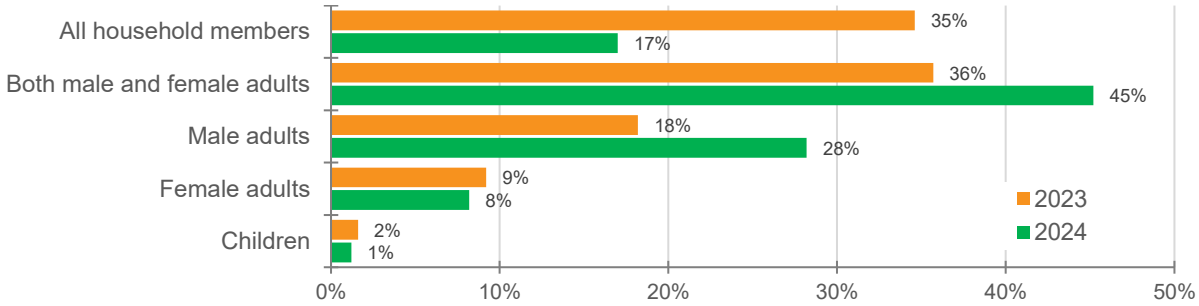
Figure 5.5 shows what members were reported to have skipped meals as a share of all households that reported at least one member having skipped a meal at least once due to a lack of money or other resources across different states in 2023 and 2024.

In the FIES module of the Sudan Rural Household Survey questionnaire, households were asked whether anyone in the household had gone to sleep for the night hungry. In 2023,

38 percent of households reported that a member had gone to sleep hungry at least once, whereas in the 2024 round, this figure decreased to 32 percent.

For all sample households reporting that at least one member went to sleep hungry at least once, Figure 5.6 shows the demographic category of those household members for the 2023 and 2024 survey rounds. The patterns are similar to those seen in the earlier data on members who were reported as having skipped a meal due to a lack of resources in the household. There is a notable decrease in 2024 in the all-household members category, but increases for male adults and for both male and female adults. These results suggest that, while entire households were less likely in 2024 than in 2023 to go to bed hungry, it is not uncommon for adult members to still do so in 2024.

Figure 5.6 For households with members reported as having gone to sleep hungry at least one night, members involved, 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

5.3 Availability of food stocks or savings to satisfy food needs

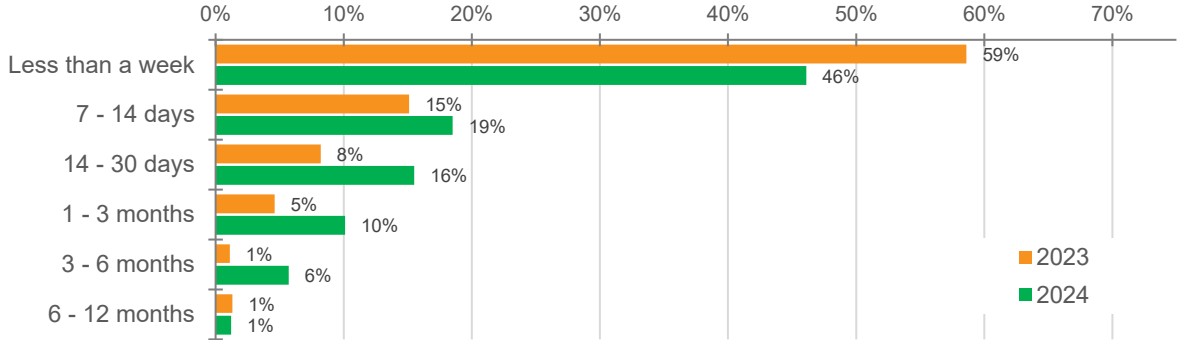
To assess the food security of rural households and their resilience in response to shocks, we investigate households' vulnerability to food shortages and their ability to sustain themselves without external assistance. In the survey rounds, households were asked, "How long can your household meet its food needs from food stocks and using cash savings?" This question was asked to determine their vulnerability to local food shortages. Their responses also provide insights into their dependence on external support, as households with very limited food stocks may require immediate interventions, whether food aid or cash transfers. This measure is particularly useful in fragile settings, where income is volatile and agricultural production is frequently disrupted by conflict and climate shocks.

Figure 5.7 shows how long households reported that they could meet their food needs using their food stocks on hand and cash savings in 2023 and 2024. An improvement in short-term food security is seen between 2023 and 2024. In 2023, 59 percent of households reported that their food stocks and cash savings would last for less than a week, compared to 46 percent in 2024. Similarly, the percentage of households that could sustain themselves for longer periods increased between 2023 and 2024.

These improvements reflect improved harvests in relatively stable areas of Sudan, effective reliance on social networks by households to obtain support, expanded humanitarian coverage in some states, and households continuing to adapt and meet the challenges the conflict has brought to their livelihoods, such as diversifying income or reducing consumption levels. However, the findings continue to show that short-term food insecurity remains a challenge for many households. That almost half of all rural households have only very limited stocks of food

highlights the need for continued efforts to enhance their food security and resilience, especially in the most conflict-affected states.

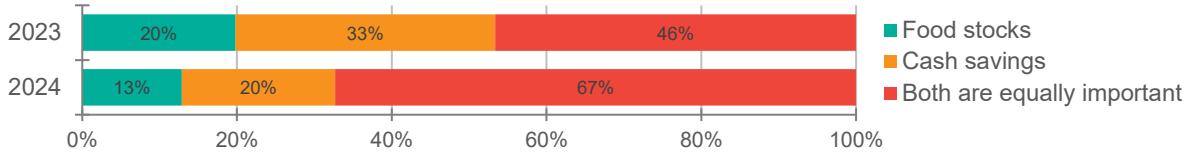
Figure 5.7 Distribution of responses to "How long can your household meet its food needs from food stocks and using cash savings?", 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

Linked to the question on the food stocks or cash savings available, households were asked which was more important in enabling them to meet their basic needs. Figure 5.8 shows a shift in the pattern of answers to this question between 2023 and 2024. Overall, a combination of both food stocks and cash savings was preferred in both survey rounds. However, the share of households reporting a preference for the combination of resources increased by almost 20 percentage points in the 2024 survey round. The increased preference for a combination of both forms of savings suggests growing recognition of having a diversity of resources to build the economic resilience and food security of the household.

Figure 5.8 Distribution of responses to "Is food stocks, cash savings, or both more important in meeting household needs?", 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

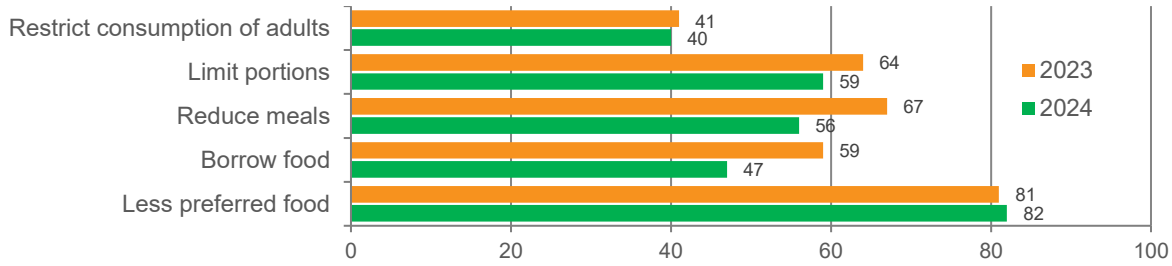
5.4 Coping strategies

When their food insecurity increases, individuals and households adopt various coping strategies to manage and mitigate food shortages. These coping strategies range from altering dietary choices, such as consuming less preferred foods, to more severe measures like skipping meals or borrowing food. The severity of these mechanisms often reflects the level of food insecurity, with more extreme strategies indicating heightened vulnerability.

Figure 5.9 shows the level of adoption of several food insecurity coping strategies reported by rural households in Sudan in 2023 and 2024. The most common strategy used in both years was consuming less preferred food—about four-fifths of all households reported doing so in both survey rounds. The strategy reflects a widespread pattern of food stress in rural households, especially among those with declining or unstable income. In the other coping strategies considered, small to moderate declines were seen in their use from 2023 to 2024, which suggests modest improvements in food access. However, consistent dependency by over 40 percent of all households on socially-driven coping strategies, like borrowing food or

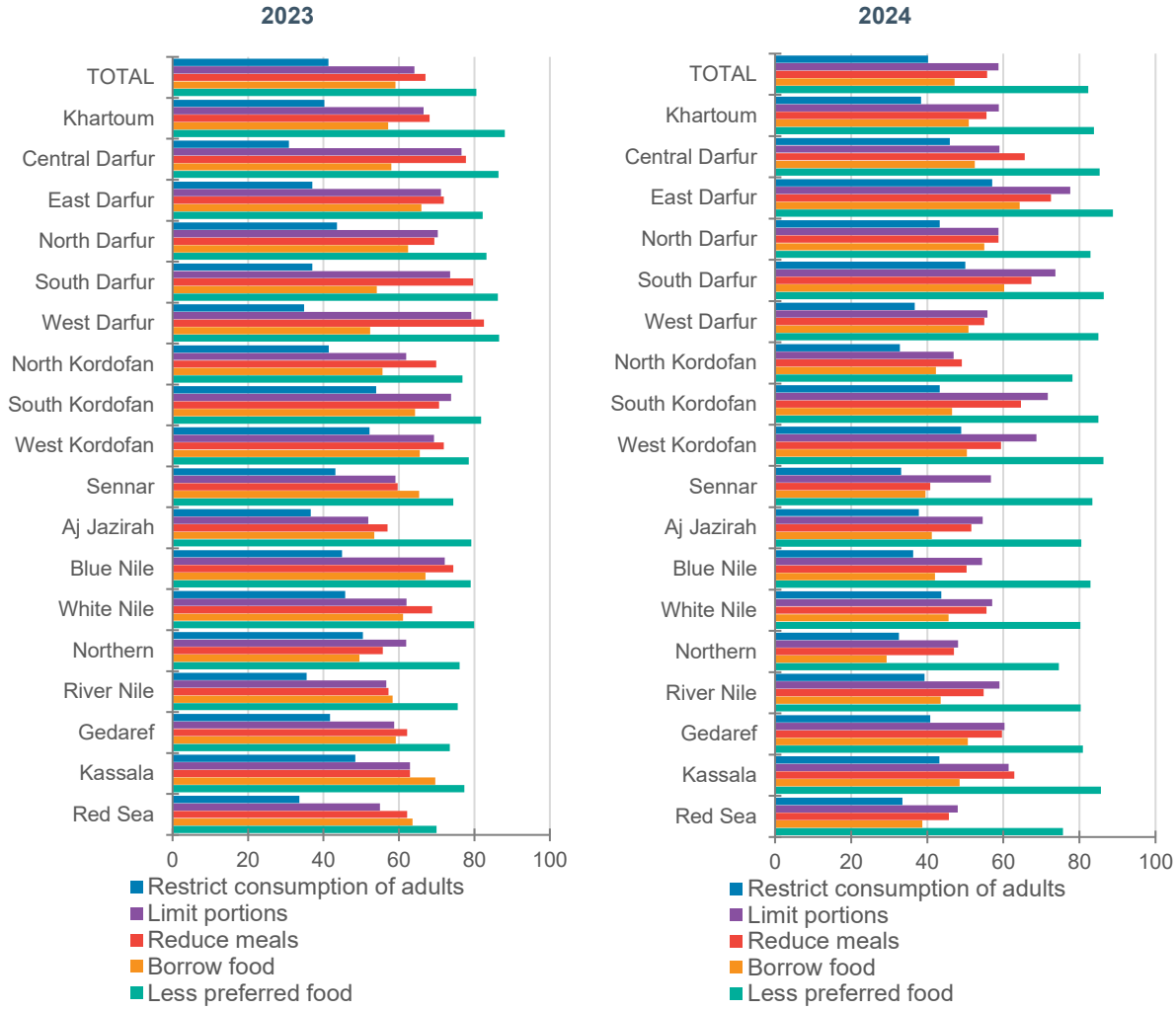
relying on others to help, underscores continued generalized food insecurity in rural communities in Sudan.

Figure 5.9 Food insecurity coping strategies reported employed by households, 2023 and 2024, percent of households



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

Figure 5.10 Percentage of households adopting specific food insecurity coping strategies, by state, 2023 and 2024



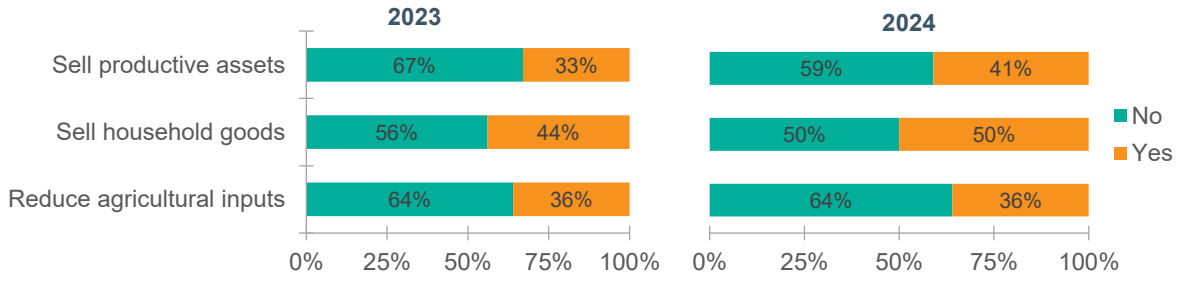
Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

Figure 5.10 shows the distribution of use of these food insecurity coping strategies by rural households across the states over the two survey rounds. While less preferred food remained the most common coping strategy in both years, its prevalence remains mixed in 2024,

suggesting an improvement in food access in some states and relatively decreased food security in other states. Restricting consumption by adults and reducing meals saw a decrease in several states, with the highest declines recorded in the Northern, Blue Nile, Sennar, and South Kordofan states, indicating improvements in food security. Notably, Central, East, and South Darfur, where increased violence, displacement, supply chain disruptions, and market dysfunctionality in early 2024 severely eroded households' income and access to basic needs, showed rises in the use of coping strategies, like meal reduction and food restrictions for adults, which reflect a heightened vulnerability. In contrast, states like Khartoum and North Kordofan showed a decline in borrowing food and limiting portions. These trends suggest improved food security in those states, particularly following seasonal harvests in some agricultural areas, or better access to various forms of community or humanitarian assistance. Nonetheless, while some improvements in specific coping strategies are seen in some states, the continued reliance on relatively extreme coping mechanisms to manage food insecurity in many states indicates that food insecurity remained a persistent challenge in 2024.

In addition to households' reliance on reducing consumption as a coping strategy against severe food insecurity, households also responded to the conflict shock through other coping mechanisms, such as reducing the use of agricultural inputs and the sales of productive and household assets (Figure 5.11). The share of rural households that reduced their use of agricultural inputs fell slightly between 2023 and 2024. Despite ongoing challenges, generally households seek to maintain their use of high-productivity inputs, which is a positive indicator for long-term agricultural production. While the share of rural households selling personal household goods remained unchanged, the share selling productive assets, such as livestock, agricultural tools, and bicycles, due to a lack of food or income increased in 2024 compared to 2023. This pattern indicates rising dependence by rural households on asset liquidation to cope with economic hardships. Selling productive assets can have long-term adverse consequences on the livelihoods of rural households, undermining their long-term resilience and making recovery from economic hardship more difficult.

Figure 5.11 Households reporting having reduced use of agricultural inputs, sold productive assets, or sold household goods, 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

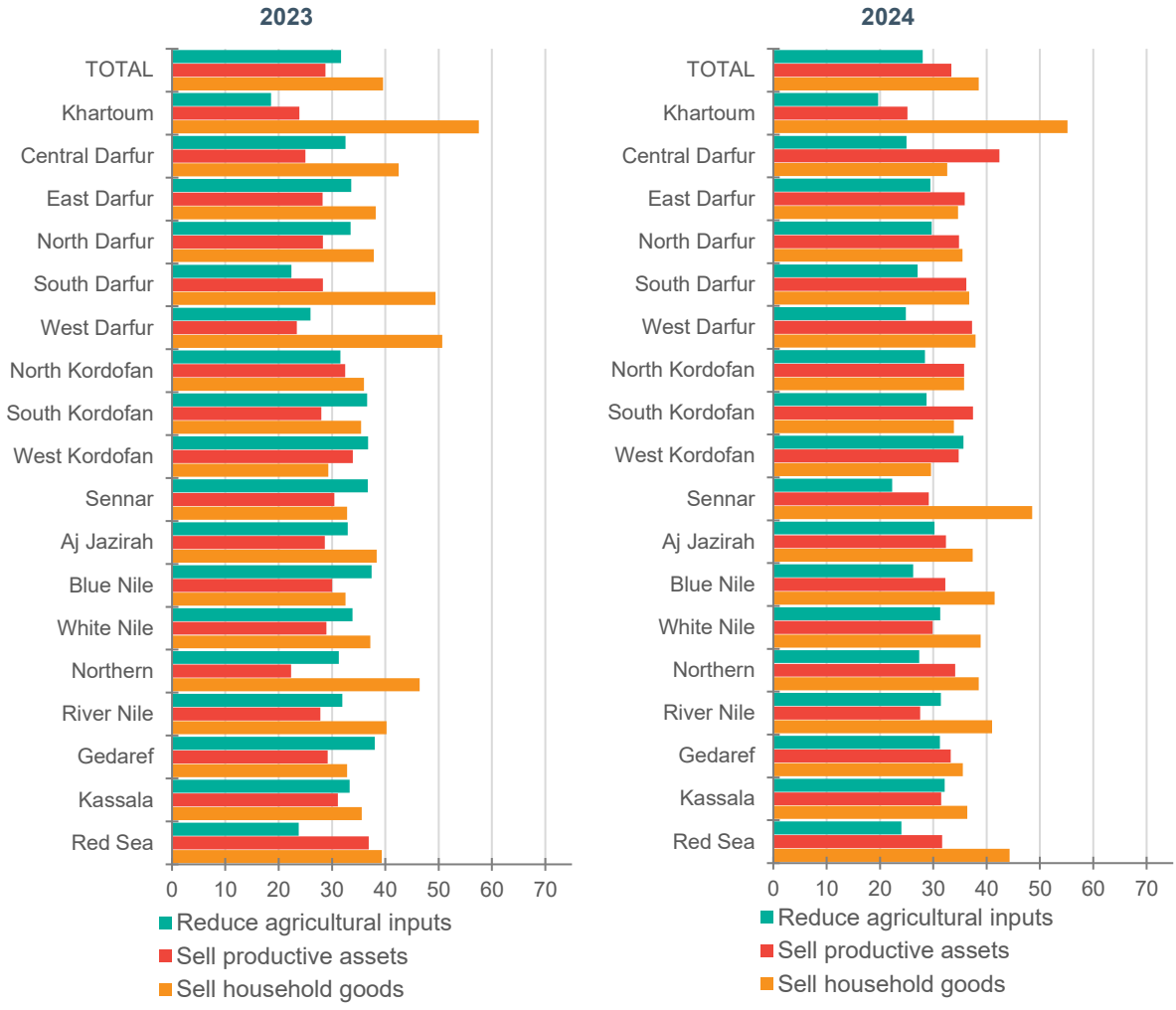
Figure 5.12 shows the changes in the reported use of these coping mechanisms by households across the different states of Sudan from 2023 to 2024. Notable reductions in the proportion of households reducing agricultural inputs are observed in Blue Nile, Central Darfur, Gedaref, and Sennar. Other states, including River Nile, Kassala, and Khartoum, showed no change in the share of households adopting this coping strategy.

The sale of productive assets, a more severe coping strategy than reduced input use or the sale of household goods, shows a national increase between 2023 and 2024. The share of

households selling such assets increased in all five Darfur states and in South Kordofan and Northern states. Only a few states, notably Red Sea, showed a decrease in the sale of productive assets, indicating greater economic stability there.

The sale of household goods remained a common coping mechanism in both survey rounds, albeit with mixed trends across states. Central, South, and West Darfur and Northern state showed significant reductions in the share of rural households reporting sales of household goods as a coping strategy. These reductions can be attributed to either the decline in overall ownership of such household goods due to destruction, theft, or looting in conflict areas or a relative improvement in income generation in safer parts of those states. In contrast, an increase in reliance on the sale of household goods was seen between 2023 and 2024 in Red Sea, Blue Nile, and Sennar states, possibly indicating demand by households for increased liquidity as a result of worsening economic conditions.

Figure 5.12 Households reporting having reduced use of agricultural inputs, sold productive assets, or sold household goods, by state, 2023 and 2024, percent of households

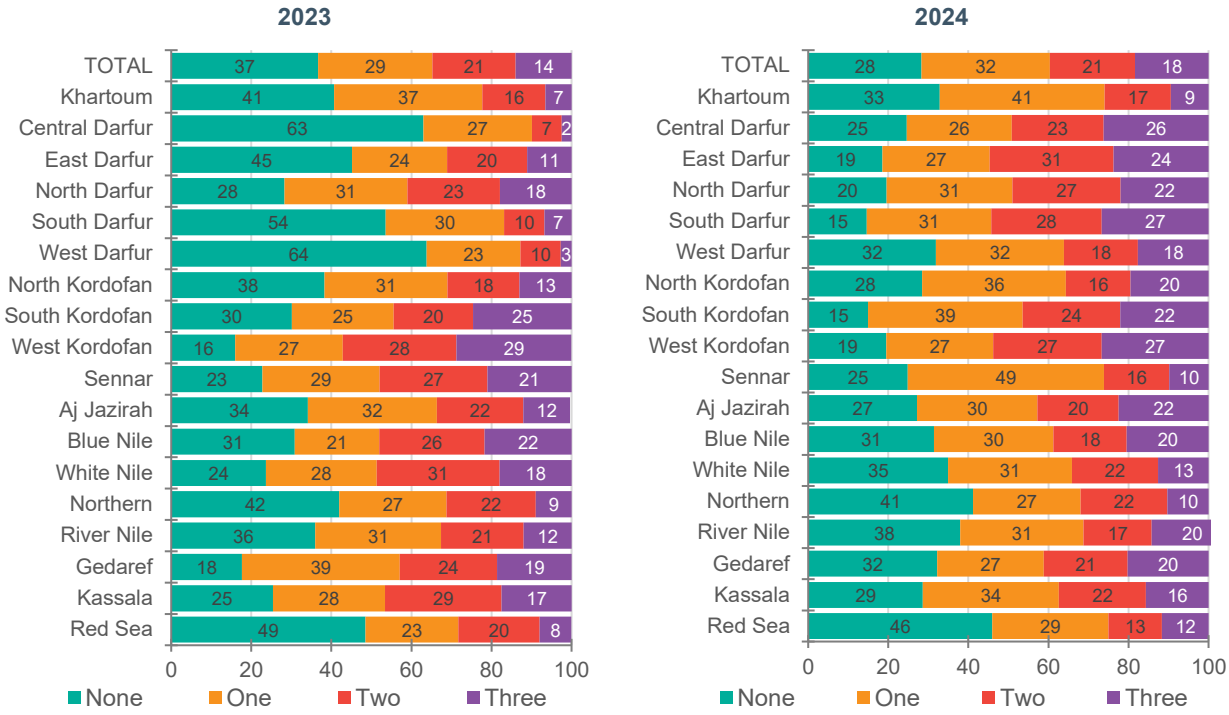


Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

The intensity of the adoption of these three coping mechanisms across states in 2023 and 2024 shows some notable shifts in how rural households are coping with economic and food security challenges (Figure 5.13). In 2023, 37 percent of households reported no coping strategies adopted, which declined to 28 percent in 2024, indicating growing reliance on these

coping strategies to manage the challenges they face due to the deterioration of local economies and food insecurity. The proportion of households adopting one coping strategy saw a slight increase from 2023 to 2024, while households adopting two coping strategies remained stable. Notably, the proportion of households employing all three coping strategies increased by 4 percentage points, which points to rising levels of economic distress and food insecurity among vulnerable rural households.

Figure 5.13 Number of three specific coping mechanisms reported used by households, by state, 2023 and 2024, percent of households



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.
Note: The three coping mechanisms are reduced use of agricultural inputs, sale of productive assets, and sale of household goods.

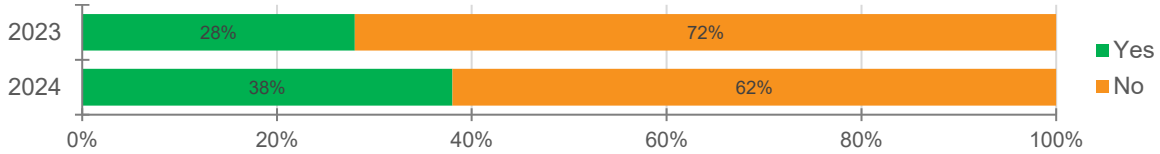
Regional disparities are evident, with states such as Central, South, and West Darfur showing significant increases in the share of households adopting these coping strategies. These states, as well as several others, also showed an increase in the share of rural households implementing all three coping strategies, suggesting heightened economic deterioration. Red Sea state maintained a large share of rural households not employing any of the three coping strategies. Overall, rural households across the various states of Sudan are increasingly adopting these coping mechanisms with a significant shift toward using multiple strategies, although this pattern is not found in all areas. The increasing reliance on two or more coping strategies indicates growing economic pressure and food insecurity among the most vulnerable rural households, warranting targeted interventions to support the affected populations.

6. AGRICULTURAL LAND OWNERSHIP

Ownership of and access to agricultural land remain key determinants of increased agricultural production and improved food security. Figure 6.1 shows the percentage of households that reported owning agricultural land in 2023 and 2024. In 2023, about 29 percent of rural

households indicated ownership. This figure increased to 34 percent in 2024. This rise in agricultural land ownership may be due to the return of displaced populations to their initial residence, reclaiming or re-accessing family agricultural land in doing so. Some displaced households may also have gained access to agricultural land through informal arrangements, such as being granted land by host communities to cultivate for a limited period. These practices are common in rural areas governed by customary tenure systems, where land is allocated based on family or community ties without the need for formal documentation or policies promoting agricultural investment.

Figure 6.1 Proportion of households that reported owning agricultural land, 2023 and 2024

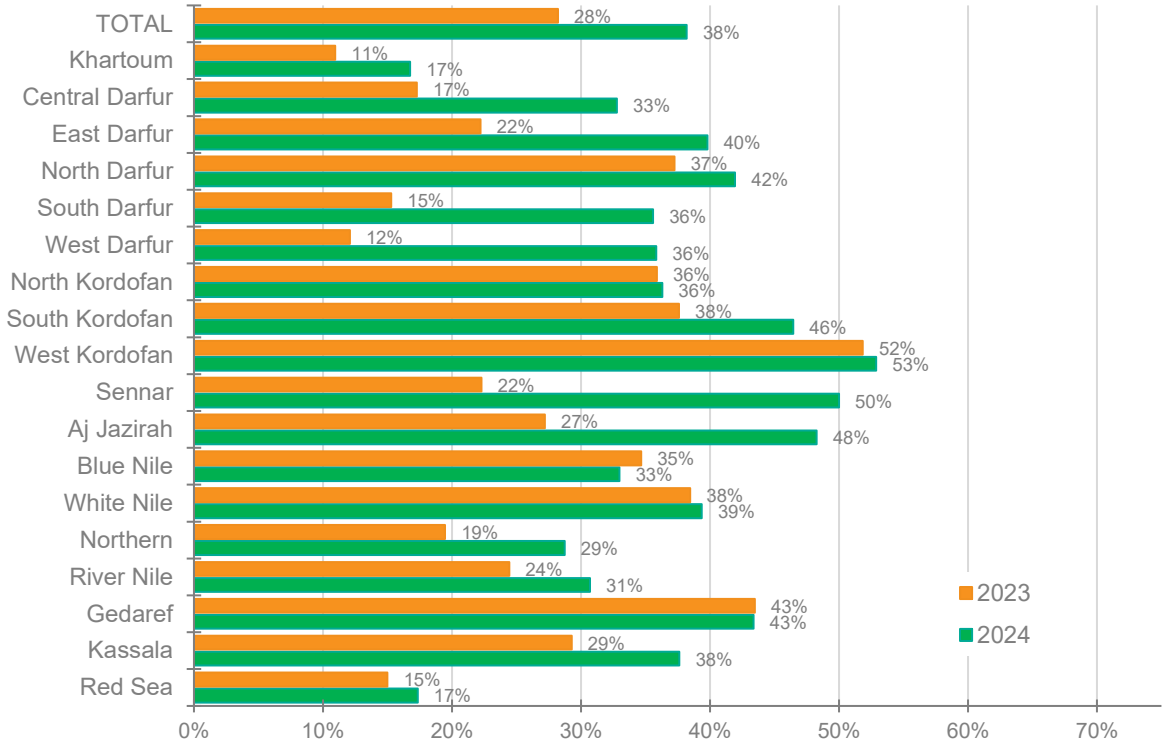


Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

However, the majority of rural households in Sudan continue to lack ownership of and access to agricultural land, indicating ongoing barriers to land use. Given the reliance of Sudan's economy on the agricultural sector, policy and programming interventions that promote increased access and use of agricultural land will be necessary to help reduce poverty and improve living standards among rural households.

Figure 6.2 presents the distribution of agricultural land ownership by rural households across the states of Sudan for 2023 and 2024. States that registered an increase in agricultural land ownership in 2024 compared to 2023 include Central, East, South, and West Darfur and Aj Jazirah. This increase in agricultural land ownership may reflect the return to these states of displaced families, expanded cultivation in relatively secure areas, the bringing into production of fallow land, or informal land transfers or leasing agreements among relatives or community members. Over the same period, the share of rural households owning agricultural land dropped in other states. Land ownership dropped in Sennar state by over 25 percentage points between 2023 and 2024, likely due to increased violence and insecurity there and the associated displacement of households from rural areas of the state to safer areas elsewhere. Agricultural land ownership declined moderately in Blue Nile and Kassala states and was associated with a decline in agricultural production. However, several states, such as North and West Kordofan, White Nile, and Gedaref, showed relatively stable ownership figures over the two years. This stability indicates persistent patterns of traditional land inheritance, limiting variation in ownership.

Figure 6.2 Proportion of households that reported owning agricultural land, by state, 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

Table 6.1 presents the average size of household agricultural landholdings by state for the years 2023 and 2024 for households that reported owning any agricultural land. The results indicate a general increase in the average size of agricultural land from about 13 to 19 feddans between 2023 and 2024. However, this increase is accompanied by a rise in variability in the size of agricultural land, as reflected in the higher standard deviation, suggesting significant disparities in land ownership expansion across states.

Several states show substantial growth in the average rural household landholding size—the average for Gedaref increased from 16 to 28 feddans, and that for Red Sea from 11 to 28 feddans. The expansion in the size of agricultural landholdings in Gedaref is consistent with the dominance there of mechanized rainfed agriculture, compounded by relatively good security and safety conditions. Ongoing land leasing to investors and private sector companies amplifies land expansion trends there. In the Red Sea state, expansions are linked to increasing cultivation along seasonal valleys or "wadis", such as Khor Arbaat, Khor Arab, and Tokar Delta, plus land allocation through local councils to attract agricultural investments. Similarly, the River Nile and White Nile show considerable growth in the average size of the agricultural landholdings of rural households, possibly reflecting the expansion of irrigated agriculture near the Nile.

Table 6.1 Average household agricultural land size, by state, 2023 and 2024, feddan

State	2023		2024	
	Mean	Standard deviation	Mean	Standard deviation
TOTAL	12.71	17.37	18.83	35.11
Khartoum	9.73	10.93	15.21	23.61
Central Darfur	4.92	3.78	10.47	10.32
East Darfur	13.44	14.29	17.63	18.11
North Darfur	12.74	18.32	17.34	28.76
South Darfur	9.67	13.19	17.29	26.04
West Darfur	23.83	31.63	20.07	23.58
North Kordofan	12.37	17.62	19.82	34.32
South Kordofan	12.37	15.41	20.65	41.40
West Kordofan	16.87	21.83	14.43	20.34
Sennar	13.98	18.71	19.84	35.65
Aj Jazirah	8.51	11.31	18.71	17.70
Blue Nile	15.36	21.50	14.56	13.88
White Nile	14.71	18.32	27.09	48.33
Northern	8.16	6.32	16.05	45.06
River Nile	7.35	11.56	19.44	60.68
Gedaref	15.61	18.21	27.46	59.60
Kassala	13.69	18.81	12.10	12.99
Red Sea	10.68	13.12	27.54	50.03

Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.
Note: One feddan = 0.42 ha.

Conversely, other states show minimal or negative changes in average landholding size. West Kordofan and West Darfur both experienced a decline in the size of average landholdings between 2023 and 2024. This decline may correlate with conflict-induced displacement and insecurity, limiting access to farms, increasing the destruction and looting of agricultural assets, and intensifying resource pressure in pastoralist areas where crop agriculture competes with grazing. Similarly, Blue Nile and Kassala show slight declines in the size of average landholdings, suggesting possible land reallocation or increased costs of expansion in size. While the contraction in average landholdings in Blue Nile state could be attributed to the conflict, in Kassala, recurring floods, lack of sufficient finance for smallholder farmers, and competition over land and water resources are also factors that might explain the reduction.

Overall, the data suggest a significant expansion of agricultural land size ownership and use in many states, but with notable disparities in other states. The rising variability in ownership sizes highlights the need for further investigation into the factors influencing land access and distribution across the different states.

7. MARKET ACCESS AND DISRUPTIONS

Market access plays a crucial role in ensuring the food security, economic stability, and sustainable livelihoods of rural households across Sudan. However, conflicts can disrupt markets and significantly hinder the ability of rural households to reach markets, affecting both consumers and producers using the markets. In regions experiencing conflict, market closures, poor transportation infrastructure, restricted mobility, and price volatility can limit access to essential goods. Sellers of needed goods may not be able to bring their goods to markets,

while potential buyers of those goods do not find them in their local market. These challenges exacerbate food insecurity and economic hardship for both sellers and buyers. Understanding the potential influence of violent conflict on market access and market disruptions is essential for designing policies and interventions that enhance local economic resilience and promote market reliability and stability.

Conflict also deters investment and hinders market development. Few businesses and investors are willing to operate in volatile environments. With conflict, a vicious cycle may set in where economic stagnation fuels further conflict, and conflict, in turn, perpetuates economic decline. Addressing these challenges requires a multifaceted approach that includes engaging in conflict resolution and peacebuilding initiatives to create a stable environment conducive to economic activities. Additionally, disaster preparedness programs and economic diversification efforts will increase resilience to economic disruptions and help mitigate the adverse impact of shocks.

The current conflict in Sudan has caused sudden shortages of essential goods, leading to inflation and making it difficult for consumers to afford necessities. For producers, the conflict restricts their access to inputs, such as seeds and fertilizers, as well as makes it costly to transport their goods to markets. This not only affects their livelihoods but also has broader implications for food security and economic stability in the country.

7.1 Market access

Figure 7.1 shows the share of rural households that reported they were able to visit the local food market in the 30 days before they were interviewed for the two survey rounds. Market access has improved between 2023 and 2024, reflecting better security, improvements in transportation networks, the emergence of alternative markets and trade routes, and seasonal market recovery. These factors have all contributed to greater market participation.

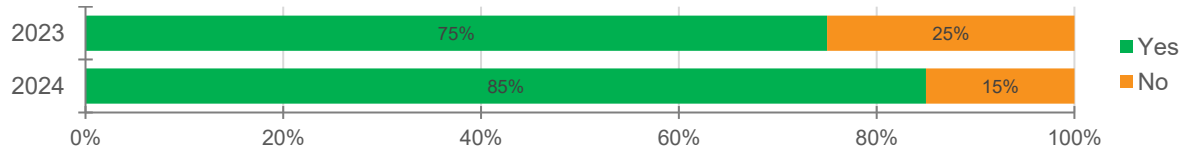


Figure 7.1 Share of rural households with access to local food markets, 2023 and 2024

Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

7.2 Challenges experienced in selling or buying goods

Figure 7.2 shows the share of sellers who were able to access the local food market to sell their produce. Notably, over half of rural households indicated that they were not sellers in 2023. This share fell to about one-third in 2024. More rural households are engaging in selling goods and engaging in small-scale trade and vending sales as a coping and income-generating activity amid the prolonged conflict and limited formal employment opportunities. In 2023, 38 percent of sellers sold what they wanted to sell in the local food market, while the remaining 9 percent reported that, although they desired to sell goods, they were unable to do so. The situation improved in 2024 with an increase in the share of households seeking to sell their produce and an increase in the share of those that were able to do so. These trends suggest an improvement in both market access and demand for goods in 2024.

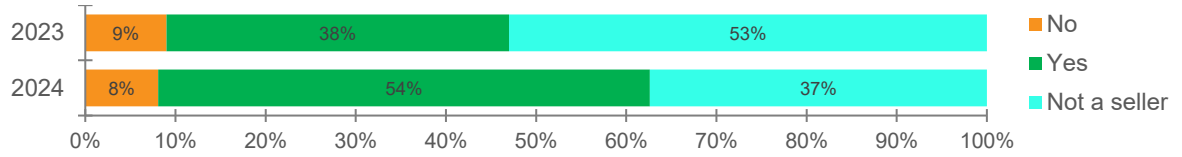
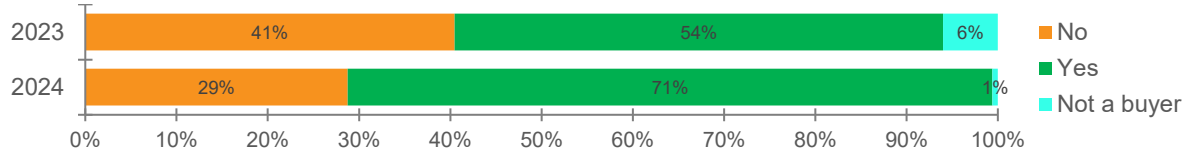


Figure 7.2 Households that reported being able to sell what they wanted to sell, 2023 and 2024

Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

Figure 7.3 shows the responses rural households provided when asked whether they were able to buy what they wanted from local markets in 2023 and 2024. Few households reported not being buyers, with the share falling almost to nothing in 2024, indicating a rise in purchasing power for rural households. In 2024, there was a notable improvement in the ability of rural households to obtain what they sought in local markets to make their desired purchases. These trends parallel those of sellers and suggest better market access, increased availability of goods, or improved household purchasing power in 2024 compared to 2023. This is due to expanded agricultural production, improved humanitarian cash and food assistance in some areas, and increased inflows of remittances from relatives.

Figure 7.3 Households that reported being able to buy what they wanted to buy, 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

8. EXPOSURE TO SHOCKS

Rural households in Sudan are exposed to various shocks, including but not limited to violence and lack of security, natural disasters, climate variability, and socio-economic disruptions. Frequent droughts, floods, and erratic rainfall patterns have intensified food insecurity and livelihood instability, particularly for rural communities dependent on rainfed agriculture. Additionally, conflict-induced displacement and multifaceted economic crises exacerbate livelihood hardships and increase vulnerability to health-related shocks, including illness and death. Understanding the extent of household exposure to these shocks is crucial for designing effective policies and interventions to enhance the economic resilience and adaptive capacity of rural households.

Figure 8.1 shows the share of rural households reporting that they were exposed to negative natural, climatic, or personal (idiosyncratic) shocks in 2023 and 2024. The share of households experiencing such shocks increased somewhat between 2023 and 2024. These results could indicate a combination of worsening climate shocks and increased idiosyncratic shocks. In the absence of functional healthcare facilities, illness and death rates are likely to increase in Sudan, increasing the share of households experiencing such personal shocks. Deteriorated access to stable and adequate income, together with increased food prices and economic instability, further hinders households' ability to absorb such shocks without negative ramifications on their welfare and future economic prospects.

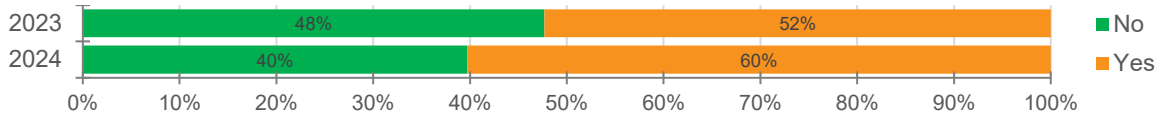


Figure 8.1 Households reporting being exposed to negative climatic or personal shocks, 2023 and 2024

Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

Given the significant environmental variability across Sudan, states differ in their exposure to natural and climatic shocks. Figure 8.2 shows the exposure to shocks reported by rural households by state for 2023 and 2024.

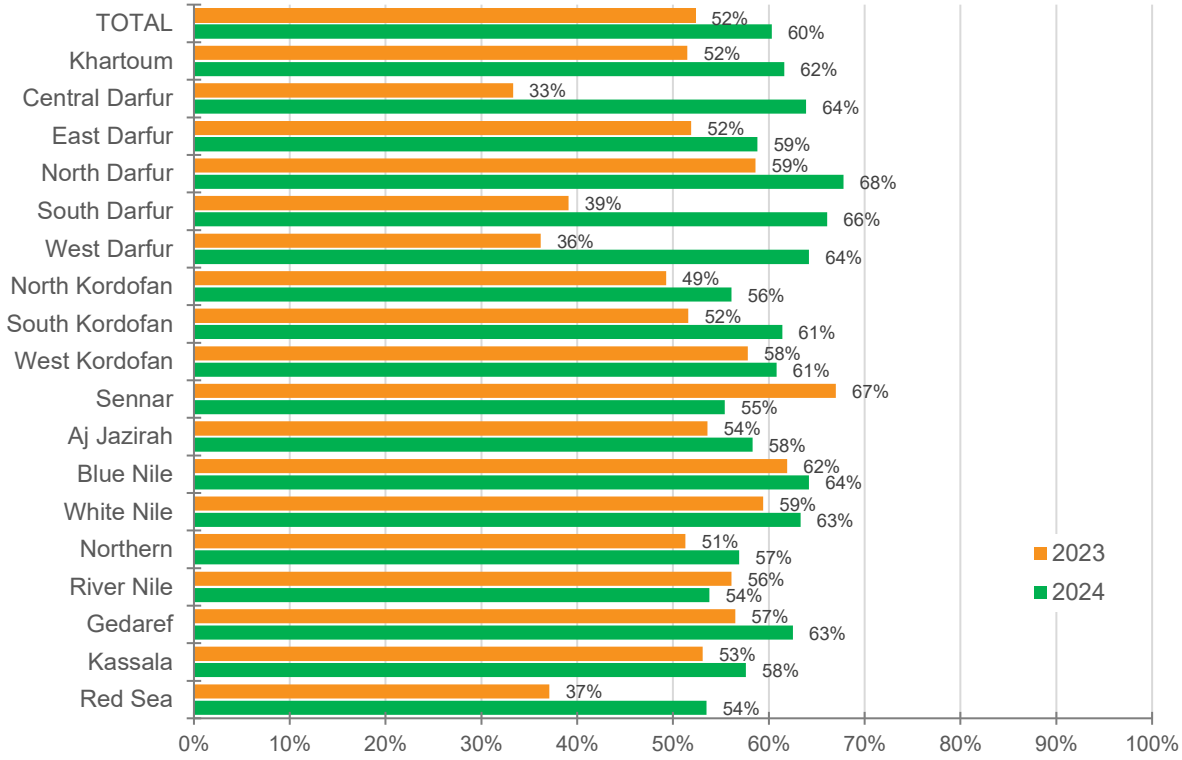


Figure 8.2 Households reporting being exposed to negative climatic or personal shocks, by state, 2023 and 2024

Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

In most states, more than half of the surveyed households reported being affected by these shocks, with some regions experiencing a particularly higher burden. For example, in Central and West Darfur, the percentage of affected households increased significantly between 2023 and 2024. Other states saw smaller increases in reported exposure to shock, including Khartoum, South Kordofan, and North Darfur. These increases reflect the intensifying effects of conflict-related displacement, a decline in agricultural activities in some areas due to insecurity and rainfall fluctuations and weakened healthcare service delivery.

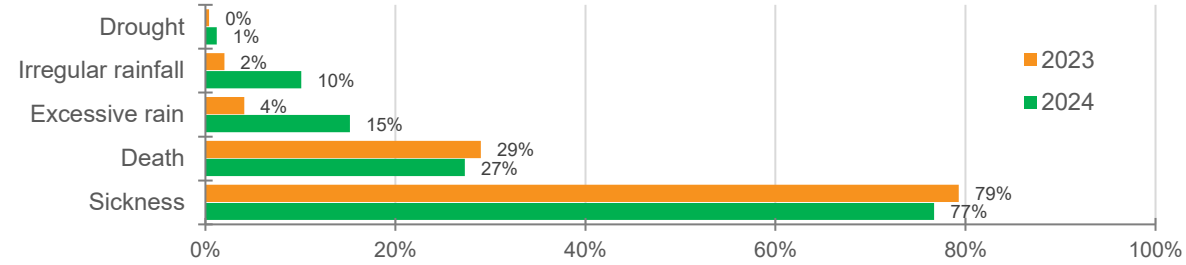
A few states exhibited a decrease in exposure rate, including Sennar and the River Nile. These declines may reflect a combination of localized improvements in resilience mechanisms, better access to irrigation infrastructure, and more diversified livelihood strategies. In Sennar state, rainfall patterns are relatively reliable, market access is good, and there is strong agricultural infrastructure, all of which support faster recovery from shocks. While in River Nile state,

proximity to the Nile may allow for more stable access to water resources, in addition to there being, to date, few direct conflict-related shocks in the state.

However, the overall trend for Sudan under conflict suggests a growing vulnerability among households, likely driven by worsening climatic conditions, economic instability, and personal hardships because of limited access to healthcare services and limited access to nutritious diets. These findings suggest the need for interventions to enhance resilience and mitigate the impact of such shocks among Sudanese rural households.

Figure 8.3 graphs the types of shocks experienced by households in 2023 and 2024. Sickness-related shocks were the most prevalent in both years. These persistently high rates reflect limited access to healthcare services in many rural and conflict-affected areas of Sudan. The death of a household member was another significant shock commonly experienced. Death-related shocks are often associated with preventable illness and a lack of local emergency care services. Transport disruptions and looting of medical equipment at health facilities also prevent many from receiving the urgent health care they require.

Figure 8.3 Types of shocks reported experienced by rural households, 2023 and 2024

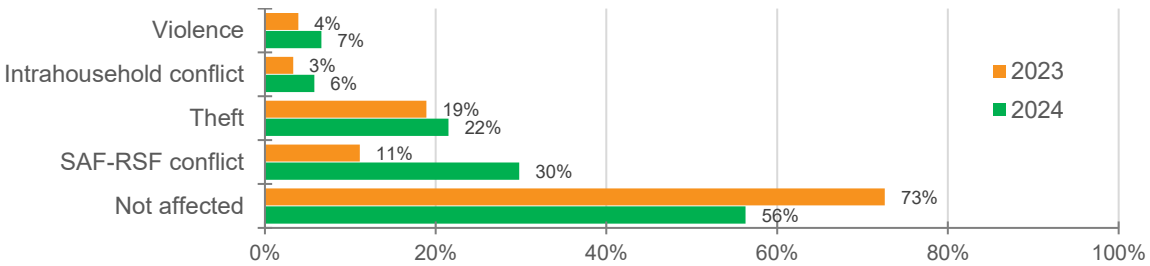


Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

Climate shocks, such as excessive and irregular rainfall, increased in 2024 over 2023, albeit at a relatively low prevalence level. This pattern may indicate growing climate variability across Sudan, but a much longer data time series is needed to better understand trends. Other types of shocks, such as earthquakes and landslides, were negligible in both years.

Rural households were also asked about their exposure to violence, theft, intrahousehold conflict, and combat related to the SAF-RSF civil conflict. Figure 8.4 shows the results for the 2023 and 2024 survey rounds. Overall, the proportion of households that reported being exposed to any of these shocks increased sharply between 2023 and 2024. The sharpest increase was in exposure to the civil conflict between SAF and RSF, reflecting the intensification and geographic expansion of armed confrontations between SAF and RSF and their impact on civilians.

Figure 8.4 Proportion of households exposed to violence, theft, intrahousehold conflict, or civil conflict, 2023 and 2024

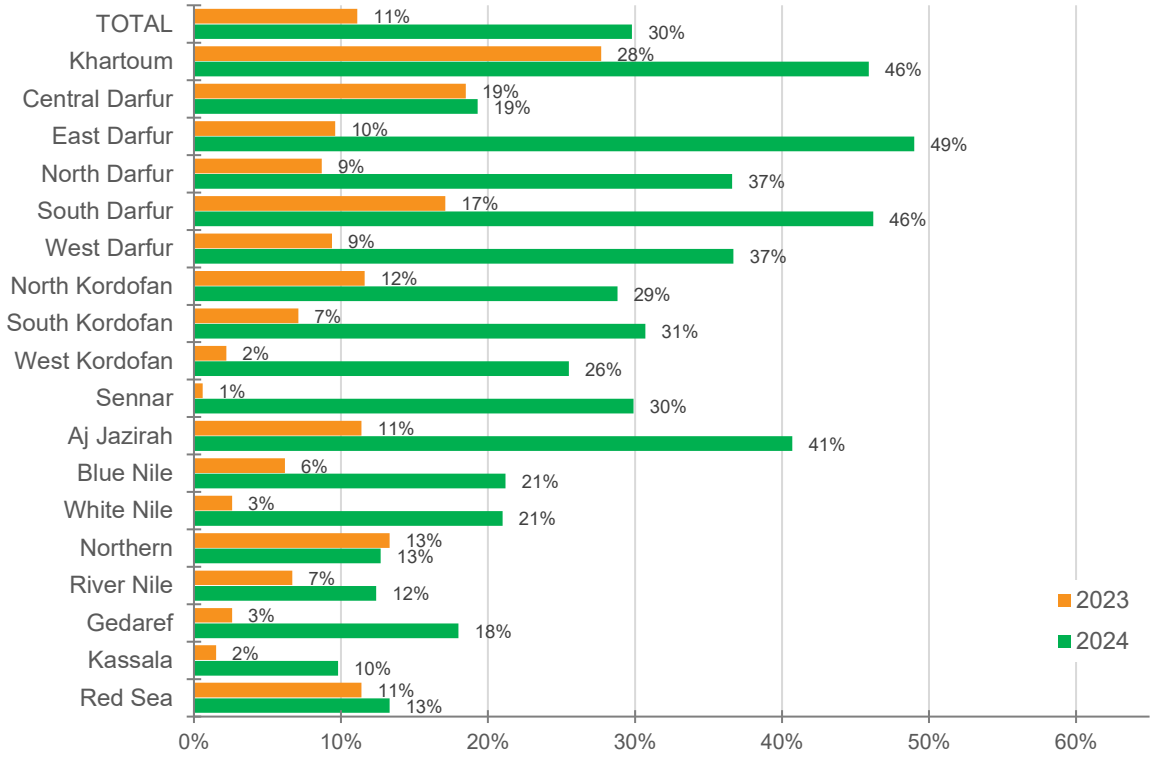


Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

These trends suggest a deteriorating security situation, with growing exposure to conflict, crime, and domestic instability. This evidence supports the urgent need for conflict resolution and peacebuilding efforts and putting in place protective measures and better security services for the affected households.

Figure 8.5 shows the share of rural households that reported having been exposed to the conflict between the SAF and the RSF across the states of Sudan in 2023 and 2024. There was a significant increase in exposure to conflict in nearly all states between 2023 and 2024.

Figure 8.5 Households that reported having been exposed to the SAF–RSF conflict, by state, 2023 and 2024



Source: Authors' analysis of data from waves 1 and 2 of the Sudan Rural Household Survey.

Some of the most affected states in 2024 include East Darfur, followed by Sennar, Aj Jazirah, and South Darfur. Rural households in North and West Darfur and Khartoum also experienced increasing exposure to conflict in 2024 relative to 2023. Households in several states, including Northern, River Nile, Kassala, Central Darfur, and Red Sea, reported relatively low levels of exposure to the conflict across both years.

These findings highlight the intensification of conflict across Sudan, particularly in regions already vulnerable to instability. The growing exposure of households to violence underscores the urgent need for humanitarian aid, conflict resolution efforts, and protection measures for affected communities.

9. CONCLUSIONS AND POLICY IMPLICATIONS

The Sudan Rural Household Survey rounds for 2023 and 2024 provide a longitudinal view of how rural households are navigating an exceptionally severe and ongoing conflict. The findings from the panel survey analysis point to a dual reality. On one side, there are signs of rural

households adapting to conflict conditions and recovering their livelihoods, food consumption levels, land access, and market connectivity. On the other hand, these gains are taking place in a context of persistent poverty, widespread food insecurity, and rising exposure to conflict, climate shocks, and asset depletion.

9.1 Key conclusions

Rural households are actively adapting to the conflict-induced changes in economic conditions, but coping, rather than improved welfare, dominates livelihood strategies: The survey shows a clear shift away from complete joblessness towards greater participation in income-generating activities, including salaried non-agricultural work and crop-related income. More households now rely on multiple working members, reflecting efforts to diversify income sources in response to declining earnings and instability. However, this adaptation is seldom associated with rising incomes. Most households continue to report substantial income losses, and the increase in labor participation, including among children, indicates that any economic resilience achieved by households is often through strategies that carry high long-term social and economic costs rather than through sustained recovery.

Improvements in food consumption mask persistent food insecurity: Dietary indicators suggest improvements in food security for many rural households between 2023 and 2024, with a marked reduction in households classified as having poor or borderline food consumption. These gains likely reflect improved seasonal food availability during the period following the harvest and better market access in some areas. At the same time, experience-based measures of household food security reveal that more than half of rural households remain moderately or severely food insecure, with little change in the share experiencing severe food insecurity. This divergence highlights the fragility of any observed improvements in food security and underscores that better diets do not necessarily translate into secure access to food or reduced vulnerability to shocks.

Short-term buffers have improved, but many households remain one shock away from crisis: Compared to 2023, rural households in 2024 reported longer durations for which they estimated they could meet household food needs from available food stocks or savings, suggesting modest strengthening of short-term buffers. Nevertheless, nearly half of households can still cover less than one week of food needs, and reliance on negative coping strategies remains widespread. The increased use of strategies such as selling household goods and productive assets signals that many households are protecting consumption today at the expense of future livelihoods, reinforcing their long-term vulnerability.

Access to productive resources and markets is improving selectively, but not universally: The analysis shows small overall gains in agricultural land access and market connectivity, but with considerable variation across states. While some areas have experienced improved access, others have seen declines linked to displacement, insecurity, and conflict-related disruptions. Where access has improved, households tend to show better food consumption outcomes, indicating the importance of local production and functioning markets. However, the uneven nature of these gains implies that recovery processes remain highly localized and reversible.

Exposure to shocks is intensifying, particularly those linked to conflict and insecurity: Households report a marked rise in experiencing security-related shocks, including violence, theft, and direct exposure to the ongoing conflict, and some increased exposure to climate-

related shocks, such as irregular rainfall. These shocks directly undermine production, income generation, and market functioning, and help explain why improvements in some welfare indicators have not translated into sustained reductions in food insecurity. The accumulation of repeated shocks leaves households with limited scope to rebuild assets or recover fully between crises.

9.2 Policy implications

Policy responses must shift from short-term coping support toward livelihood protection: The evidence from the panel survey of rural households suggests that these households are coping largely through expanded labor supply, income diversification, and asset depletion. While these strategies help mitigate immediate hardships, they are not sustainable. Policy responses should therefore focus on protecting livelihoods and productive capacity, particularly in states facing persistent income losses and high reliance on negative coping strategies. Interventions that help households maintain productive assets and stabilize income sources are likely to have far more durable effects than those addressing consumption gaps alone.

Food assistance and social protection should be designed to address both food availability and food insecurity: The divergence between improved food consumption scores and persistently high food insecurity highlights the need for interventions that go beyond short-term dietary adequacy. Predictable and well-targeted assistance remains essential in areas with high levels of moderate and severe food insecurity, but it should be complemented by measures that reduce uncertainty for households around access to food, protect household buffers, and prevent recurrent crises. Using both consumption-based and experience-based indicators can help to better target and adapt such interventions over time.

Avoiding asset erosion should be a central objective of recovery-oriented support: The widespread sale of household goods and productive assets signals a critical risk to the future economic recovery of rural households. Policies and programs should explicitly aim to reduce the reliance of these households on such strategies by providing alternatives that stabilize their food access and incomes during periods of stress. Where feasible, linking humanitarian assistance with livelihood support can help households meet immediate needs without compromising their ability to recover and sustain their livelihoods once political and economic conditions improve.

Supporting access to land and markets remains essential but requires conflict-sensitive approaches: Gains in food consumption and income are closely linked to improved access to land and markets, yet these gains are uneven and fragile. Efforts to support agricultural production, market participation, and access to agricultural land must therefore be adapted to local security conditions and displacement dynamics. Flexible arrangements that allow households to maintain or regain access to productive resources, even in unstable contexts, are critical to sustaining rural livelihoods.

Policies must be designed to internalize both conflict and climate risk: The concurrent rise in conflict- and climate-related shocks underscores the need for interventions that are robust to multiple sources of risk. In relatively more stable areas, investments that strengthen climate resilience can help consolidate recent gains. In more insecure settings, policies should prioritize risk mitigation and stabilization, recognizing that repeated conflict-related shocks can rapidly reverse progress even where short-term improvements are observed.

9.3 Looking forward: The role of panel survey data in guiding Sudan's recovery from conflict

While this report provides important insights into how rural households in Sudan are navigating the prolonged conflict in the country, it also highlights key limitations and areas where continued evidence generation is essential. The analysis is based on two survey waves and therefore captures only an early segment of households' longer-term adjustment processes to the conflict-induced changes in economic conditions. The results reveal substantial heterogeneity across states and household groups, suggesting that national averages mask localized trajectories of deterioration, stabilization, and partial recovery of livelihoods. As conflict dynamics, displacement patterns, and market conditions continue to evolve, static assessments risk becoming rapidly outdated.

The panel design of the survey offers a particularly valuable foundation for addressing these challenges. Tracking the same households over time makes it possible to distinguish between deepening vulnerability, short-term coping behaviors, and emerging livelihood recovery. These data can also be used to identify both where modest improvements can realistically be consolidated and where conditions are worsening and require urgent attention. Continued panel data collection would allow future research to refine geographic and thematic targeting, better isolate the drivers of observed changes in the livelihoods of rural households and assess the durability of recent gains in food consumption, livelihoods, and asset holdings. In this sense, the survey program should be viewed not only as a diagnostic tool for current conditions, but also as part of a longer-term evidence system to support adaptive, data-informed responses to Sudan's evolving rural crisis.

REFERENCES

Abay, K.A., K. Tafere, G. Berhane, J. Chamberlin, and M.H. Abay. 2023. "Near-Real-Time Welfare and Livelihood Impacts of an Active War: Evidence from Ethiopia." *Food Policy*, 119: 102526. https://doi.org/10.1016/j.foodpol.2023.102526

Abushama, H., O.K. Kirui, A.S. Taffesse, K. Siddig, and S. Mohamed, S. 2024. *The Effects of Conflict-Induced Migration on Food Security and Health Related Outcomes in Sudan: from Displacement to Despair.* Sudan Strategy Support Program Working Paper 23. Khartoum: International Food Policy Research Institute. https://hdl.handle.net/10568/168432

ACLED. 2025. "Fighting Moves to Kordofan as Sudan's East–West Divide Solidifies." *Conflict Watchlist 2025 | Sudan*. 11 December. Armed Conflict Location & Event Data (ACLED) Project. https://acleddata.com/report/fighting-moves-kordofan-sudans-east-west-divide-solidifies

Ahmed, M.; O.K. Kirui, A.S. Taffesse, M. Raouf, M. Abushama, and K. Siddig. 2024. *Income, Employment, Transfers, and Household Welfare Dynamics Before and During the Conflict in Sudan*. Sudan Strategy Support Program Working Paper 21. Khartoum: International Food Policy Research Institute. https://hdl.handle.net/10568/168417

Corral, P., A. Irwin, N. Krishnan, D.G. Mahler, and T. Vishwanath. 2020. *Fragility and Conflict: on the Front Lines of the Fight Against Poverty*. Washington, DC: World Bank. https://openknowledge.worldbank.org/bitstream/handle/10986/33324/9781464815409.pdf

Di Maio, M., and T.K. Nandi. 2013. "The Effect of the Israeli–Palestinian Conflict on Child Labor and School Attendance in the West Bank." *Journal of Development Economics*, 100 (1): 107-116. https://doi.org/10.1016/j.jdeveco.2012.08.007

FAO. 2014. *Using the FIES App: A Simple Tool for the Analysis of Food Insecurity Experience Scale Data.* Rome: Food and Agriculture Organization of the United Nations (FAO). http://www.fao.org/3/ca9318en/ca9318en.pdf

FAO. 2020. *Using the Food Insecurity Experience Scale (FIES) to Monitor the Impact of COVID-19.* Rome: Food and Agriculture Organization of the United Nations (FAO). https://doi.org/10.4060/ca9205en

George, J., A. Adelaja, and T.O. Awokuse. 2021. "The Agricultural Impacts of Armed Conflicts: The Case of Fulani Militia. *European Review of Agricultural Economics*, 48 (3): 538-572. https://doi.org/10.1093/erae/jbaa022

IFPRI and UNDP. 2024. *Livelihoods in Sudan Amid Armed Conflict: Evidence from a National Rural Household Survey.* Washington, DC: International Food Policy Research Institute (IFPRI) and United Nations Development Programme (UNDP). https://hdl.handle.net/10568/140797

IFPRI. 2025. *Essential Commodities Prices, Availability, and Market Actors' Perceptions*. Sudan Market Prices and Availability Reports. Series of monthly reports from February to October 2025. International Food Policy Research Institute. https://sudan.ifpri.info/5-price-and-availability-reports/

IPC. 2024. *Sudan | IPC Acute Food Insecurity Analysis*. June 2024 – February 2025. Integrated Food Security Phase Classification (IPC). https://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_Sudan_Acute_Food_Insecurity_Jun2024_Feb2025_Report.pdf

Kirui, O.K., K. Siddig, M. Fisher, H. Abushama, M. Ahmed, M. Raouf, and A.S. Taffesse. 2024. *Evolution of Food Insecurity in Sudan During the Ongoing Conflict.* Sudan Strategy Support Program Policy Note 8. Khartoum: International Food Policy Research Institute. https://cgspace.cgiar.org/server/api/core/bitstreams/b39e1533-27dd-4b00-8172-0244dfe54c65/content

Kofol, C., and T. Ciarli. 2017. *Child Labor and Conflict: Evidence from Afghanistan.* ZEF-Discussion Papers on Development Policy 240. Bonn: Zentrum für Entwicklungsforschung / Center for Development Research (ZEF), University of Bonn. https://www.econstor.eu/handle/10419/180189

Muriuki, J., D. Hudson, S. Fuad, R.J. March, and D.J. Lacombe. 2023. "Spillover Effect of Violent Conflicts on Food Insecurity in Sub-Saharan Africa." *Food Policy*, 115: 102417. https://doi.org/10.1016/j.foodpol.2023.102417

Ndip, A.E., and S. Touray. 2019. *Shocks and Household Welfare in Sudan*. Washington, DC: World Bank. https://doi.org/10.1596/36099

OCHA. 2025. "Sudan Key Facts and Figures." New York and Geneva: United Nations Office for the Coordination of Humanitarian Affairs (OCHA). October 31. https://www.unocha.org/publications/report/sudan/key-facts-and-figures-sudan-crisis-31-october-2025

Sassi, M. 2021. "Coping Strategies of Food Insecure Households in Conflict Areas: The Case of South Sudan." *Sustainability* 13 (15): 8615. https://doi.org/10.3390/su13158615

Siddig, K. and S.W. Omamo. 2025. *IPC: Famine and Food Insecurity Spread in Sudan as Humanitarian Crisis Worsens*. IFPRI Blog: Issue Post, Development Strategies and Governance Unit. 13 November. Washington, DC: International Food Policy Research Institute. https://www.ifpri.org/blog/ipc-famine-and-food-insecurity-spread-in-sudan-as-humanitarian-crisis-worsens/

UNHCR. 2025. *Operational Data Portal—Sudan Situation.* Geneva: United Nations High Commissioner for Refugees (UNHCR). November 24. https://data.unhcr.org/en/situations/sudansituation

UNICEF. 2025a. *Sudan | Humanitarian Situation Report No. 26*. 02 February. Khartoum: UNICEF https://www.unicef.org/sudan/media/15536/file/Sudan%20Annual%20SitRep%202024%20revised.pdf.pdf

UNICEF. 2025b. *Sudan | Humanitarian Situation Report No.* 3*6*. 28 November. Khartoum: UNICEF https://www.unicef.org/media/176816/file/UNICEF%20Sudan%20Humanitarian%20Situation%20Report%20No.%2036%20-%20October%202025.pdf.pdf

UN-Women. 2025. *The Impact of Sudan's War on Women, Two Years On*. New York: UN Women. https://www.unwomen.org/en/articles/explainer/the-impact-of-sudans-war-on-women-two-years-on

Vesco, P., G. Baliki, T. Brück, S. Döring, A. Eriksson, H. Fjelde, ... and H. Hegre. 2025. "The Impacts of Armed Conflict on Human Development: A Review of the Literature." *World Development*, 187, 106806. https://doi.org/10.1016/j.worlddev.2024.106806

WFP. 2025a. *Food Security and Nutrition Situation in Eastern Africa – January 2025 Update.* Rome: World Food Programme (WFP). docs.wfp.org/api/documents/WFP-0000164186/download/

WFP. 2025b. *Sudan Market Monitor* – February 2025. Rome: World Food Programme (WFP). https://docs.wfp.org/api/documents/WFP-0000164669/download/

WHO. 2024. "WHO condemns the increasing attacks on health care amid Sudan's war." 29 July. Geneva: World Health Organization (WHO). https://www.emro.who.int/sdn/sudan-news/who-condemns-the-increasing-attacks-on-health-care-amid-sudans-war.html

WHO. 2025a. "After 2 years of conflict Sudan's health system faces collapse as rainy season nears". 15 April. Geneva: World Health Organization (WHO). https://www.emro.who.int/sdn/sudan-news/after-2-years-of-conflict-sudans-health-system-faces-collapse-as-rainy-season-nears.html

WHO. 2025b. "Sudan Emergency." 25 September. Geneva: World Health Organization (WHO). https://www.who.int/emergencies/situations/sudan-emergency

Yibeltal, K., and B. Rukanga. 2024. "Sudan death toll far higher than previously reported – study." *BBC Africa – News*. 14 November. https://www.bbc.com/news/articles/crln9lk51dro

ABOUT THE AUTHORS

Halefom Yigzaw Nigus is a Research Collaborator of the Sudan Strategy Support Program (SSSP) of the International Food Policy Research Institute (IFPRI), based in Addis Ababa, Ethiopia. He is also a Research Fellow at Policy Studies Institute (PSI) and Partnership for Economic Policy (PEP). **Hala Abushama** is a Research Analyst in the Development Strategies and Governance (DSG) Unit of IFPRI and a member of IFPRI's SSSP, based in Cairo, Egypt. **Tarig Rakhy** is a Research Analyst in the DSG Unit of IFPRI and a member of IFPRI's SSSP, based in Doha, Qatar. **Shima Mohamed** is a Research Analyst in the DSG Unit of IFPRI and a member of IFPRI's SSSP, based in Cairo, Egypt. **Khalid Siddig** is a Senior Research Fellow in IFPRI's DSG Unit and the Leader of IFPRI's SSSP and Kenya Strategy Support Program, based in Nairobi, Kenya. He is also an Associate Professor at Khartoum University, Sudan. **Oliver Kirui** is a Research Fellow in IFPRI's DSG Unit and Program Leader for the Nigeria Strategy Support Program of IFPRI, based in Abuja, Nigeria. He was earlier a member of IFPRI's SSSP.

ACKNOWLEDGMENTS

This research was supported by the United States Agency for International Development (USAID) and the donors who fund the 2025 CGIAR Science Program on Food Frontiers and security - Area of Work on Fragile and Conflict-Affected Food Systems through their contributions to the CGIAR Trust Fund: https://www.cgiar.org/funders.

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

A world free of hunger and malnutrition

IFPRI is a CGIAR Research Center

IFPRI Sudan, Arab Organization for Agricultural Development (AOAD), 7th Amarat Street | P.O. Box 474 – 11111 | Khartoum, Sudan

Email: ifpri-sudan@cgiar.org | https://sudan.ifpri.info/