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AGAINST THE GRAIN: The Cereal Trade in Darfur

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EXECUTIVE SUMMARY

Purpose and scope

The purpose of this study is, first, to understand the impact of a decade of conflict on the cereal trade in Darfur; second, to understand the impact of a decade of humanitarian food assistance on the cereal trade in Darfur; and third, to explore the influence of government policy. The study has been carried out in all five Darfur states. It describes the state of the cereal market in 2014, for millet, sorghum and wheat. Although trade is the main focus, the study also explores trends in cereal production during the last decade. The ultimate objective is to identify ways in which trade can be supported to better sustain the livelihoods of different groups in Darfur, and to support the growth and eventual recovery of Darfur's economy.

The macro-economic context

The agriculture sector accounts for around 30% of Sudan's GDP, and in good years can be a significant driver of growth. The area planted to cereals nationwide has risen in the last sixty years, as has total cereal production although at a lower rate of growth. This is indicative of low and declining productivity, particularly for millet and sorghum. Variability of production is high, especially for millet, with periodic years of crises, including 2013/14, when national cereal production was less than half the production level of the previous year, a consequence of poor rainfall and conflict. Although successive government policies have aimed to boost cereal production, most recently the Agricultural Revival Program, these have had limited success, and have tended to favor horizontal expansion, mostly of the semi-mechanized sector, instead of increased productivity. Government policy has, for decades, neglected the traditional rainfed sector in favor of the irrigated and semi-mechanized sectors.

The Strategic Grain Reserve is intended to promote food security and manage price fluctuations, but has faced major operational

problems. Within the Darfur region, the impact of its interventions in the last decade appear to have been minimal.

Federal government trade policy is fragmented and erratic. Although sorghum can, in some years, be a significant export for Sudan, volumes have been falling since the early 1990s while imports have risen, especially since 2000. There is an active and substantial cross-border trade in cereals, especially to South Sudan, much of which is informal. Agriculture is officially tax-exempt, but state governments and locality authorities, facing ever sharper fiscal constraints, have imposed heavy taxes on the agricultural sector, including traded cereals. The special exchange rate for wheat has artificially stimulated imports of wheat and encouraged consumption of wheat over Sudan's main staples of sorghum and millet, placing a heavy burden on the economy.

Cereal production in Darfur: pre-conflict and during the conflict years

Almost all Darfur's cereal production is rainfed. It traditionally accounted for about two-thirds of Sudan's national millet production. Official data indicate some growth in cereal production in the pre-conflict decade, but at a lower rate than the estimated growth in population in Darfur. Yields have declined and annual variability of production has been high. Nevertheless, pre-conflict, the greater Darfur region was self-sufficient in cereal production. Only in years of widespread drought were cereals brought into Darfur from Central Sudan, but the region was never well integrated into the national cereal market.

With the outbreak of conflict in 2003, cereal production plummeted, mainly due to displacement and reduced access to farmland. Although production showed signs of recovery in certain years since, including in 2012, in 2013/14 cereal production may have been lower than in any year since the conflict began, a

combination of poor rainfall and acute fighting and insecurity, especially in South and East Darfur. Constantly shifting conflict dynamics have affected different cereal-producing areas at different times, but some have more or less ceased production altogether during the conflict years, for example the Wadi Saleh area. There has been a shift from millet to sorghum production in many parts of Darfur during the conflict years. Women now bear more of the burden of cereal cultivation than in the pre-conflict era.

Food assistance and cereal consumption patterns in Darfur during the conflict years

Food assistance in response to the conflict in Darfur was unprecedented in scale and coverage. It peaked in 2005. From 2006, the total quantity decreased as ration sizes were reduced, and as distribution to rural populations became seasonal and more targeted. Most years the cereal ration has been sorghum, with wheat provided in some years. Food voucher programs were introduced in 2010, especially focused on North Darfur.

High levels of displacement turned many cereal producers into consumers, dependent on the market and on food assistance to meet their consumption needs. Rapid urbanization also triggered an increase in demand for cereals (mainly sorghum) for livestock feed, from peri-urban poultry and dairy farms. In terms of human consumption, there has been a shift in the last decade from millet to sorghum and wheat, specifically bread, in urban areas. These changing consumption patterns in Darfur follow trends that happened much earlier in Central Sudan.

Sources of supply and volumes of cereal trade flows in Darfur during the conflict years

Darfur's state capitals now depend on fewer locations for their cereal supplies as conflict has disrupted many production areas. In some cases trade flows have changed direction as local

sources were no longer available. A few trade flows have been remarkably resilient during the conflict years, for example the cereal trade from Jebel Marra to El Fashir. Despite crossing conflict lines, this trade has continued, constantly adapting to localized conflict dynamics. Saraf Omra has emerged as an important source of cereals to many of Darfur's major towns.

In-kind food assistance (mostly sorghum and wheat) was an extremely important source of supply to Darfur's cereal markets in the early years of the conflict as local production fell. This had a major and positive impact in stabilizing cereal prices in Darfur. Between 2004 and 2008 this also triggered a flourishing trade in food aid cereals from Darfur's main towns to Central Sudan. But food aid has been much less significant as a source of supply to Darfur's markets from 2010 onwards as general food distribution has reduced.

In 2014, after an extremely poor harvest across Darfur, cereal prices hit record high levels. Traders reported a substantial fall in the volume of cereals they were handling, and some left the market, a stark reminder of the volatility of cereal trade flows year to year.

Uncoordinated restrictions on grain movements by locality authorities, eager to restrict outflows of grain, are having a distortionary impact on the grain trade within the Darfur region.

Trade routes and trading costs

Conflict and insecurity have disrupted trade routes and increased transportation and trading costs. A few trade routes have been closed for most of the last decade; others open and close according to the changing dynamics of the conflict. Traders and transporters must constantly adapt the routes they use, and on some routes have had to change their means of transportation, for example to use larger trucks as part of armed convoys between state capitals, or scaling down to smaller four-wheel drive pick-ups on shorter routes within North Darfur.

Most of these adaptations incur increased costs, especially the cost of armed escorts. Travel times have increased substantially, with the exception of the Salvation Road connecting El Fashir to Central Sudan, which is now close to completion and has significantly reduced travel times to Khartoum.

Overall, transport costs have risen by 100 to 1,000% during a decade of conflict, between primary markets and secondary markets, and between secondary markets. Another key factor pushing up trading costs has been the imposition of fees by locality authorities, and informal fees that have to be paid at the numerous checkpoints along Darfur's trading routes.

Organization of the cereal trade in Darfur

Many cereal traders went out of business early in the conflict, until food aid deliveries replaced locally produced cereals, thus shoring up the market and preventing more traders leaving the business at that time. In most markets visited for this study, the number of small-scale cereal traders has risen over the last 11 years as new markets opened up in Darfur's swollen towns, and in the absence of other livelihood opportunities. As cereal trading has become more competitive, each trader is handling smaller quantities than pre-conflict. But the number of wholesalers and large-scale traders transporting cereals between state capitals, appears to have fallen, with a few exceptions such as Nyala and Saraf Omra. At the other end of the scale, the number of petty traders of cereals in urban markets across Darfur has increased dramatically. Many more women have become involved in cereal trading in Darfur during the conflict years, especially in petty trading. Shortage of capital is a major constraint for traders as cereal prices have risen rapidly, as informal credit networks have broken down, and as formal credit is inaccessible for most traders. Women are usually more constrained than men in their access to credit, and to trading institutions in general.

The cross-border trade in cereals from Darfur

Darfur has a long tradition of cross-border trading, with Chad, the Central African Republic, and now to South Sudan. During the conflict years this cross-border trade has continued to thrive. The flow of cereals cross-border from Chad was much reduced between 2006 and 2010 when relations between the Government of Sudan and Government of Chad were hostile, but has recovered since 2011 when relationships improved. Cereal production in Chad has now become an important source of supply for West Darfur markets, especially El Geneina. The cross-border trade in cereals between Darfur and South Sudan is larger in terms of volume, but is also impacted by the state of relations between the Governments of Sudan and South Sudan, which have been poor since South Sudan seceded. Although the volume of this trade is less than pre-conflict, especially since secession and the trade embargo imposed by the government of Sudan, large price differentials between Darfur and South Sudan continue to fuel informal cross-border cereal trading, triggered as well by the availability of food aid sorghum in Darfur in the last decade. Ed Daien is the centre of the cross-border sorghum trade to South Sudan.

The impact of the food voucher program on cereal markets in Darfur

After a good harvest, as in 2012, local production and trade flows within Darfur appear to have been able to meet increased demand for cereals generated by the food voucher program, which is largest in North Darfur. But in 2014, after an exceptionally poor harvest, local production has not been able to meet demand, exacerbated by insecurity and the breakdown in trade flows from Saraf Omra. Cereals were brought from Central Sudan. The food voucher program appears to have stretched the market in El Fashir, exacerbating already steep price increases. While the program has probably resulted in increased trade volumes, it has not necessarily made the market more competitive as it may have pushed smaller traders out of the market.

Conclusions

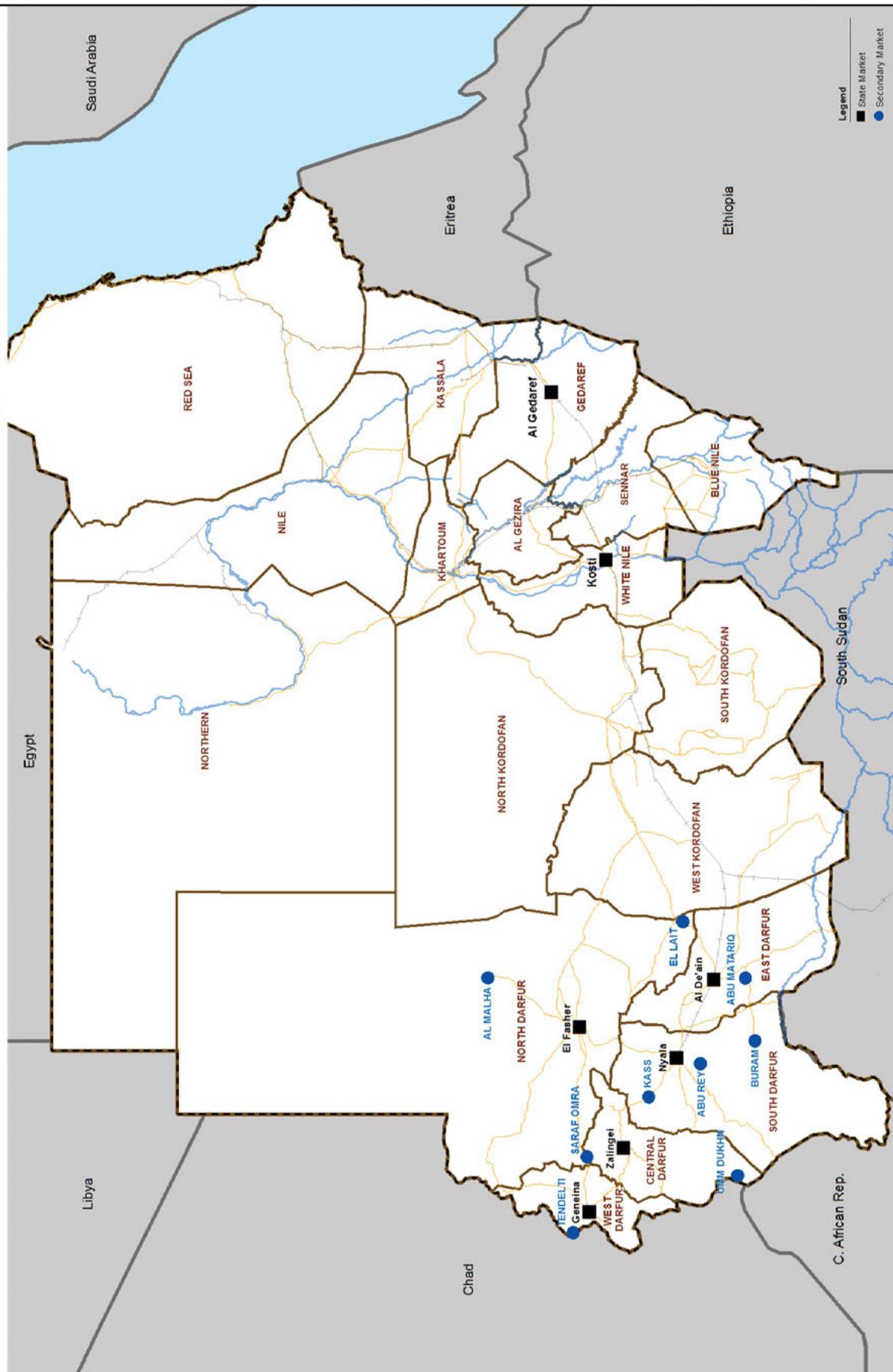
Cereal trade flows in Darfur have been badly impacted by conflict, sometimes drying up completely. While food assistance has played a vital role in keeping Darfur's cereal markets functioning and in stabilizing prices, especially in the early years of the conflict, more recently the full impact of declining production has become apparent, especially in 2014 as cereal shortages were widely reported due to a combination of a very poor harvest, insecurity disrupting key production areas, smaller amounts of food aid available, and increased demand for cereals through the food voucher program.

Despite the many obstacles to cereal trading in Darfur in the last decade, there appears to be greater integration with the national cereal market due to a number of factors. This is facilitated by the near-completion of the tarmac road linking El Fashir with Central Sudan.

Some of the constraints to Darfur's cereal trade pre-date the current conflict, for example the long-term policy neglect of the traditional rainfed agricultural sector and infrastructural constraints. These have been magnified during the conflict years as agricultural services have more or less collapsed, as roads have deteriorated, and as there are many additional costs to trading and transportation. The study highlights a vacuum of coherent and enabling policy for cereal production and trade.

Until there is greater peace and security, cereal production in Darfur is unlikely to recover, and years like 2013/14 will be repeated, when the combination of drought and conflict severely depress local cereal production and prices soar, negatively impacting household food security.

Darfur Cereal Trade Study 2014 Sudan Study Markets



INTRODUCTION

1.1 Why this study

A decade of conflict in Darfur has had a major impact on trade and markets, through insecurity, displacement, and accelerated urbanization, as former producers become consumers and as large-scale humanitarian aid is provided in response. Government policy has also evolved during the last decade, at national, state, and locality levels, directly and indirectly affecting trade.

This report is the third in a series of in-depth studies researching and analyzing the impact of conflict and associated factors on trade in Darfur's main agricultural and livestock commodities. The first study, "On the Hoof," published in September 2012, explored how Darfur's livestock trade has been impacted, has adapted, and has contracted since the outbreak of widespread conflict in Darfur in 2003.¹ The second study, "Taking Root," explored the impact of conflict and government policy on the cash crop trade in Darfur, and was published in November 2013.²

This third study is of the cereal trade in Darfur. It explores both the impact of a decade of conflict and the impact of a decade of food aid on the cereal market, as well as the influence of government policy. The specific objectives of this study into Darfur's cereal trade are the following:

- (1) tracking how the cereal trade in Darfur has been impacted by the conflict since 2003 (including cereal production as far as possible), how it has adapted, and the extent to which it has recovered, in order to better understand the impact on the livelihoods of different groups in Darfur and the implications for Darfur's future;
- (2) tracking how the cereal trade has been impacted by a decade of humanitarian food assistance in Darfur, and by the recent replacement of in-kind food assistance in some areas with food vouchers;
- (3) describing the current state (in 2014) of the cereal market in Darfur, in relation to patterns and trends in cereal production in the region;
- (4) identifying ways in which the cereal trade can be supported to better sustain the livelihoods of different groups in Darfur, and to support the growth and eventual recovery of Darfur's economy.

It is a component of a larger program of research into trade and markets in Darfur, carried out in partnership between the Feinstein International Center (FIC) of Tufts University and the Darfur Development and Reconstruction Agency (DDRA), in collaboration with state government.³ The overall aim of this program of work is to deepen understanding and analysis of how the conflict is impacting on trade, and thus to identify how livelihoods can be supported through market interventions and how market infrastructure can be maintained through the conflict years to speed Darfur's eventual economic recovery when there is greater peace and stability.

This study builds on ongoing market monitoring and analysis carried out by DDRA since late 2010, through the Market Monitoring and Trade Analysis (MMTA) project, funded by the European Union (EU), and is an opportunity to investigate in greater detail some of the trends that DDRA has identified and the reasons behind them, as well as trends identified by the World Food Programme (WFP)'s Vulnerability

¹ See Buchanan-Smith et al., (2012), "On the Hoof: Livestock Trade in Darfur," Feinstein International Center, Tufts University and UNEP, Sudan, September, <http://sites.tufts.edu/feinstein/2012/on-the-hoof-livestock-trade-in-darfur>.

² This study focused on groundnuts, but also covered gum arabic, sesame, *tombac* (chewing tobacco), and oranges. See Buchanan-Smith et al., (2013), "Taking Root: The Cash Crop Trade in Darfur," Feinstein International Center, Tufts University and UNEP, Sudan, November, <http://fic.tufts.edu/publication-item/taking-root/>.

³ Four government secondees joined the cereal trade study team, from the respective Ministries of Agriculture in North Darfur, West Darfur, South Darfur, and East Darfur states.

Analysis and Mapping (VAM) work. It has been funded by WFP and by the United Nations Development Programme (UNDP), both of which seconded staff members to work with the research team in Nyala, and has been carried out in collaboration with FEWS NET (the Famine Early Warning System Network), which led the field-work in Eastern Sudan.

1.2 Scope, methodology, and constraints of the study

Scope

This study focuses on the three main cereals currently traded in Darfur: millet, sorghum, and wheat. All three are grown locally, although millet is the most important. The study also explores the trade in food aid sorghum and food aid wheat in the last decade. To a limited extent, it explores cereal production, mostly relying on secondary data and on key informant interviews in Darfur's state capitals.

The study has been carried out in all five Darfur states: North, West, Central, South, and East Darfur, between March and June 2014.

Interviews have also been carried out, and data collected in Gedaref, an important cereal-growing area in East Sudan, in Kosti, an important trading hub for cereals in Sudan, and with traders and other key informants in Khartoum and Omdurman.

As well as analyzing how the cereal trade in Darfur has been impacted by conflict and by food assistance programs, the study has explored the policy context at state and at federal levels, and how policy—explicit and implicit—has supported and facilitated, or undermined and hindered, trade.

A set of 12 research questions were identified at the outset of the study, which this report attempts to answer. See Box 1.

Box 1. Research questions guiding the study

- (1) What are the current patterns of trade in cereals within Darfur, and between Darfur and the rest of Sudan? How does this compare with the pattern of trade pre-conflict? Over the last decade, how have these patterns fluctuated?
- (2) What can we learn from the cereal market in Darfur about how cereal consumption patterns have changed during the last decade; for example, as the population has become more urbanized, as food aid rations have changed, and for livestock fodder as more livestock are present in urban areas?
- (3) What is the current pattern of cereal trading cross-border from Darfur, with Chad, Central African Republic, and with South Sudan, and how does this compare with the cross-border trade pre-conflict? In particular:
 - a. What has been the impact of secession on the cereal trade from Darfur to South Sudan?
 - b. How has the policy context in neighboring countries affected the cross-border trade in cereal, e.g., the Government of Chad periodically banning the cross-border trade in cereals with Darfur?
- (4) How have trading routes of cereals been affected during the conflict years, both by the conflict itself and by the provision of humanitarian food assistance? What arrangements have had to be made to enable the flow of the cereal trade, and what does this tell us about the links between conflict and trade?

continued on next page

- (5) How have the trading costs of cereals (including transportation costs and taxes and fees, both formal and informal) changed over the last decade, and why? What has been the impact on the flow of trade?
- (6) How has the organization of the trade in cereals been affected during the conflict years, in terms of the organizations, institutions, and actors involved, changes in concentration of market power amongst traders, and gender divisions within the cereal trade?
- (7) How has the policy context, at both state and federal levels, affected the trade in cereals over the last ten to fifteen years?
- (8) Overall, how has the trade in cereals been affected by, and how has it responded to, a decade of conflict in Darfur, alongside a decade of food aid since 2003, including the impact of how food distribution levels have changed and been targeted, and the impact of food vouchers?
- (9) How has varied rainfall, and especially years of drought, affected the cereal trade (through variable cereal production) over the last decade, in the context of conflict and ongoing food assistance?
- (10) From secondary data on cereal production and from this analysis of the cereal trade, what can we learn about trends in cereal production in the last decade, and the relative significance of different factors affecting cereal production, including rainfall, conflict, and the impact of food assistance?
- (11) What are the implications of all of the above for livelihoods in Darfur, both for those dependent on cereal production, and also for those dependent on the market for cereal consumption?
- (12) What are the implications of all of the above for economic growth and recovery in Darfur, and the role that cereal production and trade could play in that recovery?

Methodology

The aim of the study is to uncover patterns and trends in the cereal trade in Darfur, especially during the conflict years, as a result of the change and interactions between policies, institutions, and processes, and the market chain and infrastructure, based on the knowledge and experience of traders themselves. See Annex 1 for the conceptual model underpinning this study. It is therefore based on qualitative methods, approved by the Institutional Review Board of Tufts University. As in previous trade studies in Darfur, these qualitative methods have proved to be particularly effective in capturing the complexities of trade and complement the

more quantitative studies done by agencies such as WFP. This cereal trade study has followed a similar approach to the cash crop and livestock trade studies, benefiting from the learning from these two, and from earlier studies in Darfur,⁴ about how best to conduct this kind of research, especially in the current conflict context where trust has broken down, security is an issue, access is constrained, and reliable data are sparse.

Primary data have mostly been gathered through interviews with cereal traders, either selected as key informants because of their long-term experience and knowledge of the cereal trade in Darfur, and therefore ability to comment on

⁴ See, for example, UNEP (2008).

changing trends, patterns, and relations, or selected to answer questions specifically about their own trading business. Occasionally, where feasible, traders have been interviewed as a small focus group. In total, over 70 cereal traders have been interviewed for this study across all five Darfur states, as well as in Kosti, Gedaref, and Khartoum. The existing knowledge and familiarity with Darfur of all the research team members meant that they were able to collect in-depth information and were trusted by interviewees, thus maximizing the reliability of the findings. All interviews were guided by semi-structured interview guides, in turn informed by the conceptual framework for market analysis. These checklists were drafted collaboratively with the research team, to ensure consistency. See Annex 1 for the numbers and types of traders selected.

Nine case studies of secondary markets across Darfur were carried out. These markets were purposively sampled as cases that are representative of different conflict, production, and trade environments. See Annex 1. Cameos of the experience of individual cereal producers and traders have been used in the report, to illustrate a broader trend or pattern that has emerged across interviews.

The validity of the findings was maximized in two ways. First, the research teams have used triangulation, comparing information between sources, particularly between traders, but also cross-checking with other key informants such as government officials or UN agency staff, to confirm the validity of findings as well as to identify common patterns. Second, the study has relied upon discussion and feedback between researchers and key resource people. All researchers presented their initial findings in an analysis workshop, and findings were shared with an advisory group for feedback (see below).

Lack of access for the international team leader (see constraints below) meant that much of the

study had to be managed remotely. Despite this constraint, the team leader enhanced reliability and consistency by facilitating a two-day planning workshop in Khartoum with the research team at the outset, continuous contact by telephone between the team leader and the research teams in the first phase of field work in Darfur, and by e-mail and skype during the second phase of field work in Darfur, as well as a three-day analysis workshop in Khartoum with the whole team after the first phase of field work. Thus, collation, analysis, and validation of the findings have been an iterative process over an eight-month period, from March to October 2014.

The specific methods used for this study were as follows:

- (1) **Literature review:** a review of the literature (in Arabic and in English), principally on Sudan, to ensure that this study built upon the findings of existing research and available reports.⁵
- (2) **First phase of field work in Darfur:** four sub-teams covered Darfur's five state capitals between March and May 2014: Geneina, El Fashir, Zalingei, Nyala, and Ed Daien. This core team of nine researchers, all with experience in Darfur and all of whom had in-depth knowledge of Darfur's markets, were joined by colleagues seconded from WFP and UNDP in Nyala (see Annex 2). They carried out key informant interviews with: (i) cereal traders in each market (including markets in neighboring camps of internally displaced people [IDPs]), operating at different levels (e.g., wholesalers, retailers, petty traders), purposively selected to be representative of the range of traders currently engaged in the cereal market (e.g., traders who have long experience in the cereal market and new entrants into the market); (ii) interviews with truckers who transport cereals between markets; (iii)

⁵ Relevant studies include: El-Dukheri et al. (2004), "Rationale for a Possible Market Support Program in Darfur, Sudan. A Brief Look at Markets and Food Security," commissioned by CARE; a chapter on markets in Buchanan Smith and Jaspars (2006), "Conflict, Camps and Coercion. The Continuing Livelihoods Crisis in Darfur," commissioned by WFP; Buchanan-Smith and Fadul (2008), "Adaptation and Devastation," published by Tufts University, and a "Market Assessment in Darfur," carried out by WFP in 2014.

interviews with government officials who administer the cereal market and collect taxes; (iv) interviews with traders involved in the food voucher scheme; (v) interviews with focus groups of producers of cereals; (vi) interviews with other key informants with a perspective on the cereal trade and how it has changed, including state government officials and NGO and UN staff, especially WFP and FAO staff. (See Annex 1). All key informant interviews have been guided by a checklist of questions to ensure consistency.

(3) Second phase of field work in Darfur:

nine secondary markets were selected for follow-up data collection, after preliminary analysis of the data collected in Darfur's state capitals. Enumerators from community-based organizations (CBOs) involved in the MMTA project conducted field work in five of the secondary markets. The other markets were covered by the senior researchers or by local researchers from the area. This second phase was carried out between May and June 2014. (See Annex 1).

(4) Field work in Khartoum, Gedaref, and Kosti:

key informant interviews were carried out in Gedaref and Kosti with cereal traders and truckers involved in the cereal trade, including importers and exporters, and with government officials, in order to explore the relationship and links between the cereal trade in Darfur and the national cereal trade. Key informant interviews were also carried out in Khartoum and Omdurman with cereal traders, and with government officials at federal level, with academics, and with staff of national and international aid agencies.

(5) Policy review and analysis of secondary data:

a review of federal government policy and analysis of official statistics on cereal production and trade was carried out by a national consultant and international consultant (both macro-economists with in-depth knowledge of Sudan) in order to identify trends and to understand the macro policy environment within which Darfur's cereal trade is operating. Data and policy analysis by the national consultant, mostly

drawing on data from the federal Ministry of Agriculture, were written up as a background paper, referenced in this report as Ijaimi (2014). Price data from DDRA and from WFP/VAM were collated and analyzed.

(6) A chronology of food assistance to Darfur:

a chronology of the food assistance program in the last ten years in Darfur was prepared by an international consultant. See Annex 5. This mainly covered changes in quantities and types of food assistance provided, as earlier studies demonstrate that these are the key factors that relate to the cereal trade. The chronology drew extensively on WFP documents and sources. The consultant also advised on issues related to food aid and cereal trade, which informed data collection and analysis.

(7) Analysis workshops:

a 3-day analysis workshop was held in Khartoum with the research team in April after the first phase of field work had been completed in Darfur, Gedaref, Kosti, and Khartoum. A second analysis workshop was held in Khartoum in September, for the Darfur research team, to fine-tune the analysis and for drafting of the conclusions and recommendations.

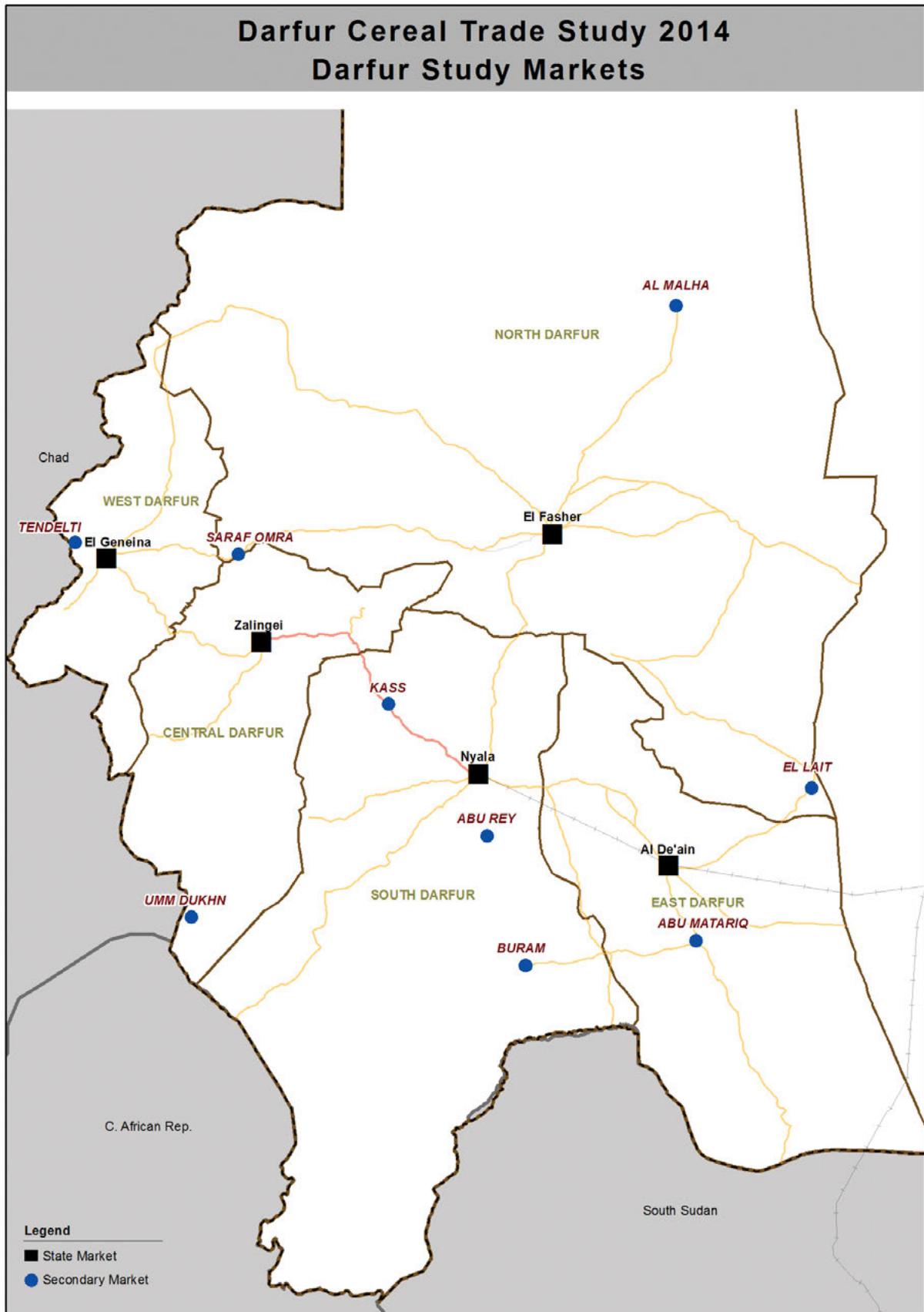
(8) Advisory group:

an informal advisory group of key resource people from Darfur and from Khartoum have guided the study, at the beginning in terms of its scope and design, and again at the end, commenting on the findings and especially helping to refine the conclusions and recommendations.

See Figure 1 for a map of the markets covered in this study.

The study has used both quantitative and qualitative data. The quantitative data used were mostly secondary data on cereal production, imports and exports, and prices, but also some primary data collected from traders, for example on trading and transportation costs. Most qualitative data were primary data, covering issues such as trade routes, market organization, and evidence of geographical shifts in market activity. In order to capture the impact of the

Figure 1: State capitals and secondary markets where the cereal study was carried out



conflict on trade, interviewees were asked to make comparisons between the cereal trade in 2014 and in 2002/3, before conflict in Darfur became widespread. Where possible, comparisons were also made with 2007.⁶ These comparisons mostly rely on recall as reliable written records are scarce. Triangulation has been used wherever possible.

Constraints

This study has faced a number of constraints.

1. There are significant **challenges to doing field work** in many parts of Darfur in the current context. Travel between markets is slow and can be dangerous. Conflict also fuels suspicion. Interviewing traders in public in the marketplace is therefore rarely possible or appropriate, and traders are unlikely to open up to strangers. The study has attempted to overcome these constraints in the following ways:

- a. The research team in Darfur comprised Darfur-based academics and national NGO/CBO staff who are known and trusted in the markets in which they were conducting interviews. This was critical to encouraging traders and others in the private sector to communicate openly and honestly.
- b. Key informants were mostly interviewed in shops and offices, out of public view, to facilitate open communication.
- c. CBO enumerators, participating in the MMTA project, were recruited to cover secondary markets in North, West, and Central Darfur, and local government officers were recruited to cover secondary markets in South and East Darfur, thus providing access and insights to markets that are often inaccessible to international agencies. All of these local researchers are from the places in which they are exploring the markets, so have background knowledge and are known to traders.

2. The international researchers encountered serious **lack of access** on a number of occasions. The team leader was unable to leave

Khartoum for Darfur or for East Sudan during the field work phase, and was subsequently unable to secure a visa to travel to Sudan for the final analysis and dissemination phases. Thus, much of the direction and management of the study has had to be done remotely (see above). As the team leader has worked in Darfur on a regular basis since 1987, and has worked with all the senior national researchers in previous trade studies where the methodology was similar, this facilitated remote management.

3. **Official data is either missing or contradictory** for some key indicators. This is a particular problem for data on cereal production in Darfur, where federal and state-level sources often conflict. The report relies predominantly on official data on cereal production from the federal Ministry of Agriculture, generally regarded as the more reliable source. However, official data on cereal production in Darfur since 2003 should be treated as guesstimates because of limited access by government officials to the field to carry out post-harvest assessments. While some broad patterns and trends can be identified, trends that are location-specific can be masked by data aggregated to state or regional level. For these reasons, the study uses key informants as much as possible to cross-check and to triangulate trends emerging from the official data. Where there is a complete lack of data, for example a lack of market records that show volumes of cereals traded in different markets in Darfur, we have asked key informants for their estimates of cereal trade volumes into particular markets, in 2014 compared with the pre-conflict period, and for their perception of changing trends in volumes traded. We have also interviewed many individual traders about the quantities of cereals they trade per week, during the period of field work between March and May 2014 compared with the pre-conflict period, and some have also been able to recall quantities traded in 2006, the peak of the food aid program.

⁶ Data are also available for 2007 from "Adaptation and Devastation," Buchanan-Smith and Fadul, 2008.

The report flags up where these challenges have constrained the analysis, or where there are specific limitations with the data, and identifies issues that deserve further investigation.

1.3 Outline

After describing the scope and methodology for the study, as well as the context of Darfur (Section 1), Section 2 sets out the macro-economic context of cereal production and trade in Sudan, including a review of federal government policy which directly and indirectly impacts cereal production and trade at the Darfur level. Section 3 provides some historical perspective, describing patterns of production and trade in Darfur before the outbreak of widespread conflict in 2003, and Section 4 presents trends in cereal production in Darfur since 2003, explaining how conflict has impacted production. Section 5 describes the humanitarian food assistance response in Darfur during the conflict years since 2003, as well as providing some historical context to food assistance in Darfur. Changing cereal consumption patterns in Darfur during the conflict years are explored in Section 6.

The second half of the report focuses on the cereal trade in Darfur and how it has been impacted by more than a decade of conflict and food aid. Section 7 traces trade flows and changing sources of supply, including the significance of food aid as a source of cereals to the market. Section 8 analyzes data on how volumes of trade have been affected and Section 9 shows how trade routes have changed and how trading and transportation costs have increased during the conflict. Changes in the organization of the cereal trade, for example in terms of numbers of cereal traders and their profile, including gender, are described in Section 10. Although it is impossible to quantify the volume of cross-border trading in cereals from Darfur, Section 11 captures trends, opportunities, and constraints in cross-border trading. How the recently introduced food voucher scheme appears

to have impacted the cereal market in parts of Darfur is discussed in Section 12.

Section 13 draws together the main findings and conclusions of this study and looks at how conflict and relief assistance have impacted the cereal trade in Darfur, positively and negatively. It finishes with a set of recommendations about how the cereal trade can be supported in the immediate and longer-term future, with the aim of better meeting food security needs and as a driver of economic growth at the micro and macro levels.

1.4 An overview of the Darfur context: cereal production, trade, and conflict

Almost all of Darfur's cereal production is rainfed, carried out by smallholder farmers. Millet is the preferred staple food in Darfur, and is also the most important agricultural crop. Before the outbreak of widespread conflict in 2003, the greater Darfur region was self-sufficient in cereal production in most years, with trade flows from surplus-producing to deficit areas within the region. Darfur was not well-integrated into the national cereal market, partly because of high transportation costs, but also because the national market was dominated by sorghum, whereas millet was the preferred cereal in Darfur.⁷

The outbreak of widespread and violent conflict in Darfur in 2003 triggered large waves of displacement as many rural residents fled to the relative safety of the towns as their livelihoods were destroyed.⁸ Cereal production slumped. Large camps of IDPs soon formed, especially around Darfur's state capitals, while other IDPs mixed with residents in towns, such as Saraf Omra and Kebkabiya. As the conflict continued, few IDPs have returned home, and Darfur has experienced a *de facto* accelerated process of urbanization. An enduring feature of the conflict in Darfur has been its fluidity. Areas of apparent stability one year may be the scene of violence and displacement the following year. In 2013 and

⁷ See Buchanan-Smith (1988), and El Dukheri et al. (2004).

⁸ This overview of the conflict is based on Young et al. (2005); Bromwich (2008); De Waal (2007); Giroux, Lanz, and Sguaitamatti (2009); Researchers at FIC (2011), and Buchanan-Smith et al. (2012).

2014, there have again been high levels of displacement: almost 400,000 were displaced in 2013 and by May 2014 a further 300,000 were newly displaced,⁹ bringing the total number of displaced to over 3 million.

Unprecedented levels of humanitarian food assistance have been provided to Darfur in response to the humanitarian crisis, peaking at almost 450,000 mt in 2005.¹⁰ Most of this has been provided by WFP and, until recently, by the International Committee of the Red Cross (ICRC). Since 2006, the volumes of food aid have fallen, for various reasons (see Section 5). Since 2009, food vouchers were introduced in Sudan, with pilots starting in Darfur in 2010 and increased adoption, particularly in North Darfur, from 2011 onwards.

The history of Darfur's conflict goes back many years, rooted in long-held grievances about the economic and political marginalization of Darfur. Armed rebellion in 2003 triggered a major counterinsurgency response by government. Fault lines in the conflict quickly developed around ethnic rivalries and divisions. One way of understanding Darfur's conflict is to consider three different levels: local, national, and regional conflict (Young et al., 2005). At the local level, conflict is taking place between different ethnic and livelihood groups, competing for power and for access to resources, often land, sometimes fuelled by longer-term grievances. This level is often referred to as "inter-tribal fighting." At the national level, the conflict is between Darfuri rebel movements and the political leadership of the federal government

in Khartoum, fuelled by long-term inequalities between the center and the periphery in Sudan. At the wider regional level, the conflict involves Sudan's neighboring countries, especially Chad and South Sudan, as the political fortunes of one government are closely intertwined with the political fortunes of its neighbor, especially where one government has supported rebel movements from a neighboring country. Since 2003, each of the countries that border Darfur—Chad, Libya, South Sudan, and Central African Republic—have experienced violent conflict of varying intensity at different times. These different levels of conflict are intertwined; for example, grievances between groups at the local level may be fuelled and/or manipulated by competing political agendas at the national level. As in many contexts of protracted conflict, especially where there is a proliferation of small arms, opportunistic banditry has flourished in Darfur.

Despite numerous efforts to find resolution to Darfur's conflict during the last decade, many of them internationally-sponsored and focused at the regional and national levels, at the time of writing none has yet been successful. Instead, rebel movements have splintered and there has been a proliferation of para-military groups over the last decade. See Box 2. Meanwhile, at the local level, agreements have been forged between different hostile groups, usually in an attempt to improve security locally and to protect livelihoods. These have met with varying degrees of success, but cannot ultimately resolve conflict at the higher levels.¹¹

Box 2. A brief chronology of some key events related to the conflict in Darfur

2003 – Armed rebellion in Darfur. Triggers a counter-insurgency response by government

2004 – Humanitarian Peace Agreement; enables international humanitarian actors to deliver humanitarian assistance

2006 – Darfur Peace Agreement signed, by government and one rebel movement. Triggers fragmentation of rebel groups and fighting between them

continued on next page

⁹ Source: OCHA.

¹⁰ This is the actual quantity distributed rather than the quantity planned. WFP used INGO implementing partners for its distribution.

¹¹ See UNEP, 2014.

- 2007–08 – Libya hosts further peace talks, without a successful outcome
- 2008 – Deployment of joint African Union – United Nations peacekeeping mission, approved by United Nations Security Council in 2007
- 2008 – Presidents of Sudan and Chad sign accord in March, aimed at halting five years of hostilities, but diplomatic relations are broken off after the Justice and Equality Movement (JEM) launches an attack on Omdurman in May. Diplomatic relations restored in November
- 2009 – 13 international aid agencies are expelled from Darfur by the Government of Sudan
- 2010 – Relations between the Governments of Sudan and Chad improve after visit by President Idriss Deby to Khartoum in November
- 2011 – Doha Document for Peace in Darfur is signed in Qatar by the Government of Sudan and the Liberation and Justice Movement (LJM)
- 2011 – Secession of South Sudan
- 2012 – Breakdown in talks between Sudan and South Sudan. The Government of South Sudan halts oil production. The Government of Sudan imposes a trade embargo
- 2013 – Trade with South Sudan resumes, but to a reduced degree

2. THE MACRO-ECONOMIC CONTEXT OF CEREAL PRODUCTION AND TRADE IN SUDAN

2.1 Introduction

This section sets out the relative importance of cereal production to the national economy, and traces production trends over the last sixty years, differentiating between the traditional rainfed, semi-mechanized rainfed and irrigated agricultural sectors, thus providing the overall context for cereal production in Sudan, and how it relates to Darfur. The section presents an overview of federal government policy on agricultural production and on the Strategic Grain Reserve, with examples of how the latter has been used in the Darfur region in the last few years. It then turns to Sudan's external trade in cereals, including cross-border trade with neighboring countries, of particular relevance to Darfur. Key aspects of federal government trade policy are summarized, including the exchange rate policy, which directly influences cereal consumption patterns. The section ends with an overview of some of the implications of this macro-economic analysis for Darfur.

2.2 Production trends

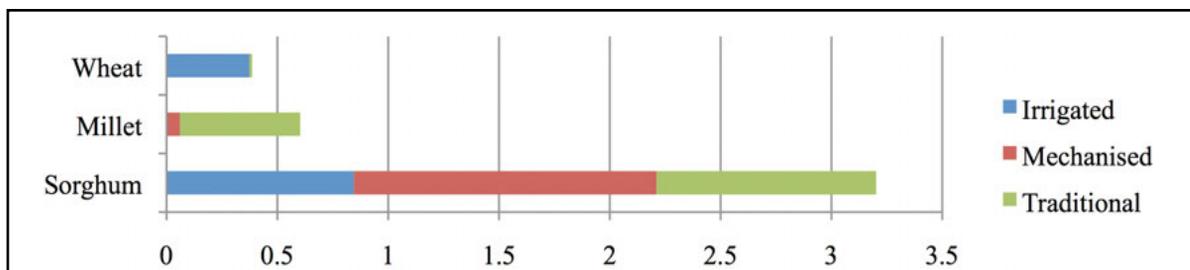
a) Contribution to GDP

Agriculture is Sudan's major source of employment, occupying more than two-thirds of the workforce. The agricultural sector also accounts for around 30% of Sudan's gross

domestic product (GDP) and in good years can be a significant driver of growth.¹² As of 2007, crop production contributed just under half of that total value, with the remainder coming from livestock and forestry. Within the area of crop production, official sources estimate relative value contributions of irrigated, semi-mechanized rainfed and traditional rainfed planting averaging around 61%, 7%, and 32%, respectively.¹³ In terms of total area planted, however, about 6% was irrigated, 28% semi-mechanized rainfed, and 66% traditional rainfed.¹⁴ Of this land, around 61% was used for cereals in 2012, down from 67% the previous year and an average of 71% in the previous decade.¹⁵

A very rough estimate based on these breakdowns might be that cereals contribute around 10% of Sudan's total GDP, with the balance in terms of value heavily skewed towards the irrigated sector. However, this estimate must be qualified by the awareness that the country's GDP data is relatively poor, and the contribution of subsistence farming (which is mostly rainfed) is notoriously prone to be underestimated, and does not capture its contribution to the food security of small-scale farmers, the majority of the rural population.

Figure 2. Crop production averages in the five years to 2012/13 (m tons)



Source: FSTS, 2014.

¹² CBOS Annual Report, 2012. Agricultural GDP growth averaged over 5% in 2001–12.

¹³ CBOS Annual Reports, 2001–2007. No more recent data have been published, but there is no indication of a major change in this balance, as there was none in the recorded years.

¹⁴ CBOS Annual Reports, 2001–2009. Again, in the absence of recent data, use is made of historic averages, which prove to be relatively constant.

¹⁵ Calculations based on data obtained from the Ministry of Agriculture and the Central Bank of Sudan.

b) Planting

Over recent years, since the early 1990s, the volume of cereal production in the traditional rainfed system has been growing, while that from semi-mechanized rainfed has been shrinking, and irrigated output remains unchanged, at a low level (World Bank, 2009, 63). Most wheat production is irrigated (98% in the last harvest), except for a small quantity of traditional farming in Darfur, mostly in the Jebel Marra area. See Figure 2. By contrast, only 1% of millet output comes from the irrigated sector, with 90% traditionally farmed (around two-thirds in Darfur), and 9% from the semi-mechanized sector. Sorghum production is divided more evenly, with 26% coming from the irrigated sector, 43% from the semi-mechanized sector, and 31% from the traditional sector, over the five annual agricultural seasons to 2012/13. About one-third of the traditional-sector sorghum output for the period 2007 to 2012 is from Darfur.

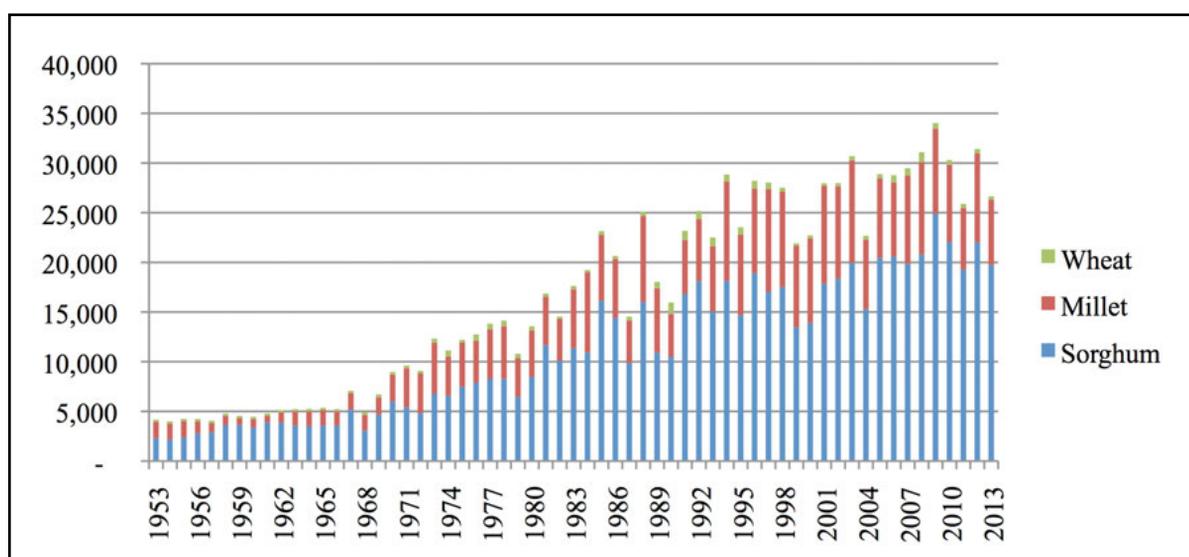
The vast majority of the arable land used for cereal production is allocated to sorghum—almost three-quarters in the 2013/14 season. See Figure 3. Of the remainder, most is planted with millet, with wheat only using around 1% of the land. Far more of the wheat-sown land is actually harvested, however; an average of 94%

over the past decade, compared with 69% for sorghum and 63% for millet (ranging between around 50% in poor harvest years and 80% in good years, in both cases). This is because irrigated farming is less vulnerable to drought.

The area planted has increased sharply in the last sixty years; but most of that increase occurred in the two decades from 1970–1990, with the rate of growth slowing subsequently.

Actual cereal production has also increased in Sudan over the past six decades—see Figure 4; however, the rate of increase has been slower. This is in part because of increased variability in recent years: while 2006/07 was a record cereal harvest, with Sudan producing 5 million tons of sorghum, almost 800,000 tons of millet, and 670,000 tons of wheat, the more recent years of 2011/12 and 2013/14 were the worst since 1990. Overall, the impact of fluctuating and poorly distributed rainfall seems to have increased in the past two decades (see below), with poor harvests almost every other year. Conflict has also had a negative impact on area planted in parts of Sudan, including Darfur, and from 2011 in South Kordofan and Blue Nile, which were high producing areas in the past. The effect of conflict on production in Darfur is discussed in Section 4 on Darfur.

Figure 3. Planting of cereal crops in Sudan (feddans)



Source: Data obtained from the Ministry of Agriculture.

c) Productivity

The main reason for the mismatch between the slow rise in average production and the sharper increase in area planted is the problem Sudan faces with cereal crop productivity, which is low and declining. See Figure 5. Sorghum productivity in Sudan, for example, is lower than in India or Yemen, and far below the levels seen in China or the USA.¹⁶ Wheat yields in Sudan are also reported to be among the lowest in the world.¹⁷

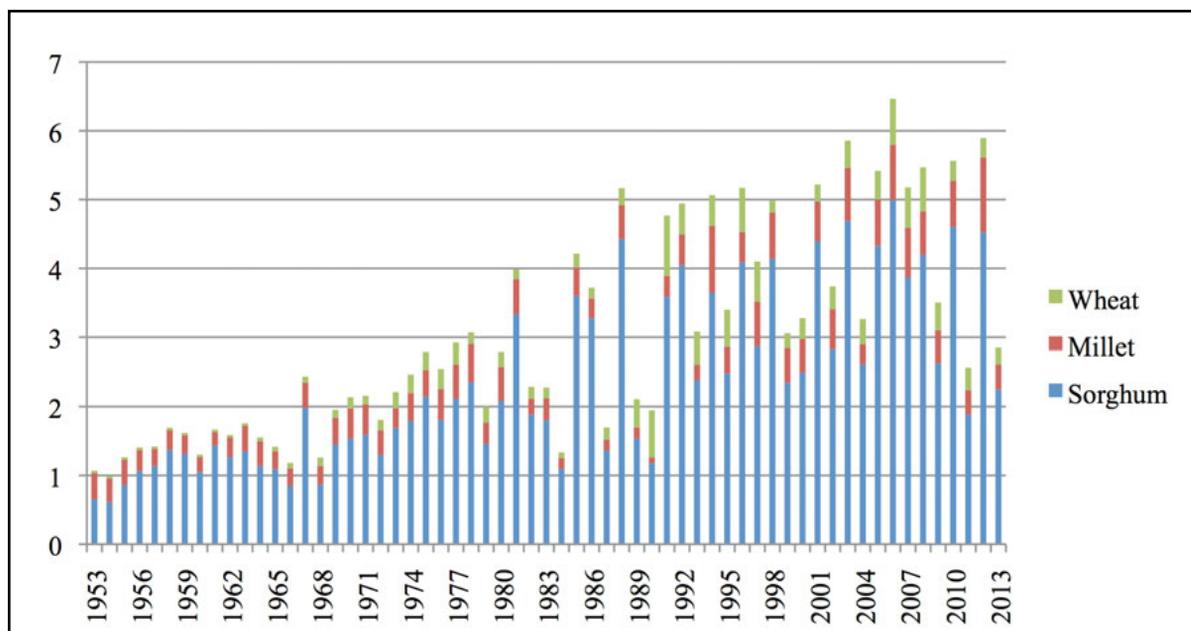
Recent analysis of data from the Ministry of Agriculture shows declining productivity over a 30-year period, attributed to continuous cultivation without fallow periods, causing soil quality to decline, and to the expansion of cereal production into increasingly marginal land, without use of fertilizer or crop rotation.¹⁸ This is especially clear in the case of sorghum and

millet, Darfur's main cereal crops. Wheat productivity seems to have shown an overall increase until about 2002, after which it also began to decline.

Variability is also a concern, especially for millet, which shows the sharpest swings in production levels year-on-year. See Figure 6. While variability peaked in the late 1980s and early 1990s, it seems to be on the rise again, at least for sorghum and millet.

Cereal production in Sudan is increasingly subject to periodic crises, including in the year when this research study has been conducted, 2013/14. See Box 3 for an analysis of cereal production in the 2013/14 agricultural season, demonstrating the impact of poor rainfall and conflict.

Figure 4. Production of cereal crops in Sudan (m tons)



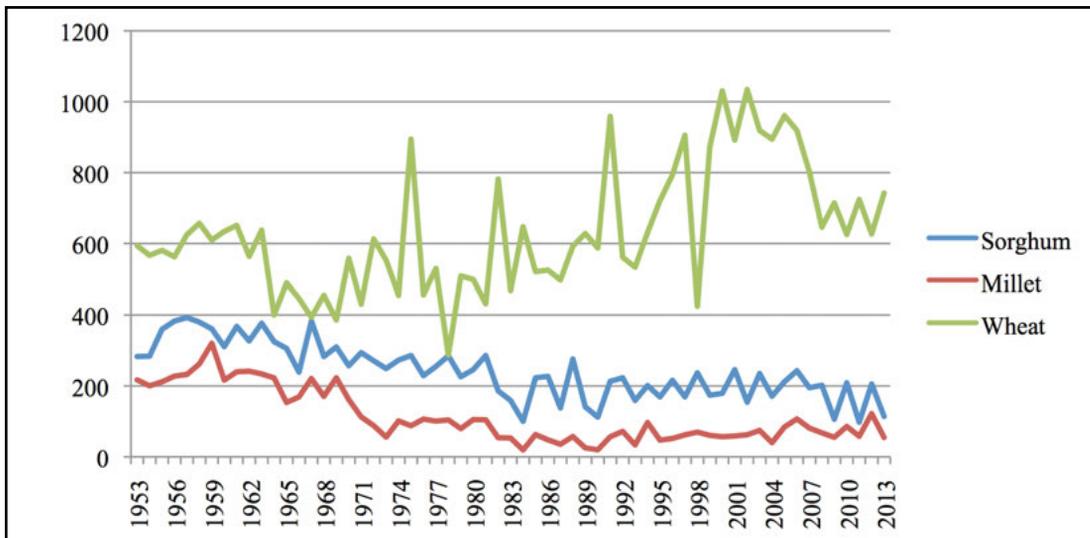
Source: Data obtained from the Ministry of Agriculture.

¹⁶ The World Bank noted that “Sudan’s overall national average sorghum yield of about 0.73 tons per hectare (306 kg per feddan) which includes irrigated production for the period 2000–2007 was only 14–18 percent of that in some high-yielding competitive countries such as Argentina, the United States and China, and was about a half of some African countries like Nigeria.” World Bank (2009), p. 66.

¹⁷ A recent article noted that the average yield of Sudanese wheat in 2010 was 1,794 kg/ha, whereas the world average yield was 3,007 kg/ha. Elsheikh et al, 2013. See also Mustafa et al, 2013.

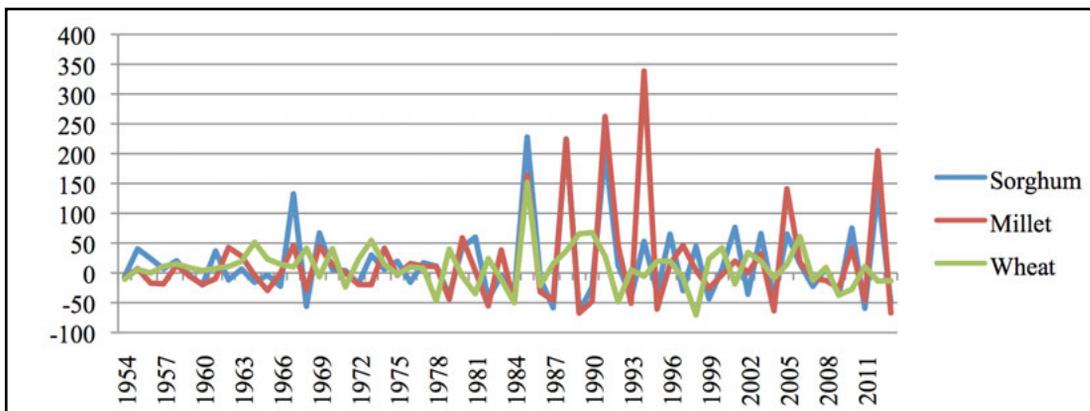
¹⁸ See Ijaimi (2014) and Sulieman and Buchroithner (2009).

Figure 5. Yield of cereal crops in Sudan (kg/feddan planted)



Source: Calculations based on data obtained from the Ministry of Agriculture.

Figure 6. Growth in output for cereal crops in Sudan (% change on previous year)



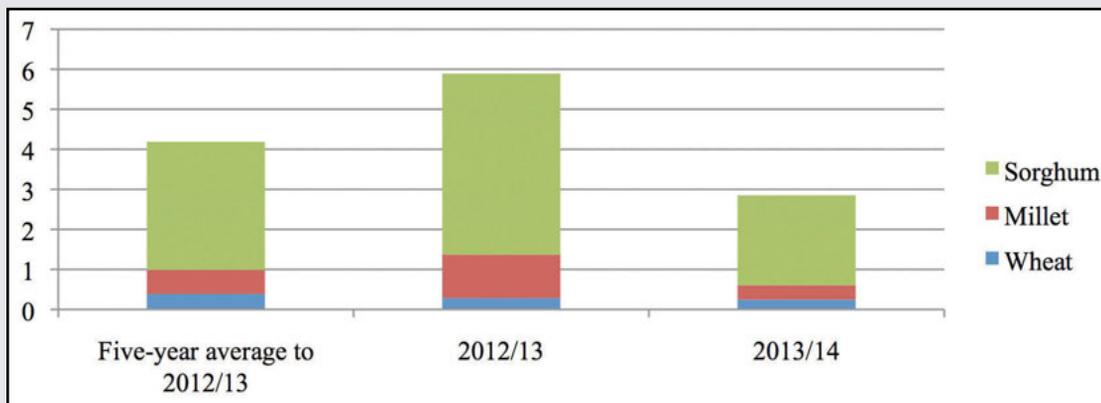
Source: Calculations based on data obtained from the Ministry of Agriculture.

Box 3. Low cereal production in the 2013/14 season, and implications for imports and prices

Production levels in 2013/14 are estimated to be only 48% of those seen the previous year and 68% of the five-year average. See Figure 7. The shortfall in this case was attributed largely to low, late, and poorly distributed rainfall in 2013. The late rains meant that the area planted with sorghum was only 90% of that in the previous year, and millet just 74%. Conflict in areas such as South Kordofan, Blue Nile, and Darfur was also a factor. An additional driver was the high cost of labor, following the departure of many South Sudanese agricultural workers and the preference of many Sudanese to engage in potentially more lucrative traditional gold mining. Finally, fuel prices were about 75% higher than in previous years following the cut in subsidies, while the ongoing depreciation of the Sudanese pound against global currencies continued to drive up local prices for fertilizers and other imported inputs, which seems to have prevented some farmers from using them (FSTS, 2014; Ijaimi, 2014; interviews with informants in Gedaref).

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Figure 7. Latest cereal production trends

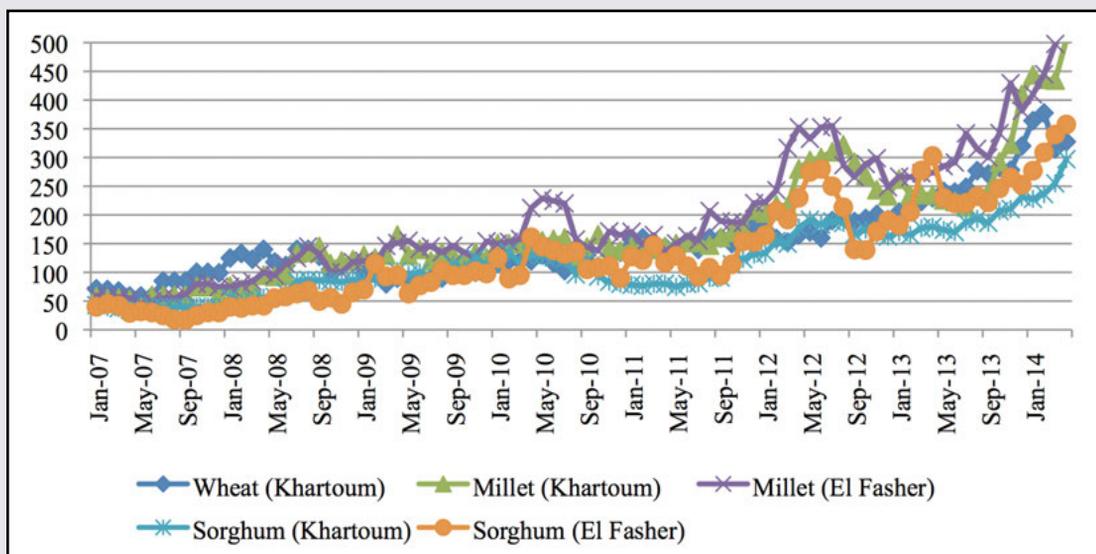


Source: FSTS, 2014

The net result was that only half of the areas planted with sorghum and millet in 2013/14 were actually harvested: 52% and 54% respectively, compared with 73% and 74% in 2012/13. The greatest reduction for sorghum was in the semi-mechanized sector, in line with trends seen in previous decades, which have been attributed to poor management practices resulting in soil destruction (World Bank, 2009, 66; Faki & van Holst Pellekaan, 2012, 19).

The Crop and Food Security Assessment mission (CFSAM) for 2013/14 reported total expected cereal utilization of 6.45 m tons in 2013/14. With estimated stores of 0.5 m tons and production of 2.9 m tons, this suggests an import requirement of just over 3 m tons of cereals (FSTS, 2014, 30). The result of such a large deficit has been record highs in cereal prices in early 2014. See Figure 8.

Figure 8. Prices of cereal crops in Khartoum and El Fasher markets (SDG/90kg)¹⁹



Source: GIEWS

¹⁹ GIEWS data. Sorghum is *feterita*. Wheat data for El Fasher is incomplete.

2.3 Federal government policy on production

Government programs

Since independence, the Government of Sudan has periodically announced policies of import substitution and export promotion, which involve boosting production in the cereals sector. Most recently, the 2008–11 Agricultural Revival Programme (ARP), linked to the Green Mobilisation Programme covering almost the same time period, aimed to achieve this goal through the following success-indicators:

- “(a) the creation of an appropriate atmosphere for sustainable development of agricultural production;
- (b) capacity building of producers and institutions;
- (c) reforming agricultural land-tenure systems;
- (d) developing support services and modernizing agricultural systems;
- (e) protecting and developing natural resources;
- (f) achieving agricultural industrialization;
- (g) implementing quality control and safety measures; and
- (h) establishing international strategic partnerships” (World Bank, 2009, 81).

However, the ARP was only partially implemented, constrained by problems of coordination between the Higher Council to oversee it, led by the Vice-President, and the Technical Secretariat, on the one hand, and the implementing ministries, on the other. This resulted in a major lack of ownership and was indicative of a lack of political will. The planned follow-up ARP for 2012–14 was never approved.²⁰

Instead, the focus was on the 2012–14 Three-Year Programme to Sustain Economic Stability intended to offset the negative impacts of the secession of South Sudan in 2011, which had resulted in a reduction in oil export revenue, contributing to a severe shortage of foreign currency, making it even more urgent to boost domestic food production. However, the loss of revenue also constrained government finances, at a time when input prices were rising rapidly in

local-currency terms owing to the deterioration of the exchange rate. As a result, policies to provide inputs and technical assistance appear not to have been fully implemented. State governments and locality authorities, facing even sharper fiscal constraints, have imposed heavy taxes on the agricultural sector, including traded cereals. The consequences of this in Darfur, where traders and transporters interviewed for this study identified locality fees as one of the major constraints they face, are documented in Section 9 below.

At the same time, the Three-Year Programme included some policies that are said to have had a negative impact on domestic cereal production. For example, the special exchange rate of SDG 2.9:US\$ 1 and other incentives applied to imported wheat encourage consumption at the expense of domestic cereal production.²¹ Imported sorghum and millet are also exempted from customs fees and taxes, making domestic output (which is also tax-exempt in theory, but not in practice—see below) relatively less competitive. An increase in VAT from 15% to 17% appears to have affected larger producers, although there is a threshold excluding small farmers. Finally, a rise in the profit tax on the banking sector from 15% to 30% is also blamed for discouraging agricultural financing and investment (Ijaimi, 2014).

Policies on specific cereals

Government policy has, for decades, neglected the traditional rainfed sector in favor of the irrigated and semi-mechanized sectors. As demonstrated in the previous section, policies to increase output have tended to favor horizontal expansion (largely of the semi-mechanized sector) instead of increased productivity in the rainfed sector (traditional or semi-mechanized). There has been a historic lack of investment in relevant research and extension, and this bias has not yet been rectified in practice, despite the publication in 2013 of a new Strategy for Development of Traditional Rain-Fed Agriculture (Mamoun Beheiry Centre, 2013). One important result has been the relative policy neglect of crops such as millet, which is overwhelmingly

²⁰ Interviews with policy-sector informants.

²¹ The cost of this to wheat producers has been estimated at \$28m. Mustafa et al, 2013.

produced in the traditional sector—especially in Darfur, where the impact is clear in declining millet yields. See Section 3 below.

Although government identifies sorghum as a strategically important crop, commentators have blamed government policies on the management of the semi-mechanized sector for declining production, for example land tenure arrangements which give farmers no equity, and little attention given to environmental factors. Government policy on Strategic Reserve purchases and the issuing of export licenses are also reported to act as a disincentive to producers, so that “after a plentiful season farmers expect low prices during the next season which acts as a disincentive to sorghum production” (Faki & van Holst Pellekaan, 2012, 21–22).

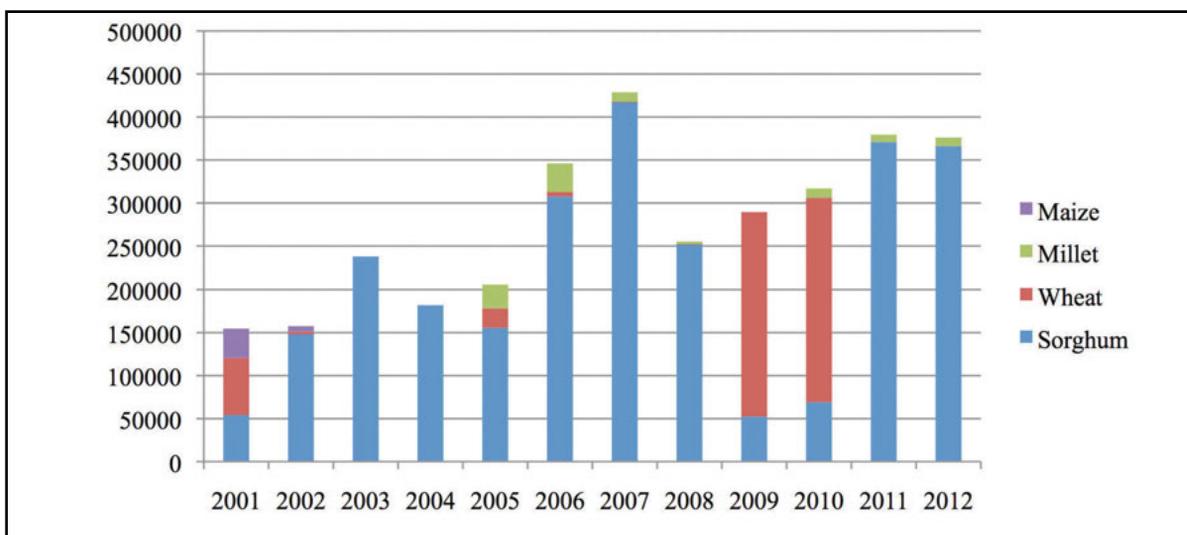
Since the 1990s, coinciding with the rise in wheat consumption (see below), there has been a particular effort to encourage domestic wheat production, with the aim of achieving self-sufficiency (World Bank, 2009). But climatic constraints and the massive subsidization of imported wheat have limited the success of these initiatives. In practice, from 2012, the government seems to have toned down efforts to boost domestic wheat production in favor of cash crops (Elgali & Mustafa, 2012; interview with key informant).

2.4 Government policy on the Strategic Grain Reserve

A keystone of federal government policy in the cereals sector has long been the Strategic Grain Reserve, intended to promote food security and manage price fluctuations driven by varying local and international harvests.²²

Established in 1973 under the Agricultural Bank of Sudan (ABS), the Strategic Reserve was later relocated, in succession to the Ministry of Finance and National Economy (MoFNE), the Ministry of Agriculture, back to MoFNE, and now back to ABS. This latest move has coincided with an apparent downgrading of its significance, and a major reduction in staff (Ijaimi, 2014). The Strategic Reserve has an estimated capacity of 660,000 tons, with siloes to hold another 100,000 tons currently under construction at Sinja. In practice, however, Strategic Reserve holdings were significantly lower, at 376,000 tons in 2012, the latest year for which data are available. See Figure 9. That was only 6% of the total expected national cereal demand of 6.45 m tons in 2014. This limits the Strategic Reserve’s ability to achieve its main goals. Distribution is also poorly coordinated with donor efforts to relieve food insecurity.

Figure 9. Strategic Reserve stocks (tons), 2001–12



Source: Strategic Reserve Department, 2014

²² A 2008 SIFSIA study noted that the Reserve’s three roles (acting as a government grain board, a purchaser and seller, and a safeguard for food security) were potentially incompatible.

The Strategic Reserve continues to face significant operational problems, including:

- Budgetary constraints
- Poor capacity and top-down structure
- Absence of market intelligence and monitoring
- Lack of transparency and follow-up in targeting distributions
- Failure to purchase stocks early, when prices are low (there is no statistically significant relationship between good harvests and a rise in holdings)
- Lack of policy for organized disposal and replenishment of stocks in line with seasonal requirements.

As a result, the Strategic Reserve Department continues to estimate that on average 25% of grain in storage is damaged; estimates are as high as 50% for traditionally stored grain (Ijaimi, 2014; Elbashir & Ahmed, 2006).

The erratic performance of the Strategic Grain Reserve at state level is evident from recent experience in Darfur. See Box 4.

2.5 Developments in external trade

a) Trade in sorghum

Sorghum is a significant export product for Sudan in some years; however, increasing variability in harvests and rising domestic demand have limited potential market growth. Gulf countries, together with South Sudan and China, are the main buyers, with the bulk of Sudanese sorghum exported to Saudi Arabia as animal feed. Eritrea is also an important market for sorghum. Buyers are deterred not only by the unpredictable supply (one trader in Kosti reported: “In one week you can trade tens of thousands of sacks and none for several weeks”), but also by the uncertainty over whether the federal government will issue export licenses. As a result, the volume of sorghum exports has been decreasing

Box 4. The Strategic Grain Reserve at state level in the Darfur region

Although the Strategic Grain Reserve is controlled at federal level, state governments can request intervention by the Strategic Grain Reserve, and the costs are deducted from the federal to state fiscal transfer.

There have been a number of cases of strategic reserve cereals being released into the market in Darfur during the conflict years. In Zalingei, cereals were released in 2012/13, but this was a year of good harvest, so the impact was reported to be counter-productive. More recently, in Nyala, millet purchased from India was released into the market, but in quantities that were too small to have an impact in bringing down the price. In North Darfur, the state-level Ministry of Finance requested intervention when WFP’s food aid rations started to fall around 2009. Between 2011 and 2014 there were three releases of millet into the market, mostly in El Fashir.²³ One of the more effective uses of the Strategic Grain Reserve appears to have been the more closely targeted release of cereals in Malha town between March and May 2012, in response to soaring cereal prices and evidence of deteriorating food security. The combination of the release of cereals from the Strategic Reserve and WFP’s distribution of free food aid appeared to stem the rise in cereal prices.²⁴

Overall, however, the impact of the Strategic Grain Reserve at state level appears to have been minimal, and thorough analysis is hampered by a lack of follow-up monitoring and evaluation.

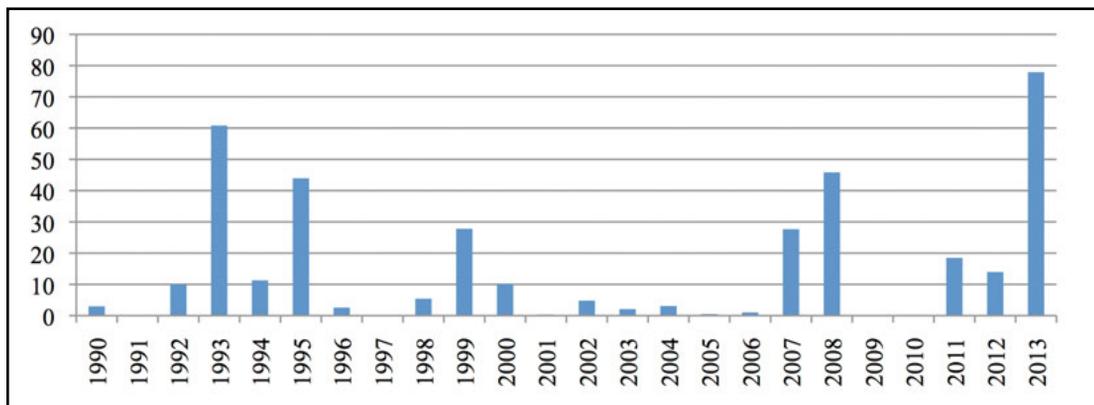
²³ According to the Ministry of Finance in North Darfur, this included 125,000 sacks (of 50 kg each) of millet imported from India: 6,250 MT; and 20,000 sacks (of 100 kg each) of millet brought from Gedaref: 2,000 MT. In the third operation, in 2014, the Ministry of Finance purchased 20,000 sacks (of 100 kg each) of millet, most of which was distributed to its employees.

²⁴ See DDRA’s Trade and Market Bulletin for North Darfur, for March to May 2012: <http://fic.tufts.edu/assets/North-Darfur-March-to-May-12-Vol2No2.pdf>.

sharply. See Figure 10. It fell by an average of 16.3% annually in 1992–2013, compared with an average annual increase of 7.4% in 1960–83. Moreover, oil and mining products continue to be the main sources of the country’s export revenue, while even among agricultural products, livestock and sesame are more significant. In 2013, a bumper year for sorghum, it provided just 1.1% of total export revenue—compared with an average of 0.14% in the previous decade. Anecdotally, it is clear that there is, in addition, significant sorghum smuggling, particularly across the border to South Sudan and to Eritrea—informal estimates in interviews performed for this study in Khartoum in April 2014 with ministry officials and traders range up to 50% of total sorghum exports.

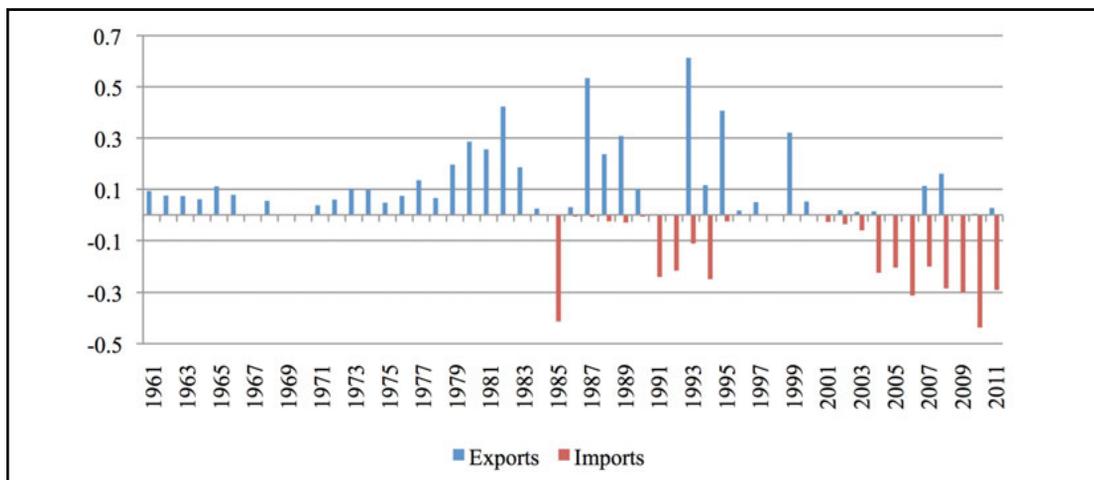
Moreover, sorghum imports have been rising in recent years, by an average of 2.1% in 2000–13. Previously, sorghum was only imported in years of drought, as in 1985 and the early 1990s. However, since the turn of the millennium, and especially since 2004 (when the Darfur conflict escalated), there have been rising sorghum imports regardless of levels of domestic production. See Figure 11. Food aid sorghum is likely to be a component of imports in 1985 (US food aid for famine relief), 1991–1994 (the height of Operation Lifeline Sudan), and from 2003 onwards for the Darfur operation,²⁵ even as locally grown feterita is exported for animal feed. However, another important factor, particularly since 2012, appears to be linked to exchange rate dynamics (see below, under government trade policy).

Figure 10. Sorghum exports (US\$m)



Source: Ministry of Trade

Figure 11. Sorghum trade (m tons)



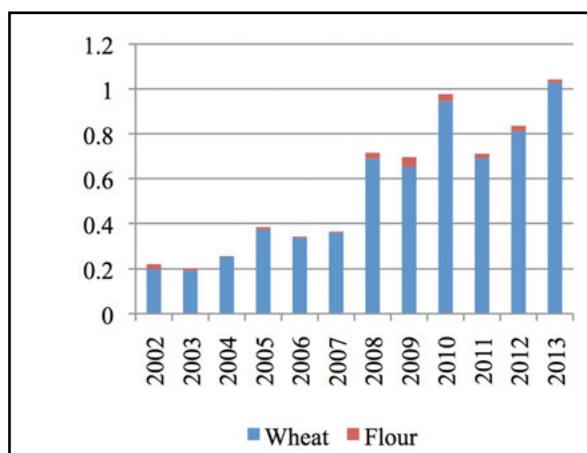
Source: FAOSTAT.

²⁵ We assume food aid sorghum is included in FAOSTAT’s figures on sorghum imports

b) Trade in wheat

Wheat, by contrast, is rarely exported, but is becoming an increasingly significant import for Sudan. Spending on wheat imports exceeded US\$ 1bn in 2013, constituting a record 12% of total expenditure on imports, and placing a heavy burden on the economy. See Figure 12. The main recorded suppliers were Australia, Canada, Germany, and India (CBOS, 2013).²⁶ The growth in the volume of imported wheat—see Figure 13—is largely because of the rise in consumption—again, driven by exchange rate policy, among other factors. It is significantly cheaper to import wheat to Sudan than to produce it locally.

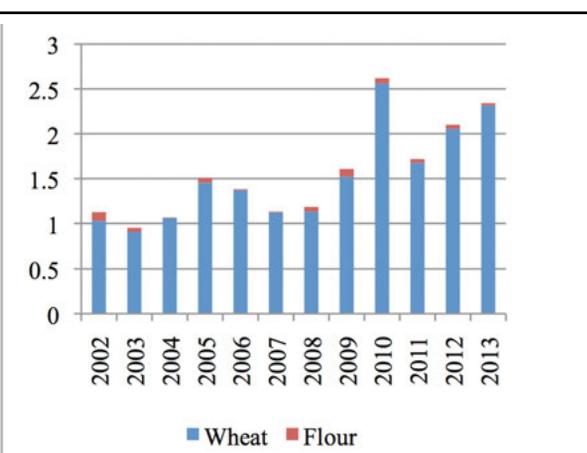
Figure 12. Wheat imports (US\$bn)



c) Trade in millet

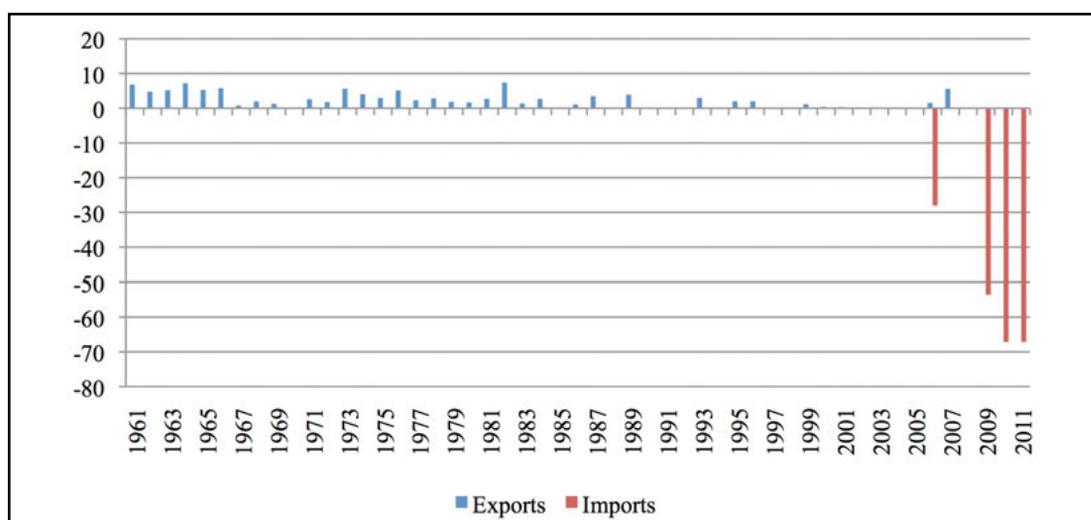
Finally, millet is almost exclusively domestically produced and consumed, rather than traded. The only exception is some relatively heavy imports of millet in some years since 2006, mainly imported by government from India, through the Strategic Grain Reserve,²⁷ although at their height, these were still only 4% of total wheat imports. Similarly, in the last recorded “peak” year of millet exports, 2007, their value was just 5% that of total sorghum exports. See Figure 14.

Figure 13. Wheat imports (m tons)



Source: Ministry of Trade

Figure 14. Millet trade ('000 tons)



Source: FAOSTAT

²⁶ Central Bank of Sudan, 2013, Foreign Trade Statistical Digests. There are some potential question marks over these figures, given the special exchange rate for wheat, which increases the incentives for importers to claim to be purchasing wheat but in fact to be using the foreign currency for other purposes.

²⁷ Source: FEWSNET. Government has distributed millet through the Strategic Grain Reserve in Darfur since 2011. See Box 4 above.

d) Cross-border trade

Despite the importance of cross-border trade,²⁸ it is almost impossible to quantify. It is not well reflected in the recorded statistics used above, given that it often involves barter and bypasses formal banking procedures and formal trade regulations. It is, however, a key aspect of the livelihoods of the local communities in the border states. The Ministry of Trade formally supports border trade, underlining its political, security, economic, and social importance, aiming in 2014 to boost the total value to \$150m, of which 22.7% is to come from Darfur, and its borders with Libya, Chad, Central African Republic (CAR), and South Sudan (Siddig, 2013; Ijaimi, 2014). But the practice on the ground is very different. As described in Section 11, almost all cross-border cereal trading between Darfur and neighboring countries is informal. This lack of regulation increases the risks and costs of trading, especially where traders must pay informal fees to militias controlling the area. It also denies state and federal government the benefits of cross-border trade. Government officials at state level interviewed for this study lamented this state of affairs, and compared it unfavorably with the pre-conflict period when there was more formal trade, for example between North Darfur and Libya, and between Central Darfur and Central African Republic. As described in Section 11, restrictions imposed by the Government of Chad on cross-border trade into Darfur have badly impacted the availability of cereals in the market, especially in West Darfur, but there does not currently appear to be a dialogue between the Governments of Chad and Sudan to address this issue.

The resumption of cross-border trade with South Sudan, which is a major consumer of Sudanese sorghum, was an important issue in the secession negotiations in 2011–12, and the September 2012 Agreement on Border Issues commits the two countries to “facilitate cross border trade.” However, implementation has been hampered by

insecurity on the common border, so that (with the exception of a brief period in 2012–3, when an executive order by President Bashir mandated the export of surplus sorghum to South Sudan after the bumper harvest), in effect the trade embargo continued and most of the cross-border trade between the two countries in cereals (and subsidized flour) continued to be defined as smuggling—and in some cases to attract severe penalties.²⁹

2.6 Federal government trade policy

a) Fragmentation and unpredictability

Trade policy in Sudan faces significant fragmentation. The leading institution is the Ministry of Trade, which has a mandate to “stimulate foreign trade and the development of policies to enhance and rationalize import and export operations and monitor the movement of international trade and commodity prices.”³⁰ However, there are also many other governmental stakeholders in the cereal trade, including the federal ministries of agriculture, livestock, finance, transport, roads, humanitarian affairs, and environment, as well as their equivalents at state level, and other bodies such as the Sudan Trade Point, the Agricultural Bank of Sudan, and the Strategic Reserve Authority. The National Assembly also engages in heated debates over emotive issues such as wheat and sorghum production. On the non-governmental side, as well as the UN (especially WFP), banks and businesses (represented by the Sudanese Businessmen and Employers Federation and Farmers’ Unions, among others) are significant actors, as is the Sudanese Consumers Protection Society.

In practice, this fragmentation results in a lack of coordination in plans, activities, and policies. There is no one integrated plan for cereal production, marketing, domestic trade, and export. For example, following the poor harvest of 2013/14, the finance ministry in Gedaref State made a unilateral decision to stop sorghum

²⁸ Cross-border trade is defined here as an economic activity based on the exchange of goods and services between two regions of two neighboring countries separated by a recognized borders and control system (Ijaimi, 2014).

²⁹ See the Agreement between the Republic of Sudan and the Republic of South Sudan on Border Issues, 27 September 2012. See also: <https://radiotamazuj.org/en/article/khartoum-authorizes-massive-sorghum-export-south-sudan>.

³⁰ See the Council of Ministers: Presidential Decree, No. 45 of 2013.

exports; two days later, this was reversed by the federal ministries of trade and finance.³¹ Sometimes cross-border trade in sorghum (for example, to Eritrea or South Sudan) has been officially encouraged by the federal government, apparently for political reasons linked to an improvement in bilateral relations, but banned by the relevant state governments, according to local informants in Gedaref. Section 11, below, reveals fluctuating tolerance of the cross-border trade in sorghum between East Darfur and South Sudan. Federal government policy to encourage major Arab Gulf agricultural investments, making Sudan the “breadbasket” of the Middle East, underlined in the “Arab Food Security Initiative” promoted by the President in 2013, is consequently undermined at state level (Faki & van Holst Pellekaan, 2012, 16).

Policy fragmentation also means that, although agriculture is officially tax-exempt, in practice production and trade are burdened by various taxes and fees, including locality taxes, development taxes, business profit taxes, and *zakat*. Many of these are imposed at state level, according to key informant interviews in Kosti, Gedaref, and Darfur, reflecting the limited capacity at state level both to raise taxes in order to finance their operations and to predict the consequences for economic activity. The Tax Review Committee, established by the Council of Ministers in 2012 and chaired by the then-First Vice President, was mandated to study the issue, and recommended the cancellation of some fees and taxes on trade, especially cross-border trade. In response, the government began to remove some fees, but the states drew back from this, on account of their limited financial resources, and the recommendations were not implemented (Ijaimi, 2014; Siddig & Tahir, 2013). In fact, state governments continue to increase some of these fees, without a commensurate rise in the value of services offered, according to interviewees in Gedaref and in all states in Darfur.

At federal level, agricultural exports have in recent years attracted a less favorable exchange rate than gold, owing to government policy,

putting the sector at a relative disadvantage. There are reports of confusion and a lack of clarity in the way in which the Customs Authority implements trade policies and applies tariffs (Yoshino et al., 2011). Finally, again in contravention of the recommendations of the Tax Review Committee, taxes continue to be collected at checkpoints along Sudan’s highways,³² including on traded cereals, and periodic movement restrictions reduce economic efficiency. In summary, although the committee called for the revision of taxes on agriculture in consultation with producers and exporters with due consideration to the competitiveness of exports, this has not yet taken place (Ijaimi, 2014).

For sorghum, in particular, the unpredictability of government policy presents a problem for trade. When there are sudden export bans, lifted equally suddenly, foreign buyers are less likely to trust Sudanese sorghum suppliers, and will look elsewhere. This is compounded by the long process of obtaining an export license, and the changing restrictions on quantities. Only small shipments have been allowed since 2008, falling to 500 MT in 2014 from 1,000 MT in 2013—and that after hard negotiation with the trade ministry by the would-be exporter, according to interviewees at one small export business in Khartoum in April 2014. This increases the risk that contracts may be broken.

b) Exchange rate issues

The wide differential between the official and the black market exchange rates is a key problem, as are the complex rules for access to and use of foreign exchange. At the time of writing, banks reimburse sorghum (and other) exporters for their goods in local currency at close to the black market exchange rate, with the difference between that and the official rate being paid “under the table” by eager exporters. However, since 2013, exporters do not receive the full foreign exchange value of their goods from the banks, as the government has directed 10% of all foreign exchange from export revenue to be set aside for medicine imports. This system also produces other distortions; for example, it

³¹ Personal communication from senior official at the Ministry of Foreign Trade.

³² Siddig & Tahir (2013) list 15 different institutions collecting fees at checkpoints across Sudan.

encourages exports of sorghum, for example to Gulf countries, even when the domestic price is very high on account of shortages (as in early 2014) by businesses in dire need of foreign exchange.³³ Exporters are also negatively affected by the fact that the foreign exchange required for the export itself may not be available, and importers abroad may be unwilling to provide an advance that would not be necessary if buying

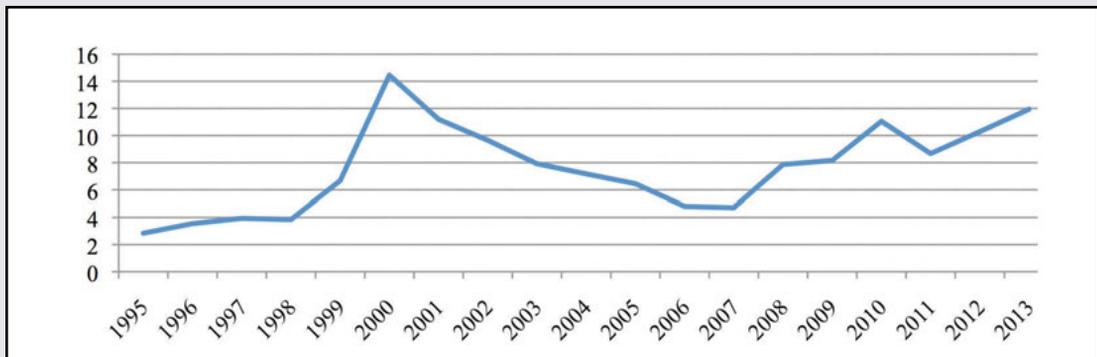
from another source, according to interviewees contacted for this study.

The largest trade distortion introduced by government exchange rate policy is probably the special exchange rate for wheat. See Box 5 for a description of the wheat exchange rate subsidy and its consequences.

Box 5. Wheat exchange rate policy

At the time of writing, the special exchange rate for wheat was SDG 2.9:US\$ 1, compared with an official rate of around SDG 5.8: US\$ 1 and a black market rate rising above SDG 9: US\$ 1 in May 2014. Overall, this has made imports of wheat relatively cheap, compared with both domestic production and other partial substitutes such as sorghum and millet. As a result, wheat imports have risen sharply since the current account imbalance began with Southern secession in mid-2011. (See Figure 15, though there may be some over-reporting as importers of other products incorrectly claim to be buying wheat. For a full analysis, see Elsheikh et al., 2013). Consumption of wheat is also rising fast, at an average of 5.2% per year since 1989, both because of the low subsidized price and because of urbanization (Ijaimi, 2014). See Annex 3.

Figure 15. Value of wheat imports as a percentage of total imports (%)



Source: Calculation based on data from the Central Bank of Sudan, the Ministry of Trade, and FAOSTAT

There are other distortions too: it is reported to be easier for the four big flour companies, especially those with government links, to obtain foreign exchange at the subsidized rate than for small bakers to do so. With bigger profit margins, they can also better afford the squeeze from government-imposed fixed prices. Even when the money is available, however, banks have to wait several months for the Central Bank to release the foreign exchange at the correct rate, according to the head of one major bank interviewed in Khartoum in April 2014. Smuggling appears to be on the increase. Some forms of bread and flour are increasingly priced according to the black market.

continued on next page

³³ However, this is not the only dynamic at work. Inconsistent trade policies are also reported to have led to high exports despite domestic shortages in 2008, when the problem was oil-related currency appreciation, rather than the current depreciatory pressures. See SIFSIA, 2008.

The future of the wheat exchange rate subsidy is unclear; while many economic actors expect that it will have to be revised, as it will not remain affordable indefinitely (and indeed, some use of the black market is already necessary, boosting prices of most wheat-based products to varying degrees), others believe that the government will continue to delay taking any action that could lead to an even higher spike in bread prices, fearing urban discontent.

2.7 Conclusions, and implications for Darfur

This section paints a pessimistic picture of overall cereal production in Sudan, where production has grown mostly through the expansion of cultivated land while yields decline, raising serious questions about the sustainability of current agricultural practices.

Despite government policy statements to boost domestic cereal production, these have not been followed through in practice. Darfur's cereal production is almost entirely rainfed. Although this sector shows the highest rates of growth (mainly through expansion of cultivated land), it has suffered most from long-term policy neglect.

The problems attached to the high variability of cereal production in Sudan were clearly demonstrated in 2013/14, when production dropped to less than half of the level of 2012/13—due mainly to a combination of drought and conflict—and prices rocketed across the country. Although cereal imports are likely to increase in a year of such deficit, Sudan's trading regime for cereals appears highly erratic. Even in years of poor production, Sudan may still export some sorghum to gain foreign exchange. The overall food availability in Sudan, whether from production or imports, is relevant to Darfur: in years of a poor cereal harvest, parts of the Darfur region are dependent on trade flows from Central Sudan, and in the future Darfur is likely to be more dependent on outside sources of grain than in the past, as explained in later sections of this report. It is unlikely that Darfur will regain its status of food self-sufficiency for the foreseeable future. Meanwhile, the informal cross-border trade in cereals, while impossible to quantify, appears very significant, especially to South Sudan, which borders on

South and East Darfur. This is further explored in relation to the Darfur context in Section 11 below. The special exchange rate for wheat has artificially stimulated imports and encouraged consumption of wheat over Sudan's main staples of sorghum and millet, especially in Central Sudan but also in Darfur, as discussed in Section 6 below.

3. CEREAL PRODUCTION AND TRADE IN DARFUR, PRE-CONFLICT

3.1 Cereal production

In the pre-conflict period, millet occupied more than half of the cultivated land devoted to the main agricultural crops in Darfur, followed by groundnuts, and then by sorghum. See Table 1. As described in Section 2, Darfur has traditionally (pre-conflict) accounted for about two-thirds of Sudan's national millet production.

Almost all Darfur's cereal production is rainfed. Millet is grown in all five Darfur states, on the sandy *goz* soils, while sorghum is mainly concentrated in South and West Darfur on sandy clay loam soils where rainfall is higher. Wheat is produced on a very small scale, mostly on terraced land in the Jebel Marra area.

Pre-conflict, most of Darfur's small-holder farmers owned their land or had customary access. Both male and female members of the household engaged in cereal production, although women also often cultivated their own small area of land under cash crops, usually groundnuts and/or sesame (Morton, 2005). The extensive nature of millet cultivation, the sensitivity of agricultural activities to the timing of the rains, and the importance of the crop to the household mean that many farmers used hired labor at peak times, for example for weeding and harvesting. In South and East

Darfur, an important source of hired labor were the Dinka from South Sudan. From the late-1980s, this labor force substantially expanded as large numbers were displaced by drought and conflict in South Sudan. Sharecropping was widely practiced in East Darfur, between the landowning Rizeygat and the displaced Dinka. Collective laboring, called *nafir*, whereby households work together on each other's farms, for example at harvest time, was also widely practiced, especially in North and West Darfur, although it appeared to be declining as a practice in South Darfur (Ibid.).

Federal Ministry of Agriculture data on millet production in Darfur indicate there was some growth in production in the pre-conflict decade, although not statistically significant (Ijaimi, 2014). See Figure 16. Overall, the growth in cereal production did not keep up with the growth in population in Darfur, estimated to have been around 2.8% per year since 1973 (UN, 2010). Increases in millet production appear to have been mainly due to expansion of the area under cultivation as yields have declined. See Table 2. As discussed in Section 2, this may be due to expansion of cultivation into increasingly marginal land as well as lack of investment in research and extension. Millet productivity has been declining faster than sorghum productivity, at the Darfur level as well as nationally (Ibid.).

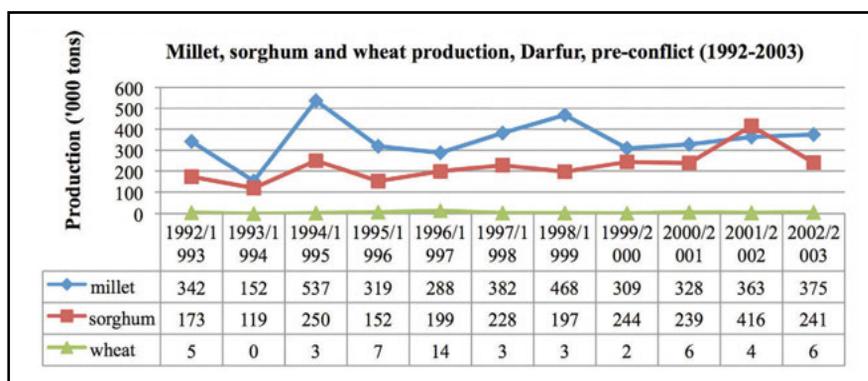
Table 1. Area under food/cash crop³⁴ cultivation in Darfur pre-conflict: 1992/93 to 2002/03

Food crop	Area planted ('000 feddans)	% share
Millet	4623	59.6
Sorghum	1203	15.5
Wheat	11.6	0.1
Sesame	139	1.8
Groundnuts	1774.7	22.9
Total	7751.3	100

Source: calculated from federal Ministry of Agriculture data (Ijaimi, 2014)

³⁴ It should be noted that all crops listed in this table are both food crops and cash crops, although a higher proportion of the household harvest of sesame and groundnuts is likely to be sold than for cereal crops.

Figure 16. Cereal production in Darfur, pre-conflict (1992 to 2003)



Source: Federal Ministry of Agriculture

Annual variability of cereal production in Darfur has also been an issue. Pre-conflict, it was 28% for millet, 34% for sorghum, and 76% for wheat.³⁵ This is mostly to do with rainfall variability, affecting North Darfur most severely. One source claims that long-term average yields for millet and sorghum in North Darfur are twice as variable as for the whole of Sudan.³⁶ Cereal production in Darfur is also vulnerable to pests, particularly the *quelea quelea* bird (the red-billed *quelea*), as well as *naf'asha* (the millet head miner, or *Heliocheilus albipunctella*), the parasitic weed, striga, and occasionally locusts. Extension and pest control services provided by government have long been inadequate in supporting farmers in combatting these pests.

The main cash crop that has competed with *qoz*-based millet production in Darfur has been groundnuts. The latter are more pest-resistant than millet and more resilient to late planting if the early rains fail. The other key factor that

affected farmers' decisions about which crop to grow was the perceived profitability of groundnuts compared with cereals. In the second half of the 1980s, there was a shift from millet to groundnut production, especially in South Darfur. During this period, the Sudan Oilseeds Company offered a guaranteed price for groundnuts, above the international price (Buchanan-Smith, 1988). This policy was abandoned in the early 1990s, and the Sudan Oilseeds Company was abolished (Buchanan-Smith et al., 2013). Since then, there have been a series of lurches between millet and groundnut production year-to-year, usually related to the relative price of each in the preceding year. See also Section 4 on this phenomenon in 2012/13.

3.2 Cereal trade

While most cereal production in Darfur was for household consumption, a growing proportion was destined for the market. Both rural and

Table 2. Millet production in Darfur pre-conflict: 1992/93 to 2002/03

MILLET PRODUCTION	Annual average	Growth rate
Area planted ('000 feddan)	4263	3.4%
Area harvested ('000 feddan)	2820	5.8%
Total production ('000 MT)	351	2.6%
Yield (kg/feddan)	124	-3.1%

Source: calculated from federal Ministry of Agriculture data (Ijaimi, 2014)

³⁵ These are coefficients of variation, calculated from federal Ministry of Agriculture data, by Dr. Ijaimi (2014).

³⁶ See Agriculture and Rural Development Cluster, 2007.

urban households were dependent on the market to meet at least part of their consumption needs. See Box 6.

In most years, the greater Darfur region was self-sufficient in cereal production. In years of a good harvest, markets were supplied locally, for example within North Darfur, although cereal supply routes to Darfur's major towns could be longer, for example from the Jebel Marra area and Wadi Salih to Nyala and Ed Daien. In poor harvest years, North Darfur markets were supplied from South (and what is now Central) Darfur. But the cereal market in the Darfur region was never well integrated into the national cereal market. Only in years of widespread drought were cereals brought into Darfur from Central Sudan (Buchanan-Smith, 1988; El-Dukheri et al., 2004). Although the market chain from producer to consumer could involve up to six middlemen if

the cereals were to be transported over long distances, the cereal market was judged to be competitive, with no evidence of excessive profit margins, nor of barriers to entering the cereal trade (Buchanan-Smith, 1988).

3.3 Conclusions

The pattern of cereal production in Darfur, pre-conflict, follows the national pattern described in Section 2, of declining yields, high variability year-to-year, and inadequate provision of agricultural services, especially for pest control. The cereal trade within Darfur, between deficit and surplus areas and between livelihood groups, was much more important than the trade in cereals between Darfur and Central Sudan, which really only featured in years of very poor rainfall and production in the greater Darfur region.

Box 6. Pre-conflict, the growing importance of marketed grain in Darfur, traded between livelihood groups

In the late 1980s, five reasons were given for the growing importance of marketed grain:

- (1) greater commercialization and monetization of the Darfur economy, which meant that many households, in particular poorer households, had to sell part of their produce at certain times of the year to raise income for other expenditure, even if they were deficit producers, for example in North Darfur;
- (2) farmers living in areas marginal for agricultural production relied upon off-farm income to finance their staple cereal needs;
- (3) there was already a growing urban population dependent on the cereal market;
- (4) pastoralists with livestock-based livelihood systems have long been dependent on the market to meet their cereal needs;
- (5) cash crop producers, usually growing groundnuts in more favorable agricultural production areas such as South Darfur, were dependent on the market to meet their cereal consumption needs.

(Buchanan-Smith, 1988)

4. CEREAL PRODUCTION IN DARFUR DURING THE CONFLICT YEARS



There has been a shift from millet to sorghum production across many parts of Darfur

4.1 Cereal production levels³⁷

Cereal production plummeted after the outbreak of conflict in 2003. In many parts of Darfur, villages were attacked during the 2003 agricultural season, during the weeding period, or shortly before or during harvest time. Standing crops were burnt or destroyed. Although rainfall had been good in 2003, FAO/WFP estimated that only 45% of the millet crop was harvested (Buchanan-Smith and Jaspars, 2006). Displacement of rural households on a massive scale began in 2003, effectively turning cereal producers into consumers overnight. In 2004, the combination of displacement, continued insecurity, and lack of access to farmland, as well as poor rainfall, meant that production was once again very depressed, 45% below the average according to WFP (2005). Assessments showed the much-reduced area planted in 2004: 30 to 40% of the area planted in 2003 (WFP, 2004).

There was some recovery in 2005. The FAO/WFP crop assessment estimated that area cultivated increased by almost 50% compared with 2004, attributed to improved rainfall, high cereal prices, and a marginal improvement in security (FAO and WFP, 2006). There appears to have been some recovery again in 2008/09 in parts of Darfur, particularly in West and North Darfur, where IDPs began to return to their farms on a seasonal basis where security permitted, and in response to declining food aid rations. (See Annex 4). Sometimes this seasonal return was negotiated between formerly hostile ethnic and livelihood groups, whereby the returning IDPs would make arrangements with pastoralist groups in the area to ensure their safety and the protection of their farms. This was especially the case in West Darfur.³⁸ But at the same time, security was deteriorating in South and East Darfur in 2008/09, and cereal production suffered.

³⁷ See Annex 4 for cereal production data for Darfur, from the federal Ministry of Agriculture.

³⁸ In some cases, this has been supported at locality level by the formation of seasonal agricultural committees with the aim of protecting farms from grazing livestock during the harvest season. The success of these committees depends on many factors, including the influence of the locality commissioner in relation to pastoralist groups.

2012 was a year of record cereal production in the conflict period. A combination of good rainfall and improved security triggered a surge in cereal production in West Darfur that was reportedly 680% of the five-year average, and in North Darfur 164% of the five-year average (FEWS NET/USAID, 2013). The impact in South Darfur was more muted, as many farmers had chosen to produce groundnuts instead of cereals in response to the very high groundnut

prices in 2012. Groundnuts are also less vulnerable to being destroyed by grazing livestock (Ibid.).

This more positive scenario in 2012 was rapidly reversed in 2013/14. South and East Darfur experienced some of the most acute fighting of the last decade. Combined with very poor rainfall, which affected the whole Darfur region, cereal production slumped. See Box 7.

Box 7. Cereal production in 2013/2014

Cereal production in Darfur in 2013/14 may have been lower than in any other year since the conflict began. Data from the CFSAM shows production in 2013/14 as a percentage of the 5-year average, presented below.

State	Cereal production in 2013/14 as a % of the 5-year average (2008/09 to 2012/13)		
	Sorghum	Millet	Wheat
North Darfur	50%	54%	
South Darfur	25%	30%	32%
West Darfur	81%	254%	74%

Source: FSTS (2014)

The rains were very poor, in total amount and in distribution. They started late, were exceptionally heavy in August, causing flooding in some places, including El Fashir and Malha, and finished early (Ibid.). Insecurity affected many major cereal- production areas, including the Wadi Salih area in Central Darfur, and large parts of East and South Darfur, including Rehad El Birdi, Kubum, and Idd El Fursan. Even where farmers had cultivated during the rainy season, many were unable to harvest because of lack of secure access to their farms, especially in South and East Darfur. When conflict broke out in parts of North Darfur in March 2014, especially in Saraf Omra, a major area of cereal production supplying Darfur's towns (see Box 9 below), this further impacted the availability of cereals following the very poor harvest in 2013/14. In comparison with the other states, cereal production in West Darfur was less affected by insecurity, but was negatively affected by poor rainfall, especially in the north of the state, in the Kulbus area.³⁹

³⁹ This information is based on information provided by the MMTA project, and key informants and cereal producers interviewed for this study.

4.2 How conflict has impacted on cereal production⁴⁰

While the overall picture is of depressed cereal production since the conflict began in Darfur, some specific patterns emerge:

- First, the constantly shifting and unpredictable conflict dynamics mean that **areas able to produce in some years are at the heart of conflict in other years and become too insecure for any form of agricultural production.** Examples include the area south of Nyala, in particular El-Goz El-Garbi. Traditionally important for cereal production pre-conflict, there was relative security in the early years of the conflict, so cereal production continued. But since 2006, tribal fighting in South Darfur triggered new waves of displacement, and cereal production has suffered. Meanwhile other areas that were highly insecure in the early years of the conflict, where cereal production more or less collapsed, for example the Beida area in West Darfur, have become more secure since 2008, and to some extent agricultural production, including cereal production, has resumed.
- Second, some areas that were traditionally the “breadbaskets” of Darfur, have been particularly badly affected by the conflict for most of the last decade. This includes the Wadi Salih area, which stretches from Garsila to Umm Dukhn in the southwest of the Darfur region. Early in the conflict, there was widespread displacement of cereal producers in the Wadi Salih area, and there has been little or no return of the displaced since, either seasonally or more permanently. In April 2013, localized tribal conflict⁴¹ erupted in the Umm Dukhn area, shortly before the agricultural season, which badly affected production from this important cereal-producing area over the last year.
- Third, there appears to have been a **significant shift from millet to sorghum production** across many parts of Darfur. A post-harvest report by Action Contre La Faim (ACF) in South Darfur in 2006 revealed that a higher percentage of the population was cultivating sorghum rather than millet, tentatively attributed to the lower cost of sorghum seed, the shorter cultivation period for sorghum compared with millet, and greater demand for sorghum for animal fodder (ACF, 2006). Field work for this study confirms this shift across all Darfur states, for a number of reasons. First, consumption patterns are changing, away from millet, partly encouraged by a decade of food aid, which has predominantly provided sorghum, and by the longer cooking time required to cook millet (see Section 6 below). Second, sorghum is being grown as a cash crop by some households for sale in the market. And third, the sorghum stalks are increasingly used as livestock fodder since livestock mobility has been constrained, even in years of poor rainfall when the grain harvest fails.⁴²
- Fourth, those who are still producing cereals are cultivating much smaller areas compared with the pre-conflict period. In West Darfur, producers interviewed for this study described how households used to cultivate up to 7 feddans (2.94 ha), but now they are cultivating 2 to 4 feddans (0.84 to 1.68 ha). Producers in South Darfur reported a similar pattern: households used to cultivate 7 to 10 *mokhamas* (3.54 to 5.0 ha) per year; during the conflict years it has dropped to 4 to 5 *mokhamas* (2.02 to 2.52 ha). This is a direct consequence of insecurity as farmers can no longer access more distant fields. In Umm Shalaya in Central Darfur, for example, those still cultivating are living close to the police

⁴⁰ This section is based on interviews carried out for this study, information from the MMTA project, and other sources referenced in the text.

⁴¹ This was mainly between the Salamaat and Misseriya ethnic groups.

⁴² The extent to which this has been encouraged by free distribution of sorghum seed is not clear, although there were reports from key informants (e.g., in South and Central Darfur) of the late delivery of seed, which was not well targeted, for example where state-level Ministries of Agriculture have been provided with cereal seed by the federal Ministry of Agriculture.

station for protection, and mostly farming close by. See Box 8 for the experience of a cereal producer in Kass.

- Fifth, and related to the smaller areas now being cultivated per household, some key informants interviewed said that **households are selling a smaller percentage of their cereal harvest**, especially in traditional surplus-producing areas: in East Darfur this was said to be down from 30 to 50% of the harvest pre-conflict to just 5 to 10% of the harvest now. Most is kept for household consumption. However, poorer households may have to sell a larger percentage of their harvest to raise income.
- Sixth, farmers in some areas have had to make “**protection payments**” to groups controlling the area, to continue cultivation and to travel to market.⁴³ The extent of coercion to these arrangements varies from place to place, and over time.
- Seventh, in terms of the **gender division of labor**, women appear to be bearing more of the burden of cereal cultivation during the conflict years than pre-conflict, across all Darfur states. In East Darfur, for example, key informants estimate that women are now doing up to 70% of the work compared with 50% before the conflict. There are two possible reasons: first, women are taking the risk of going out into the fields where they may be harassed but are less likely to be attacked and killed by armed militias compared with men;⁴⁴ second, men are more
- Eighth, the **division of labor between family and hired labor** is more variable across locations. In Central Darfur State, for example, particularly around the Zalingei area, there has been a shift from a dependence on family labor to hired labor, with estimates that hired labor used to account for only about 20% of the labor used on cereal fields, but has now increased to 50%, mostly IDP women (thus providing them with a valuable source of income). This is because many family members (especially men) have moved out of the area. But in East Darfur, producers from the Ed Daien area describe how they were mainly dependent on hired laborers from South Sudan pre-conflict, but there is now a shortage of agricultural labor, both a consequence of the return of the Dinka during the Darfur conflict and when South Sudan seceded, and also because artisanal gold mining has drawn men away from the agricultural sector.⁴⁵ They are therefore more dependent now on family labor. Cereal producers in Nyala, South Darfur, made a distinction between the availability of agricultural labor to work on farms close to the town and to the IDP camps, and the shortage of labor to work on more distant farms. The practice of *nafir* also appears to have collapsed during the conflict decade as smaller areas are being cultivated and as communities have scattered.

Box 8. Cameo of a cereal producer in Kass, South Darfur

The farmer has two farms, one near to Kass town, which is about 4 *mokhamas*, and the second further from the town, about 3 *mokhamas*. Before the conflict, he cultivated both farms and produced enough cereals to meet his family’s needs: himself, two wives, and seven children. In years of good rainfall, he produced a surplus. During the conflict years, he has only been able to cultivate the farm closest to town; it is too insecure to access the more

continued on next page

⁴³ See, for example, Jaspars and O’Callaghan (2008).

⁴⁴ The same pattern was reported by key informants for cash crop production, specifically groundnut production, as documented in “Taking Root: The Cash Crop Trade in Darfur” (Buchanan-Smith et al., 2013).

⁴⁵ Interviews with cereal producers. Also reported in WFP (2014b).

distant farm. His annual cereal production from this one farm does not cover his family's needs, and he is now dependent on the market to meet their cereal consumption requirements.

Year	Area cultivated (<i>mokhamas</i>)	Total cereal production (sacks)
2002	7	42
2006	4	18
2013/014	4	16

4.3 Conclusions

Conflict negatively affected overall levels of cereal production in Darfur, because of displacement, limited freedom of movement, and shortages of labor in some areas. Limited freedom of movement because of insecurity has hindered access to farms to plant or harvest. It has also impacted how cereals are produced, for example in terms of the source of labor, gender division, and the choice of cereals cultivated. While some important cereal-producing areas have more or less ceased production during the conflict years, others went out of production at particular points in time, reflecting the constantly shifting and unpredictable nature of conflict and insecurity in Darfur.

5. FOOD AID DURING THE CONFLICT, AND HISTORICALLY IN DARFUR

5.1 Introduction

Food aid is relevant to cereal trade because food aid is often traded; beneficiaries sell part of their food aid to meet other needs and traders purchase and sell food aid like any other commodity. Previous studies and evaluations have shown that trade in food aid depends on the quantity of food and the type of cereal provided, as well as issues of access, transport, and others costs (Buchanan-Smith and Jaspars, 2008; Buchanan-Smith and Fadul, 2008).⁴⁶ The introduction of food vouchers, from 2011, involved traders as suppliers of food assistance direct to beneficiaries. This section therefore provides a brief overview of factors which influenced the changes in quantity and type of food aid, such as changes in the number of beneficiaries, coverage, ration size, access, duration of distribution, and type of food assistance.

5.2 Food aid pre-conflict

Darfur first received international food aid in the 1970s, as part of WFP's school-feeding programs and in response to the drought in the 1970s, although international food aid in the latter was minimal (Jaspars, forthcoming). It was not until the end of 1984 that Darfur started receiving large quantities of international emergency food aid, which reached a total of 90,361 MT in 1985 (De Waal, 1989). Since then, Darfur received food aid on an almost continuous basis, including both food-for-work (FFW) and emergency food aid, particularly North Darfur, which received food aid in response to drought-emergencies in 1987, 1991–1994, 1997, and 2001 (Jaspars, forthcoming). In South Darfur, emergency food

aid was provided to displaced people from South Sudan from 1988 onwards in and around Ed Daien.⁴⁷

5.3 Food aid during the conflict

Food aid in response to the effects of large-scale conflict and displacement, from 2003 onwards, was unprecedented in both its scale and coverage. See Annex 5 for a chronology of the food aid program in Darfur. In the early years, large-scale displacement led to a rapid increase in beneficiary numbers: from 1.2 million in April 2004, to 2 million later that year, and over 3 million in 2005.⁴⁸ WFP started food distributions in late 2003, which reached a peak in 2005 at almost 450,000 MT,⁴⁹ about five times as much as food aid as was distributed in 1985. Distributions initially focused on IDP camps in urban centers. By 2005, WFP had expanded its distribution to rural areas. Food aid was provided to five groups: displaced in camps, displaced with host families, host families or households, settled resident populations, and nomadic groups (WFP, 2006). ICRC was the other main agency providing food aid, starting in 2004, initially targeting its food distribution to rural populations. From 2005, ICRC coordinated its distributions with WFP, although its operations have been suspended since early 2014.

From 2006, the overall quantity of food aid distributed decreased. For WFP, this was due initially to funding constraints (in 2006), then to security and logistical constraints (2008), and later the assumption that people would be able to meet part of their food needs themselves (Young, 2007; WFP Sudan, 2008). ICRC followed a similar strategy and reduced rations to rural

⁴⁶ WFP assessments show the decline in beneficiaries selling food aid as the quantities go down. See WFP and UNICEF (2005), WFP et al. (2007, 2008, 2009).

⁴⁷ Before 2004, Save the Children was the main agency distributing food aid in Darfur. Either USAID, DfID, or ECHO were donors, and DfID and ECHO provided the funds for local purchase from the mid-1990s. WFP provided food aid for food-for-work activities. The exception was the Western Relief Operation, which was managed by local government with food aid from the Agricultural Bank of Sudan, funded through counterpart funds held in the MoF.

⁴⁸ These numbers were obtained from evaluation reports, assessment reports, or provided by WFP.

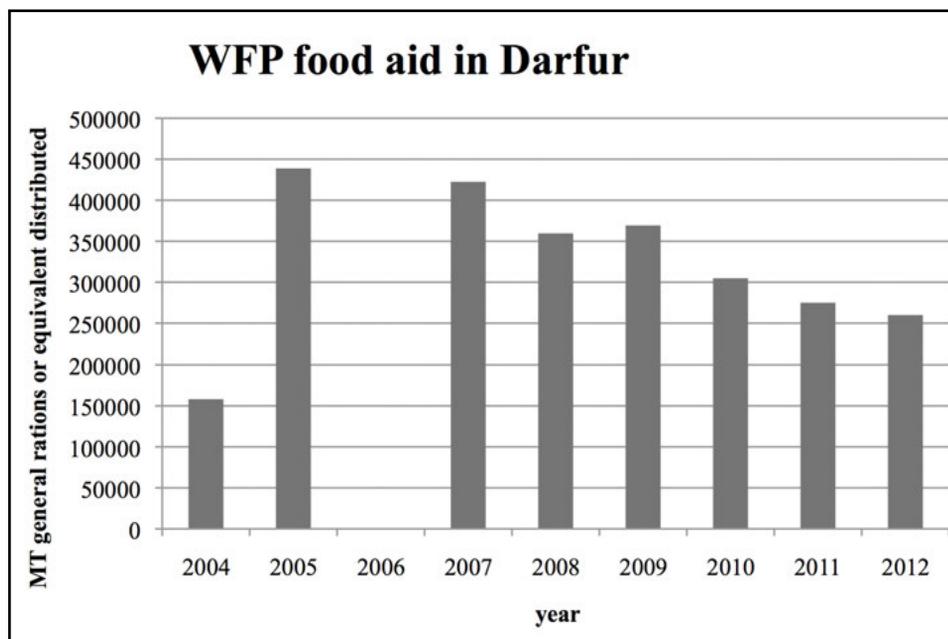
⁴⁹ This is the actual quantity distributed rather than the quantity planned. WFP used INGO implementing partners for its distribution.

Darfur from 2006. From 2007, ICRC focused mainly on the provision of food aid along with seeds in rebel-held areas, including Jebel Marra (which it took over from WFP in 2006) and emergency distributions following new displacements.⁵⁰

In 2008, WFP changed general distributions for resident rural populations from ongoing distributions to distributions limited to the hungry season only. WFP planned reduced (60%) IDP general rations from 2009, as part of a strategy to phase out general rations, and in effect continuing the reduced rations initially due to shortages. It established a food security monitoring system to adjust rations based on food security information. In addition to reducing food aid, WFP planned recovery-based approaches such as food-for-work, training, and education from 2009. These, however, proved impossible at the time due to the INGO

expulsions (Cosgrave et al., 2010). Renewed attempts were made from 2010, but even by 2012, the quantities of food distributed through recovery activities were minimal⁵¹ (WFP, 2013). From 2012/13 seasonal distributions were targeted to some places, replaced by food-for-assets (FFA) in others, and stopped completely in some camps in West Darfur (Radio Dabanga, 2014), thus resulting in further reductions in overall food aid. While quantities of food aid have declined (most food aid rations were 50% when field work for this study was carried out), the number of food aid beneficiaries served by WFP in Darfur has continued to increase, until 2011 when it was just over 4 million. The number of beneficiaries decreased following a re-registration in April 2011. As a result, beneficiary numbers decreased by 27% in 2012 (WFP, 2013). The overall reduction in food aid for general ration distribution is shown in Figure 17 below.

Figure 17. WFP food aid to Darfur, 2004 to 2012



Source: Data provided by WFP or extracted from evaluation reports.⁵² Data missing for 2006.

⁵⁰ All information on ICRC was obtained from their annual reports. ICRC also distributed food aid to IDPs in Gereida camp in South Darfur, at least until 2010.

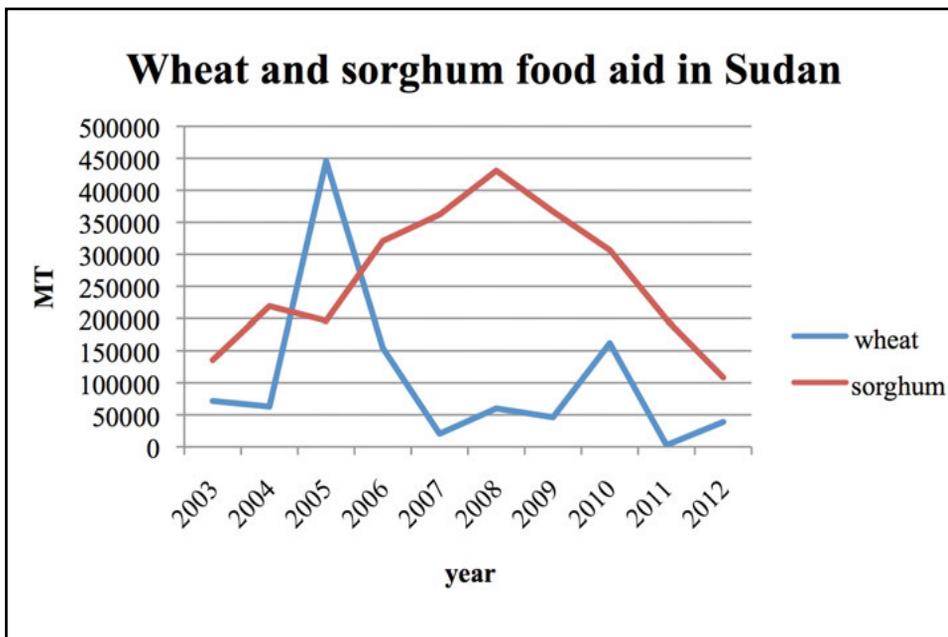
⁵¹ Recovery activities include food-for-work (FFW), food-for-recovery (FFR), food-for-training (FFT), and food-for-education (FFE).

⁵² Note that these are actual amounts for general rations distributed rather than planned. The amount for 2004 is an estimate, as 60% of the planned amount for November 2003–March 2004 was added to the actual distributed from April–December 2004. 2006 figures could not be provided by WFP or found in documents. The figures for 2011 and 2012 are estimated from graphs provided in the 2013 country evaluation, which include general food distribution (GFD) equivalent for beneficiaries receiving vouchers (see p. xiii in WFP, 2013). The actual amount for general rations distributed is: 220,491 MT for 2011, and 166,105 MT for 2012. The amount of food aid distributed in 2006 could not be found in evaluation reports or WFP records in Khartoum..

The composition of the ration in Darfur has also changed. In 2005, all WFP food aid beneficiaries received six commodities, including higher-than-usual rations of cereals as income support, with the specific aim of lowering the price of grain on the market as beneficiaries usually sell part of their ration to meet other needs (WFP, 2006). From January 2009, all commodities in IDP rations were reduced except salt and CSB. Residents received similar reductions but no CSB, and later in 2009, only cereals and oil. By 2011, rations for IDPs only consisted of cereals and oil. The cereal provided in the ration was either wheat or sorghum, which influenced its tradability. See Box 10 in Section 7.2 below. In most years, sorghum was provided, but in 2005, 2006, 2010, and 2012 a proportion of cereal food aid was provided as wheat. Figure 18 below shows the total amounts of wheat and sorghum food aid in Sudan from 2003.⁵³ Small quantities of maize, rice, and millet were also provided.⁵⁴

In 2009, WFP piloted food vouchers in Sudan in the disarmament, demobilization and reintegration (DDR) program in South Kordofan, as part of its global shift from food aid to food assistance. After larger pilots in 2010, including non-cereal vouchers in Kebkabiya, it was introduced more widely in Darfur from 2011,⁵⁵ with the aim of stimulating markets and re-establishing trade routes, empowering beneficiaries, and providing them with more choice (WFP Sudan, 2011; Bizzarri, 2013). Other objectives included reducing food aid sales (Pattugalan et al., 2012), and reducing dependence on in-kind food aid (Bizzarri, 2013). Food vouchers were first provided in North Darfur; following a pilot in El Fashir town in June 2011, beneficiaries in Abou Shook and El-Salaam camps in El Fashir town, Saraf Omra, and Kebkabiya all received full food vouchers in 2011. Non-cereal vouchers were introduced in

Figure 18. Quantities of wheat and sorghum food aid in Sudan, 2003 to 2012



Source: WFP food aid information system (WFP, 2009).

⁵³ This information was not available for Darfur, but the trend matches that reported by Dorosh and Subran (2009) who report the percentage of sorghum and wheat distributed in Darfur up to 2008.

⁵⁴ These quantities were too small to show up on the graph with sorghum and wheat. The highest quantities of maize were in 2005 (35,130 MT) and 2009 (3,959 MT), rice in 2007 (145 MT) and 2009 (44.6 MT), and millet in 2008 (3.2 MT).

⁵⁵ Vouchers for pulses and oil were piloted in Kebkabiya in 2010 (WFP Sudan, 2011).

West Darfur in the same year but stopped except in Al Sultan House IDP camp in 2012 because WFP did not consider it cost-efficient (Bizzarri, 2013). In 2014, however, food vouchers were introduced into Ardamata and Dorti IDP camps near El Geneina. Voucher distributions have been limited in Central, South, and East Darfur. The voucher scheme was piloted in Zalingei in 2011, but did not continue. Otash was the only place in South Darfur that received vouchers in 2012. At the time of writing, food vouchers had not been introduced into East Darfur.⁵⁶ In North Darfur, vouchers were expanded to its largest camp, Zamzam, near El Fashir, in January 2014. Although North Darfur State has the highest cereal deficit of the five Darfur states, it has been the main focus of the food voucher program.

Government restrictions on access for food aid convoys have increased over time, in particular to rebel-held areas. For example, ICRC was not able to access Jebel Marra in 2010 (ICRC, 2011). This, too, determines whether people receive food aid, how much, and when, and therefore whether it is likely to be traded.

5.4 Conclusions

Food distributions in Darfur rapidly increased at the start of the conflict, but quantities decreased again as time went on, despite ongoing and worsening conflict. WFP reduced ration sizes for rural and IDP populations, and introduced seasonal and later targeted distributions for rural populations. Quantities of in-kind food aid brought into Darfur further decreased with the introduction of voucher programs in 2010, which meant that traders were now responsible for providing food assistance, and a re-registration of beneficiaries in 2011. The composition of the ration changed from six commodities down to two in 2011. In most years, the cereal provided was sorghum, but wheat formed a significant proportion in some years. The implications of these changes for the cereal trade are explored in the following sections.

⁵⁶ Information on the food voucher scheme based on information received from WFP staff in Darfur, and on WFP Sudan, 2011.

6. CEREAL CONSUMPTION PATTERNS IN DARFUR DURING THE CONFLICT YEARS



Consumption patterns in urban areas in Darfur have shifted from millet to sorghum and wheat

6.1 Changing consumption patterns in urban areas

The major upheavals experienced during the conflict years—in particular displacement, accelerated urbanization, and large volumes of food aid to meet consumption needs, for over a decade—have had some impact on cereal consumption patterns. As described in Section 4, the most obvious change is that many households that used to meet their consumption needs through their own cereal production have now become heavily dependent on the market and/or on food aid at various times during the conflict. But there are other changes as well. This study explored changing consumption patterns through the lens of trade, asking long-term cereal retailers how their customer base has changed, now compared with the pre-conflict period. The research team in Darfur, who are themselves key informants, also contributed their observations on changing cereal consumption patterns within households in Darfur's main towns. But it was beyond the scope of this study to look at consumption levels.

One of the most significant changes during 11 years of conflict is the increase in demand for cereals for livestock feed, particularly sorghum, as so many animals are now kept in or around Darfur's towns for reasons of security, and for the burgeoning (cattle-based) dairy industry that has accompanied urbanization. This change appears to have started early in the conflict, at the same time as food aid sorghum became widely available on the market as food aid recipients, many of them IDPs, sold some of their ration to raise income to meet other needs. See also Section 7 below. Thus, much of the sorghum sold to livestock owners was food aid sorghum. A cereal merchant in El Fashir, who has been trading since 1980, described how she started buying food aid sorghum in Abu Shouk camp in 2004, most of which she sold on to livestock and poultry farmers. Indeed, it appears that the availability of large quantities of food aid sorghum was a critical factor enabling the rapid growth of livestock and poultry farming in El Fashir town in the last decade as well as in other towns. See Table 3. There is also a seasonal pattern to the use of sorghum for livestock feed.

During the rainy season when new grass becomes available, demand for sorghum declines.⁵⁷

Now that food aid rations have been reduced, and fewer people are receiving rations, there is much less food aid sorghum available in the market, especially in El Fashir where food vouchers have been introduced. Whether and how this impacts on the dairy and poultry businesses remains to be seen. In Abu Shouk camp, however, there were 39 fenced areas for cattle fattening where the cattle are fed with sorghum by 2014. This has now become a major source of meat for El Fashir and appears to be sufficiently profitable that the IDPs engaged in cattle fattening will bring sorghum from Central Sudan if they cannot buy enough food aid or locally produced sorghum in the markets of North Darfur.

Millet is the cereal of choice for working horses that pull carts. With the rapid expansion of towns in South and East Darfur, in particular Nyala and Ed Daien, there has been a huge increase in the number of horses and carts. By

2014, there were an estimated 5,000 working horses in Ed Daien. Each horse consumes approximately one mulwa of millet per day, which is 3.63 kg. This implies that 18 MT of millet are consumed by horses per day in Ed Daien.⁵⁸

Cereal traders interviewed in Nyala now rank livestock owners as their second most important category of customer in terms of quantity purchased, after urban residents, especially for sorghum. They did not rank livestock owners as a significant customer pre-conflict. Cereal traders in Ed Daien reported a similar pattern, especially for millet. This implies a new linkage between cereal and livestock markets in Darfur.

Another significant change in consumption patterns, this time within the human population, and especially in urban areas, is a shift from consuming millet to consuming more sorghum and wheat. Based on their own observations, members of the research team estimate that only half of cereal consumption in urban areas is millet, as consumption of both sorghum and wheat have increased. There are a number of

Table 3. Growth in poultry and dairy farms around some of Darfur's main towns, since 2003

	Zalingei	El Fashir	Nyala	El Geneina
Number of dairy farms				
2003	1	14	5	N/A
2006	3	14	10	1
2013/14	6	79 (plus 39 farms for beef-fattening)	50	2
Number of poultry farms				
2003	2	4	15	2
2006	5	13	25	8
2013/14	9	25	50	15

Source: research teams in Central and West Darfur

⁵⁷ See DDRA's MMTA Trade and Market Bulletin for Central Darfur, June to August 2014, Vol. 2, No. 1

⁵⁸ This information comes from interviews with Ministry of Agriculture officials and with cereal traders in Ed Daien.

reasons for this change. First, the majority of food aid over the last decade has been sorghum, so this has become the major cereal consumed, particularly by IDPs and by other urban residents. Second, sorghum is consistently cheaper than millet; in years of high prices pre-conflict, poorer households would switch from millet to sorghum consumption. During the conflict, when the cost of living has soared and many households struggle to earn a livelihood, price is a key factor determining choice of cereals for household consumption. Third, as Darfur's population has become more urbanized, bread bought from bakeries has become a popular staple, avoiding the lengthy cooking required for millet, and is therefore more suited to an urban lifestyle. Children growing up in towns during the conflict appear to be developing a taste for bread and sorghum rather than millet, in contrast to older generations.

The increase in wheat consumption is evident from the increased number of bakeries in all of Darfur's towns, most of which are producing more bread per day than they did before 2003. See Table 4. Almost all of this wheat is transported into Darfur from Central Sudan, and much of it has been imported into Sudan at subsidized exchange rates, as described in Section

2. The wheat produced in Darfur, in the Jebel Marra area, is mostly used for special occasions, particularly during the fasting month of Ramadan. It produces a large white grain, which is soaked before cooking. It fetches a higher price than other wheat, although is not available in large quantities across Darfur.

6.2 Conclusions

Consumption patterns have shifted, especially in urban areas, from millet to sorghum for human consumption, and to increased wheat consumption. Large quantities of sorghum are now also being consumed by livestock on peri-urban poultry and dairy farms. The changing consumption patterns described in this section in urban areas in Darfur during the last decade, follow trends in Central Sudan that started much earlier, particularly the shift to wheat in Khartoum, described in Annex 3, and raise the same concerns about the economic sustainability of this shift, which is encouraged by the subsidized exchange rate for wheat imports. Cereal traders in Khartoum and Omdurman interviewed for this study described the growing market for sorghum for livestock feed, especially for poultry farms, in the last couple of decades, a shift that is now taking place in Darfur.

Table 4. Rising number of bakeries and use of wheat flour in Darfur's towns since 2003

	2002/03	2006	2013/14
El Fashir			
No. of bakeries	69		158
Average no. of sacks of wheat flour used per bakery/day			>10
Kass			
No. of bakeries	4	10	15
Average no. of sacks of wheat flour used per bakery/day	2-3	5-7	7-10
Zalingei			
No. of bakeries	12	20	45
Average no. of sacks of wheat flour used per bakery/day	3-5	7-10	12-15
El Geneina			
No. of bakeries	40	N/A	153
Average no. of sacks of wheat flour used per bakery/day	10		10

Source: interviews with bakery owners and with bakery trade union

7. THE CEREAL TRADE IN DARFUR DURING THE CONFLICT YEARS: SOURCES OF SUPPLY

7.1 Local sources of supply and trade flows

The common pattern reported by cereal traders across all of Darfur's state capitals is a decline in the number of locations supplying cereals to the market during the conflict years as key production areas have been affected by conflict and insecurity, as described in Section 4 above. The following are some of the major changes in sources of supply and trade flows for each of the state capitals.

- **Nyala, South Darfur:** no longer supplied with millet from areas south and southwest of Nyala, such as Buram, Tullus, Western Goz, and Umdafog because of tribal conflict and insecurity, affecting both cereal production and trade, nor from areas north of Nyala such as Shariya, where there have been high levels of displacement amongst cereal producers. Instead, sources of supply such as Mershing, Duma, Manawashi, Malam, Yarra, Halouf, East Jebel Marra, and Saraf Omra in North Darfur have become more important. See Figure 19 for a map of the principal trade flows in South Darfur pre-conflict.
- **Ed Daien, East Darfur:** sorghum used to be supplied locally, but is now coming from outside the state, from El Obeid in Kordofan and from Central Sudan. Ed Daien's greater integration into the sorghum market in Central Sudan during the conflict years, rather than into the sorghum market in Darfur is also noted in WFP's market assessment (WFP, 2014a). Local production has been badly affected by conflict and by shortages of agricultural labor. Thus, Ed Daien is more dependent on millet trade flows from West and Central Darfur as local supplies have dried up—see below.
- **El Fashir, North Darfur:** used to be supplied with millet from the *qoz* areas surrounding El Fashir. Many of these areas no longer supply the market. This includes Korma, which used to be an important source of cereals, providing two trucks of

cereals per week to the main cereal market of Umdafasso, but this stopped early in the conflict and has never resumed. See Figures 20a, 20b and 20c which show how trade flows have changed, from the pre-conflict period to the first ten years of the conflict, and again in 2013-14.

- **West Darfur, El Geneina:** early in the conflict, cereal trade flows from the south of the state ceased, from Foro Baranga, Habila, and Beida. In 2008/09, cereal trade flows stopped from the millet-producing areas of Kulbus, Sirba, and Jebel Moon in the north of the state when the trade route closed because of insecurity. Cross-border trade flows from Chad became increasingly important to fill the gap, although the trade route to Kulbus started to function again from 2011. See Figures 21a and 21b for trade flows in West Darfur pre-conflict, and since 2008.
- **Zalingei, Central Darfur:** used to be mainly supplied from the cereal-producing Wadi Salih area within Central Darfur state, but high levels of displacement and the closure of many primary markets mean that Zalingei is now principally dependent on cereals from Saraf Omra in North Darfur, as well as from Mukjar, and from Mornei in West Darfur. When tribal conflict broke out in the Umm Dukhn area in 2013, Mukjar began to supply Umm Dukhn as well. See Figure 22 for a map of the principal trade flows pre-conflict in Central Darfur, and in 2014.

In some cases, the direction of trade flow has changed completely. For example, Buram in South Darfur used to receive cereals from the Western Goz, but with the outbreak of tribal conflict in South Darfur this trade stopped, and Buram became dependent on El Obeid market for its cereal supply, at much greater cost.

On the other hand, there are areas that have continued to supply some of Darfur's major markets throughout the conflict years, more or

Figure 19: Cereal trade flows in South Darfur before the conflict

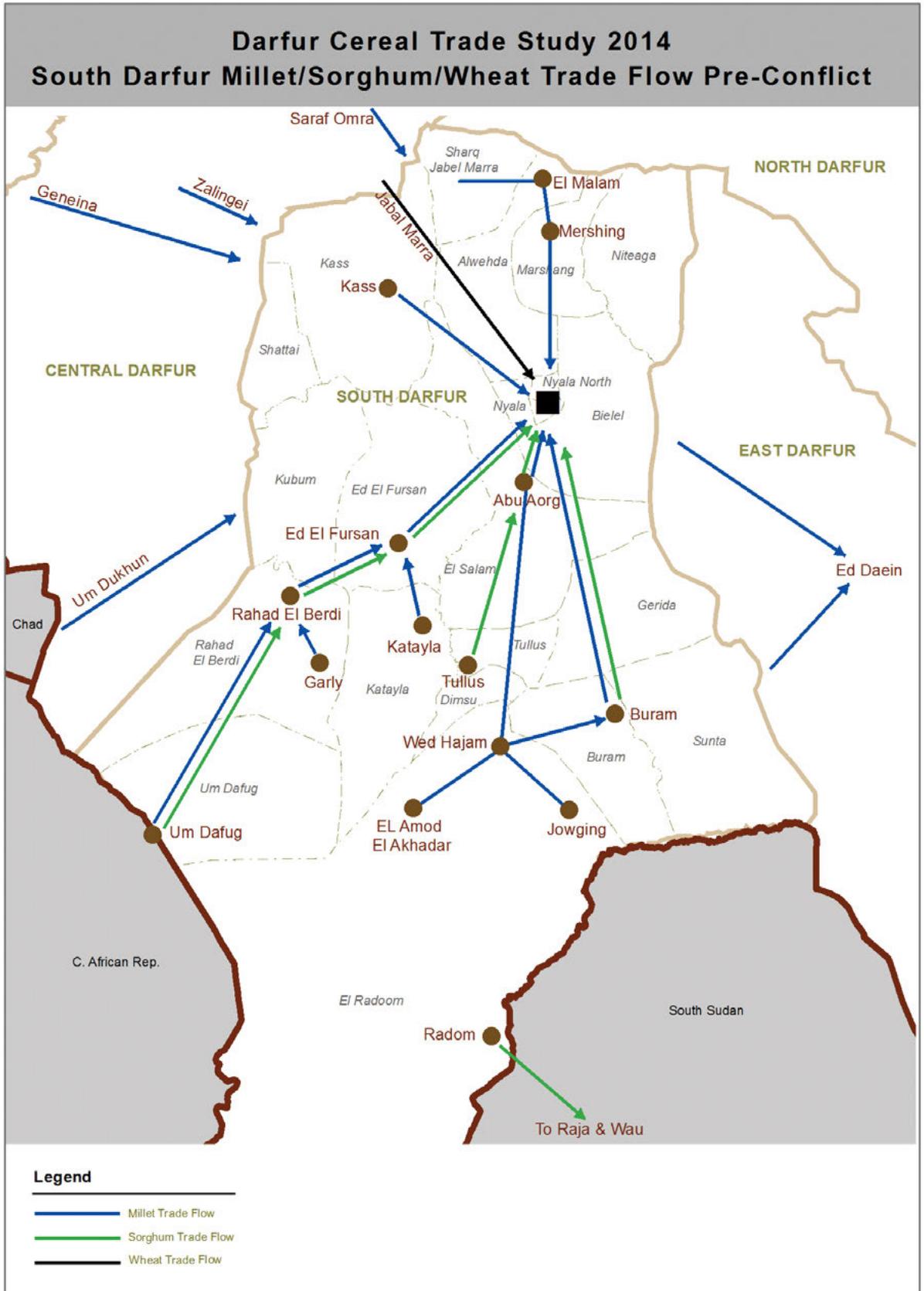


Figure 20a: North Darfur State – Cereal Trade Flows Pre-Conflict

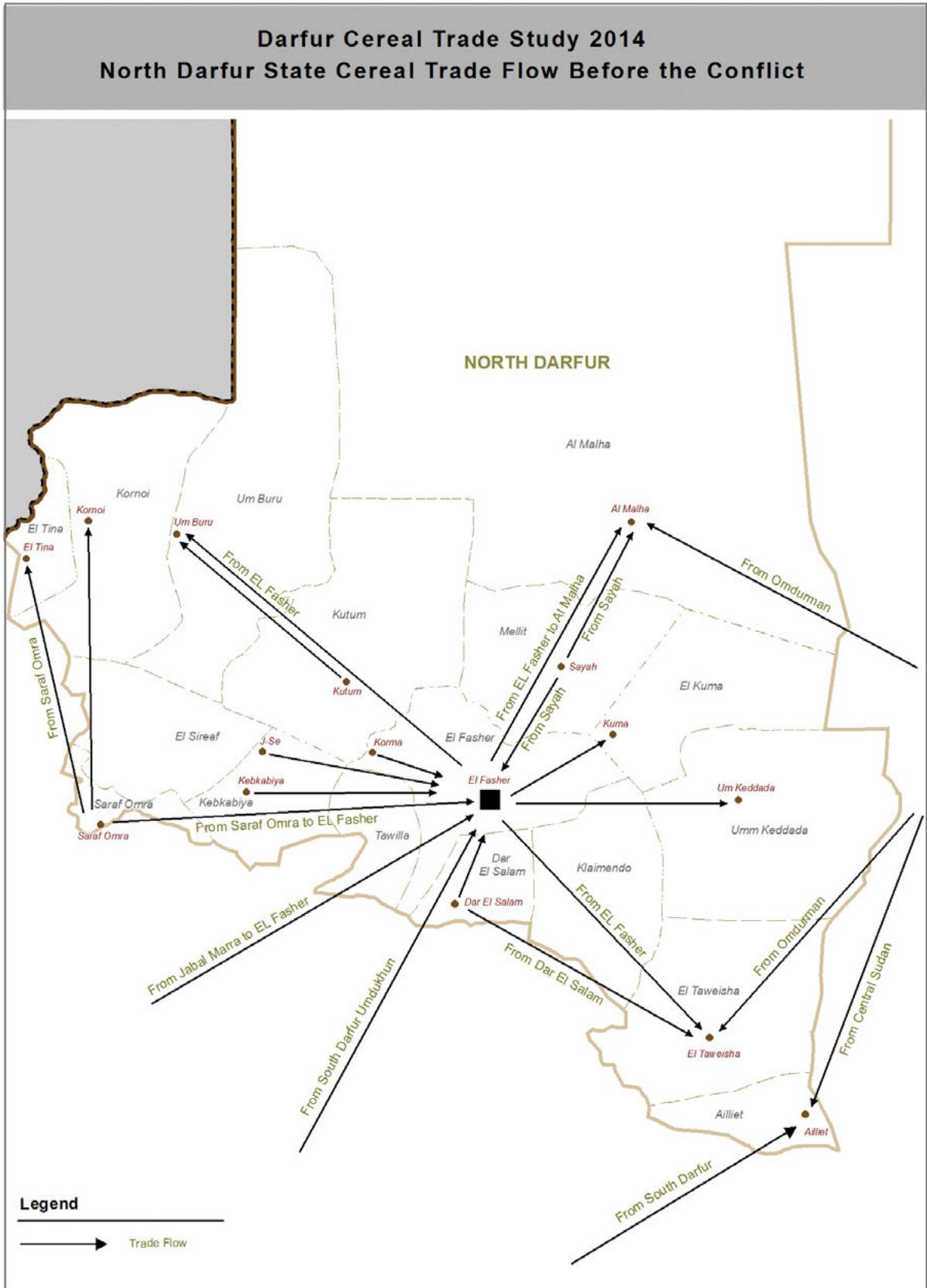


Figure 20b: North Darfur State – Cereal Trade Flows During the Conflict 2003 to 2012

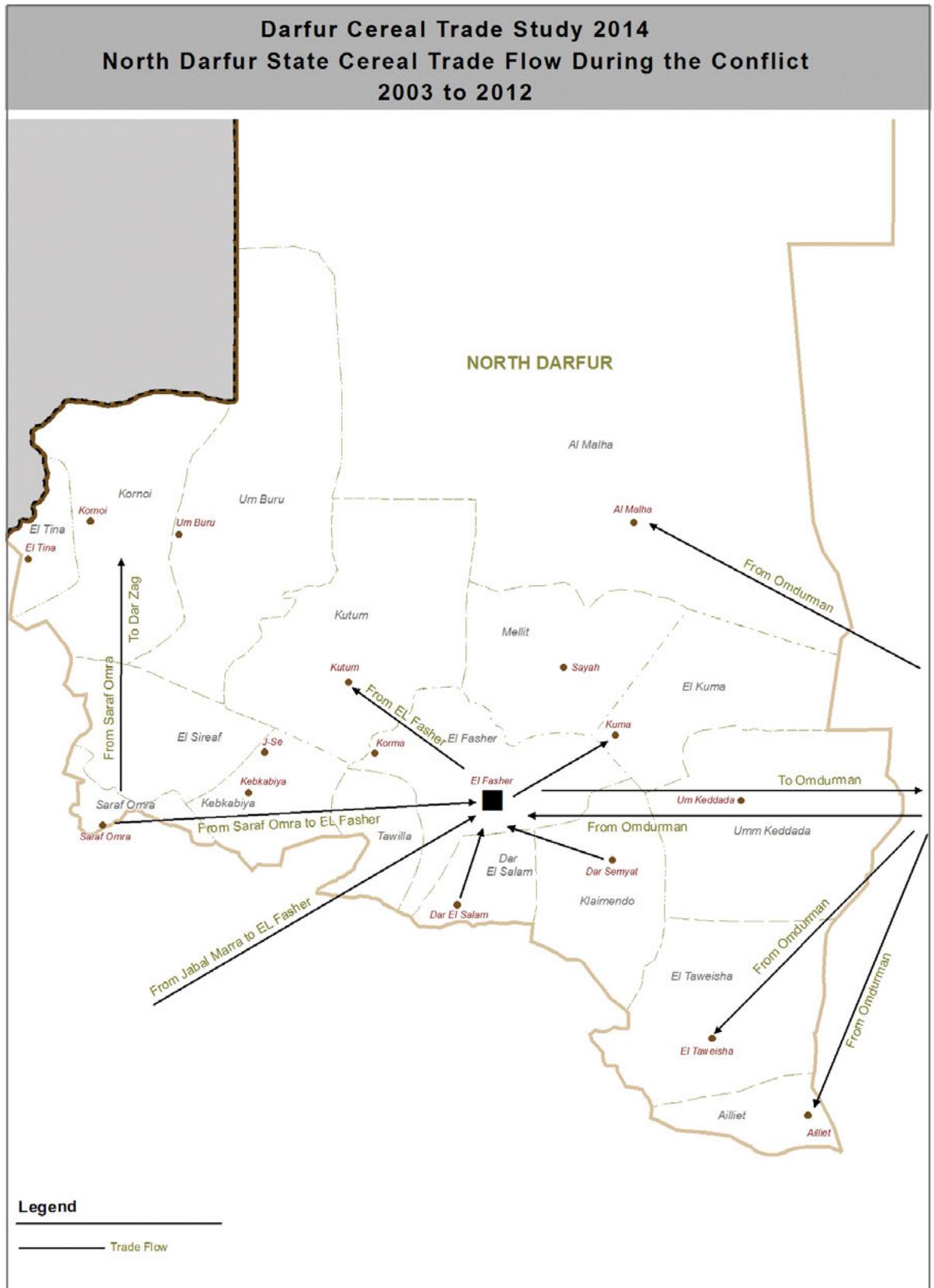


Figure 20c: North Darfur State – Cereal Trade Flows During the Conflict 2013 to 2014

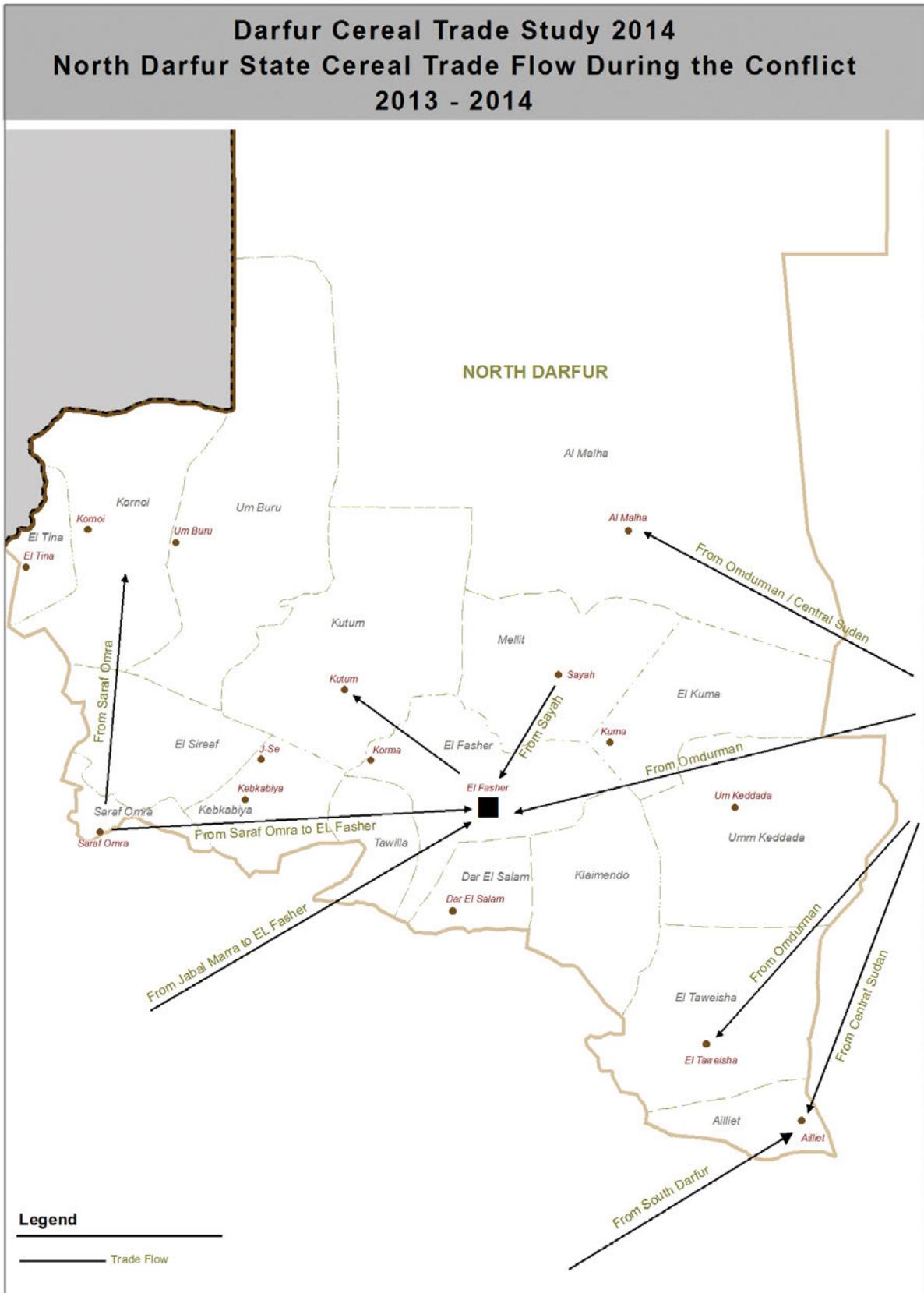


Figure 21a: West Darfur State – Cereal Trade Flows Pre-Conflict

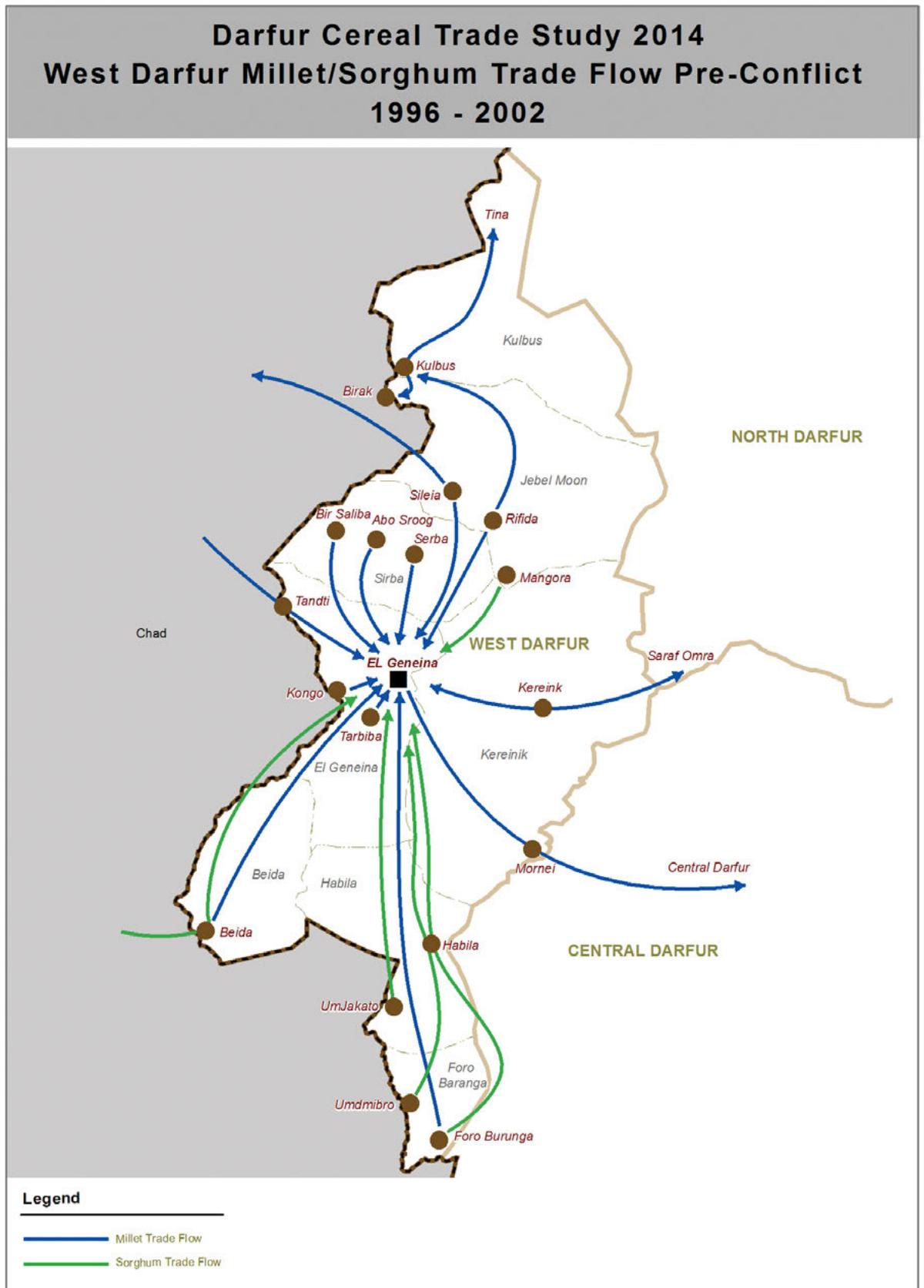


Figure 21b: West Darfur State – Cereal Trade Flows During the Conflict 2008 to 2014

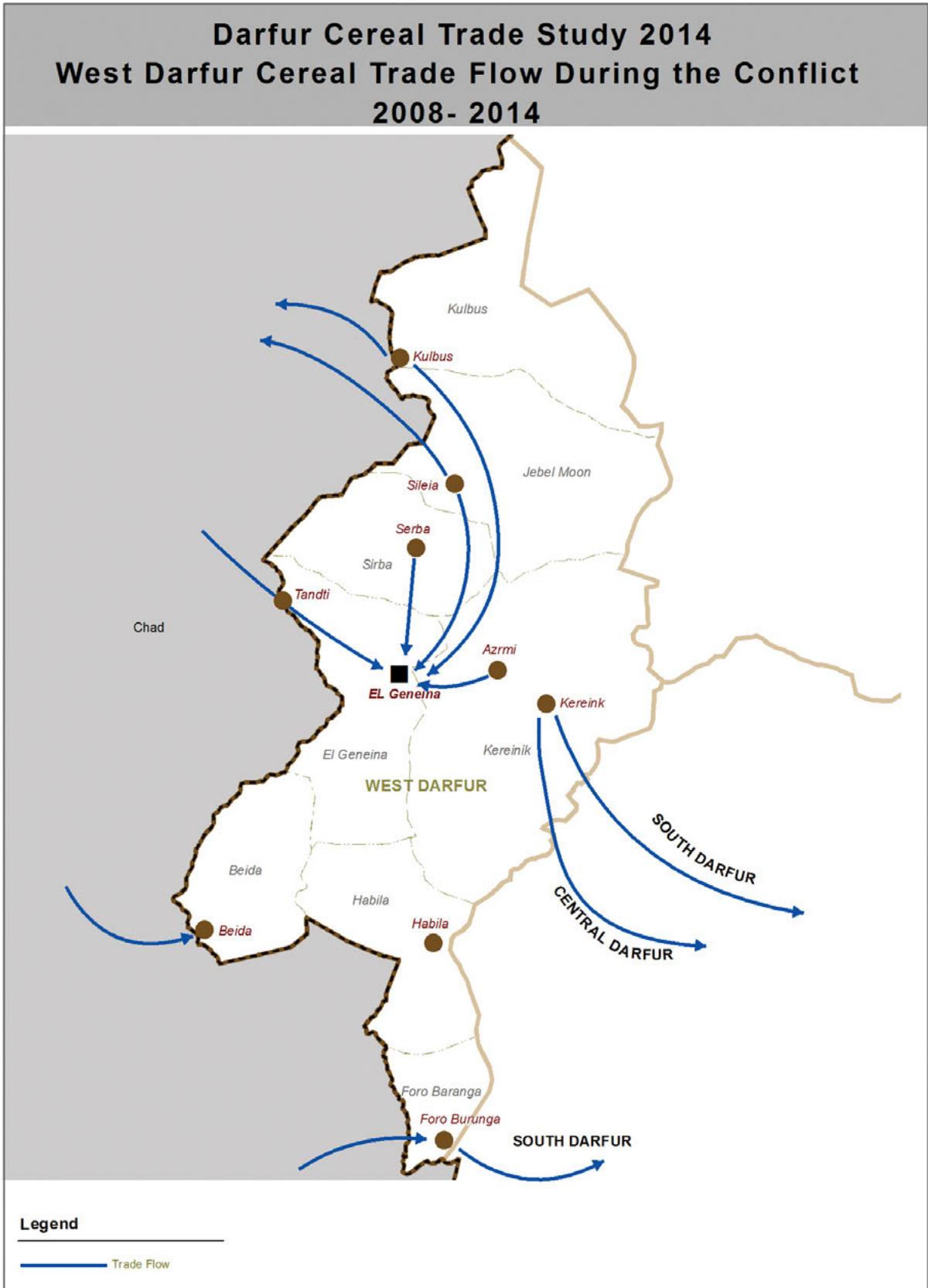
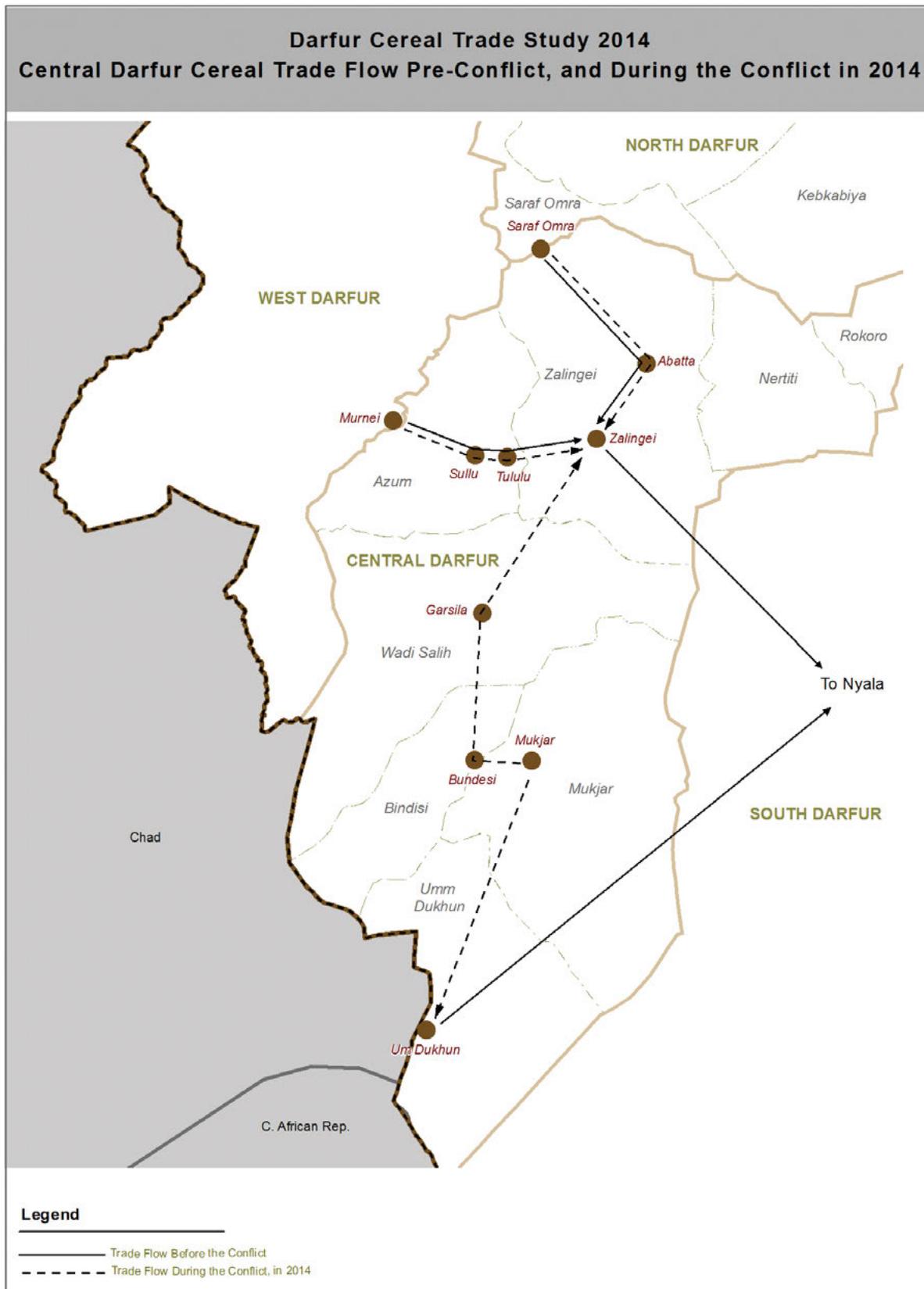


Figure 22: Central Darfur State – Cereal Trade Flows Pre-Conflict and During the Conflict in 2014



less continuously. This includes the Jebel Marra area, which has continued to supply El Fashir market with high-quality white millet throughout the conflict. Despite crossing conflict lines, trade flows out of Jebel Marra have been remarkably resilient, frequently changing according to the conflict dynamics. In 2008, the main trade flow was from Suni to El Fasher, later replaced by trade flows from the SLA-controlled Fungu market, for a more direct route. See Figure 23. The cash crop trade study revealed a similar pattern of resilience of the orange trade from the Jebel Marra area throughout the conflict years (Buchanan-Smith et al., 2013). However, much smaller quantities of cereals are coming from Jebel Marra now, just two to three trucks per week to El Fashir when security

permits, bringing a range of commodities including oranges, dried tomatoes, and usually between 20 to 25 sacks of millet per truck. Long-distance trade flows of millet to Ed Daien have also remained surprisingly constant during the conflict years, from Um Tajok, Kerenik, and El Geneina in West Darfur, from Saraf Omra in North Darfur, and from Umm Dukhn in Central Darfur (until tribal conflict affected this trade route in 2013), while trade flows from areas closer to Ed Daien have stopped.

During the conflict years, Saraf Omra has emerged as a very important source of cereals to many of Darfur's major towns, yet has been at the heart of fighting and insecurity in 2014, with significant consequences for trade. See Box 9.

Box 9. Case study of Saraf Omra: a major source of supply of cereals, disrupted by conflict in 2013 and 2014

Saraf Omra has long been an important area for agricultural production in North Darfur, with strong trade links because of its proximity to West, Central, and South Darfur States. During the conflict years, its importance as a source of cereals to all Darfur's state capitals (although less to El Geneina) has grown, and the number of cereal traders operating between Saraf Omra and other markets in Darfur has risen. This is principally because there was little displacement from rural areas around Saraf Omra early in the conflict, until 2013, and there has been an increase in the area under irrigation during the conflict years. In 2013, violent conflict erupted over control of the Jebel Amir gold-mining site,⁵⁹ close to Saraf Omra, causing displacement from the villages of Krakir, Umjarwa, Safra, Dadia, Gozarda, and Khamal. This still had minimal impact on cereal trade flows from the Saraf Omra area. This changed in 2014: Saraf Omra was at the heart of conflict in North Darfur, in the power struggle between the border guards led by Musa Hilal and the Governor of North Darfur. In March 2014, the market in Saraf Omra was burned to the ground, there was further displacement from some villages close to Saraf Omra, including Marfeina as well as Sereif, and trade routes out of the area were closed. Taking control of Saraf Omra (as well as some other towns in North Darfur, including Kutum and Kebkabiya), Musa Hilal's forces drove out all government officials from Saraf Omra. This had an immediate impact on cereal prices across Darfur. In Nyala, for example, the price of millet jumped by SDG 100 per sack (a 25% increase) within a week. Trade flows have since resumed, although they are curtailed and heavily controlled, and a fee of SDG 30 per sack of cereals has been imposed by the new authorities in Saraf Omra. This contributed to cereal price rises across Darfur before the 2014 agricultural season.⁶⁰ The dependence of Darfur's major urban centers on Saraf Omra for cereals is clear. Control of that trade is also highly political. Land Cruisers owned by militias now dominate trade flows out of the area, and this has become an important source of income to them, in effect fuelling the war economy. There are also a number of checkpoints on trade routes out of Saraf Omra, most of them informal and charging fees. During field work for this study, in May 2014, there were seven checkpoints between Saraf Omra and Zalingei, charging fees of between SDG 5 and SDG 10 per truck; before the conflict there were just two checkpoints, both operated by government.

⁵⁹ Between the Northern Rizeygat and Beni Hussein tribes.

⁶⁰ See, for example, DDRA's Trade and Market Bulletin for Central Darfur, for March to May 2014 (Vol. 1, no. 4).

7.2 Food aid as a source of supply to the cereal market

Food aid was extremely important as a source of supply to Darfur's cereal markets in the early years of the conflict, a deliberate strategy by WFP as generous cereal rations were intended to support the market as well as household consumption. This has been well-documented.⁶¹ In late 2007, cereal traders in Nyala estimated that there was three times as much food aid grain in Nyala market as there were locally produced cereals. Cereal traders in El Fashir market came up with similar estimates (Buchanan-Smith and Fadul, 2008), and traders in El Geneina reported that food aid was the main source of cereals in the market. Most of the food aid entering the market was sorghum and wheat, sold by IDPs and other food aid beneficiaries to raise income for other consumption needs. WFP annual assessments indicate that the proportion of households selling part of their ration fell from over 40% in 2005 to less than 16% in 2008. See Annex 5. WFP staff in South Darfur estimate the proportion sold in 2014, when field work for this study was being carried out, to be around 15%, even though food aid decreased since 2008, because of the need to pay for milling costs.⁶²

Wheat was the main cereal provided as part of the food aid ration in 2005, and formed 30–35% of the cereal ration in 2003 and 2006 (Dorosh and Subran, 2009). However, this was not a traditional staple for Darfur, and some of the ration was sold, fuelling an exceptional but profitable trade in wheat between Darfur and Central Sudan. See Box 10 for a description of the trade in both food aid wheat and food aid sorghum.

Traders interviewed for this cereal trade study described how food aid supplies started to decline from about 2008. By 2010, food aid was no longer the major source of supply to El Fashir's cereal market and similarly declined in availability in other markets including El Geneina, Kass, Zalingei, and Ed Daien markets. This was the year that WFP reduced the ration for general food distribution, started to transition resident communities to seasonal support, and began to pilot the food voucher scheme. By 2014, cereal traders in Zalingei market estimated that food aid sorghum accounted for only about 10% of total supply in 2014. The experience of one cereal trader in Kass illustrates the decline in supply of food aid sorghum. In 2003/04, when the food aid operation was just getting off the

Box 10. The trade in food aid cereals between Darfur and Central Sudan⁶³

Between 2004 and 2008, there was a flourishing trade in food aid cereals between Darfur's main towns and Central Sudan, especially Khartoum, of food aid wheat until 2006, and of food aid sorghum until 2008. In 2006, between seven and ten trucks reportedly left El Fashir each week for Central Sudan, carrying food aid wheat, which had just been transported by WFP from Central Sudan. The quantity increased during food aid distributions. In some towns, including Zalingei, new traders entered the cereal market at this time, solely to trade food aid wheat, and subsequently left the sector when food aid wheat supplies dried up. From September 2004, sorghum prices in Darfur were the lowest in the country, even lower than the main sorghum-production areas in Gedaref (Hamid et al., 2005). In 2006, sorghum prices in El Fashir were 39% lower than in Khartoum, and wheat prices were 88% lower than in Sudan's wheat-producing areas in Northern State (Buchanan-Smith and Jaspars, 2006). These substantial price differentials made this a profitable trade.

⁶¹ See Buchanan-Smith and Jaspars (2006), and Buchanan-Smith and Fadul (2008).

⁶² Estimates from 2006 based on Buchanan-Smith and Jaspars (2006). Estimates for 2014 provided by WFP staff in South Darfur.

⁶³ The data in this box is drawn from the WFP-commissioned study: "Conflict, Camps and Coercion" (Buchanan-Smith and Jaspars, 2006).

ground, he bought around 50 sacks of food aid sorghum per day; in 2006/07, when the food aid operation was at its peak, he bought 70 sacks per day; by March 2014, he was able to buy only 5 sacks of food aid sorghum per day. The experience of two cereal traders in El Fashir illustrates well the rise and fall of the trade in food aid cereals during the last decade. See Box 11.

As the quantity of food aid provided by WFP has declined, cereals provided by government in Darfur through the Strategic Grain Reserve appear to have increased;⁶⁴ since 2006/07, mostly sorghum and millet. As with WFP food aid, some of this is sold in the market. In El Fashir, this has been an important source of supply during the lean season of 2013/14 as demand for cereals has risen, to meet needs generated by the food voucher program, described in Section 12 below.

7.3 Locality level policy re movement of grain

There is a long history in Darfur of local authorities restricting the movement of cereals during years of poor harvest in an effort to

protect supplies. During the 1985 emergency, it was prohibited to move grain across district boundaries, and a number of Area and Rural Councils reinforced those regulations in 1987 and 1988. The 1988 Grain Market Study concluded that:

there does not appear to be a regionally determined policy regarding grain movement restrictions. Each local authority takes its own initiative in the type of restrictions and severity with which they are imposed. While these local authorities will always be responsible for implementing the regulations, some regional coordination is required to maintain a regional perspective and overview. (Buchanan-Smith, 1988, 49)

The same practice of locality authorities restricting the movement of cereals around Darfur was found during field work for this study in 2014. For example, Sulo and Wadi Salih localities in Central Darfur State had prevented the movement of cereals out of their respective localities. In West Darfur, Kereinik, El Geneina, and Foro Boranga locality authorities had imposed similar restrictions, and food voucher

Box 11. Trading food aid: the experience of two cereal traders in El Fashir

An experienced *female cereal retailer* in Umdafasso grain market in El Fashir describes how she used to buy 250 to 300 sacks of food aid sorghum per month from Abu Shouk IDP camp between 2004 and 2008. Each sack was around 50 kg. At this time, there were only about 20 to 40 sacks of locally produced millet entering Umdafasso market each week. As food aid rations declined and as food vouchers were introduced into the camps around El Fashir from 2011, the supply of food aid sorghum to the market has dwindled. By April 2014, when we interviewed this trader, she was struggling to find even one sack of food aid sorghum to buy in El Fashir. She described how this has impacted the overall cereal market: many traders have switched out of cereal trading to other more profitable businesses, or they have gone bankrupt.

A *male cereal wholesaler*, who entered the cereal market in 2005, describes how he used to trade 2,000 to 3,000 sacks (of 50 kg each) of food aid sorghum per week between El Fashir and North Kordofan, Omdurman and South Sudan—the latter channeled through Ed Daien. Between 2009 and 2011, when the food aid rations were cut, he was only about to trade 500 sacks per week. In 2012, this dropped again, to 100 to 200 sacks. By 2014, he had stopped trading in food aid completely.

⁶⁴ Some of this is for the military.

traders in El Geneina commented that this had a negative impact on their ability to provide cereals through the voucher scheme.

While the intention of the locality authorities—mostly in areas of surplus cereal production—to protect their cereal supplies is understandable, these restrictions impede the free flow of the cereal trade, and the same conclusion applies in 2014 as in 1988: there is no state-level or regional approach to controlling the movement of cereals, with the result that it is happening in a piecemeal and distorting fashion.

7.4 Conclusions

Darfur's state capitals have mostly become dependent on fewer locations for their cereal supplies as conflict has disrupted many production areas. Meanwhile, Saraf Omra has become strategically important as a source of supply to at least four of Darfur's five state capitals. The resilience of some trade flows throughout the conflict years is striking, including the cereal trade across conflict lines, from rebel-held parts of Jebel Marra to El Fashir. While food assistance was an extremely important source of supply in the early conflict years, shoring up grain markets, it has been a much less significant source of supply from 2010 onwards as general food distribution reduced. Uncoordinated restrictions on grain movements by locality authorities are having a distortionary impact on grain flows within the Darfur region.

8. THE CEREAL TRADE IN DARFUR DURING THE CONFLICT YEARS: VOLUMES OF CEREALS TRADED AND PRICE TRENDS



The volume of cereals traded in Darfur in 2014 fell substantially

8.1 Volume and price trends

In 2006, cereal traders in El Fashir reported that flows of locally produced cereals into the market had declined by over 80%; traders in Nyala estimated that the decline had been 50 to 60% (Buchanan-Smith and Jaspars, 2006). The overall pattern in most of Darfur's secondary and urban markets during the first five years of the conflict, until about 2008, is of small flows of locally produced millet but increasing volumes of sorghum, most of it food aid sorghum.

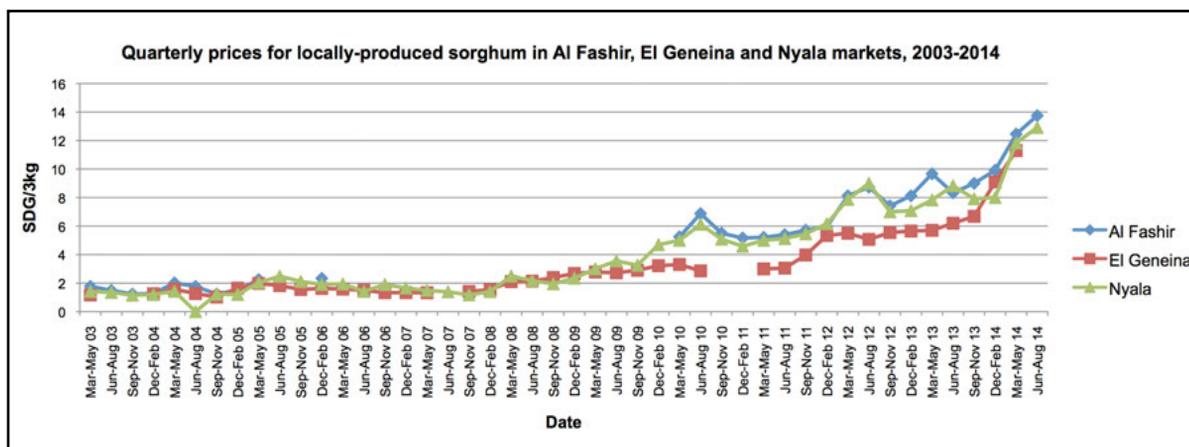
As described in Box 11 above, many cereal traders had flourishing businesses trading large quantities of food aid, at least until 2008. This had a major impact in stabilizing cereal prices, a positive consequence of the food assistance operation, as intended by WFP, and one that was widely welcomed by traders and consumers alike. See Figure 24. But the situation is very different in 2013/2014. Some cereal traders in El Fashir have moved out of the market completely.

Others, for example in Zalingei, describe how the volumes of food aid sorghum they handle now, in 2014, is about one-fifth of the volume they handled in 2006. The consequence of an extremely poor harvest across Darfur in 2013/14, exacerbated by insecurity in key production areas and declining food aid, is record high cereal prices. See Figure 24.

Individual traders interviewed for this study each reported a substantial fall in the volume of cereals (of all types) they are handling in 2014. This is most striking in El Fashir. A retailer in Umdafasso market, who has been in business for 16 years, describes selling 50 to 60 sacks per day pre-conflict. By March 2014, he was selling only 3–4 sacks per day. A petty trader in El Fashir used to sell half to one sack (45 to 90 kg) of processed millet;⁶⁵ in March 2014 she was only selling one *kora* per day (1.6 kg), because millet supplies were so limited and few consumers could afford the very high price it commanded. WFP's recent market assessment found that

⁶⁵ This is known as *daminga*, and is decorticated millet soaked in water for 2 to 3 days.

Figure 24: Quarterly average price of locally-produced sorghum, El Fashir, El Geneina and Nyala markets, 2003-2014



Source: Price data from WFP VAM, Sudan

trader sales during the 2013/14 harvest period had fallen for about half the traders surveyed; for one-third of traders, sales had fallen by more than 15%. They concluded that almost 81% of cereal retailers may not be able to meet demand when local production has been so poor (WFP, 2014a).

When plentiful supplies of food aid were available, it clearly had a stabilizing impact on the market. But not all towns in Darfur received food aid. Two that did not have been selected as case studies for this research: El Lait in North

Darfur and Buram in South Darfur. The experience of cereal trading in these two secondary markets is described in Box 12. Both, as non-recipients of food aid, have experienced exceptionally high cereal prices. In the case of Buram, this is unusual and quite different from the pre-conflict period, when it would have consistently registered some of the lowest cereal prices across Darfur. El Lait, as a non-cereal but cash-crop-producing area, tends to record higher cereal prices than many other markets in North Darfur; these appear to have been exceptionally high in the conflict years.

Box 12. The cereal market in two towns in Darfur that have not received food aid: Buram in South Darfur and El Lait in North Darfur

Buram

Buram, in the far south of South Darfur, used to be an important cereal-producing area pre-conflict, supplying Nyala and Ed Daien towns. It was also an important groundnut-producing area. Trade routes from Buram were disrupted early in the conflict, including the trade route for cereals to Nyala, which passed through Gareida, which was SLA-controlled by 2005/06. Localized tribal conflict in the area initially flared up between Buram and Gareida, and then between Buram and Tullus, between 2007 and 2009. This further disrupted trade flows from Buram to Ed Daien as well as to Nyala. Livelihoods dependent on the trade in groundnuts, cereals, and livestock were badly affected.⁶⁶ However, deemed less “war-affected” than other parts of Darfur, and without a large IDP population, Buram has never received food aid. But in 2006, as groundnut and livestock prices plummeted, cereal prices were amongst the highest recorded in Darfur (Buchanan-Smith and Jaspars, 2006). In

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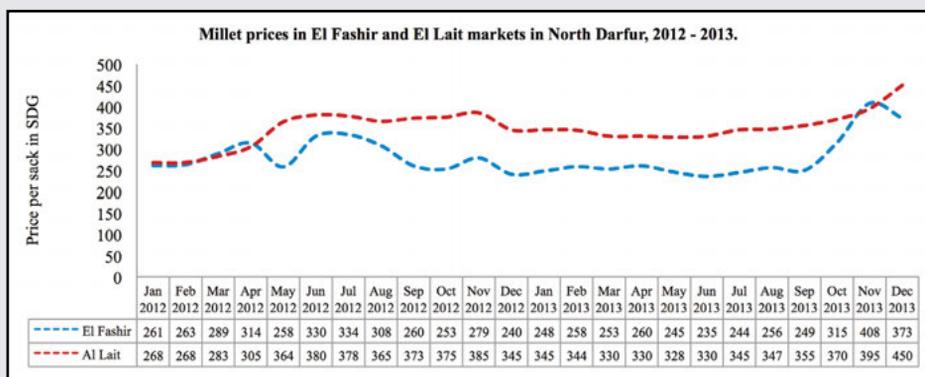
⁶⁶ See Buchanan-Smith and Jaspars (2006) for data on how the livestock and groundnut economies of Buram were affected by disruption to trade in the early years of the conflict.

May 2014, millet and sorghum prices were SDG 540 per sack and SDG 480 per 90 kg sack respectively, compared with SDG 520 per sack of millet in Nyala and SDG 350 per sack of sorghum. Thus, Buram continues to register cereal prices that are higher than in major areas of consumption, like Nyala. No food aid sorghum was available in Buram market in May 2014. During the conflict years, only very small amounts of food aid have trickled into the market from IDPs in Gareida.

El Lait

El Lait, in the northeast corner of North Darfur, is part of Darfur’s groundnut-producing zone. Groundnut producers have tended to rely on the market to meet their cereal consumption needs. According to cereal traders interviewed in El Lait, the quantity of cereals flowing into the market has changed little compared with pre-conflict; the geographical sources of supply have also remained fairly constant, with the exception of millet flows from Umm Dukhn and Foro Baranga, which were disrupted by recent conflict in the Umm Dukhn area in 2013/14. However, as there was no displacement from this area until March 2014 when the Rapid Response Force moved through El Lait, it received no food aid over the last decade until early April 2014 when the recently displaced were assisted. Cereal prices in El Lait have consistently been amongst the highest in North Darfur during the conflict years, as reported by DDRA’s MMTA project. See Figure 25.

Figure 25: Millet prices in El Fashir & El Lait markets, 2012-2013



Source: DDRA’s MMTA project

Traders in most markets researched as part of this cereal trade study indicated an overall fall in the volume of cereals being traded in the towns during the conflict years, although this is complicated by the fact that there are now many smaller markets within the IDP camps just outside the towns. There were two exceptions to this pattern within the town markets. First, in Ed Daien market, both large traders and petty traders say that they are trading at least twice the volume of cereals per week that they traded pre-conflict. This is attributed to the expansion

of the town as so many rural producers are now displaced into Ed Daien, but also Ed Daien has become a major point of entry into East, South, and West Darfur for large trade convoys. In the last year, some of these convoys have been stuck in Ed Daien for up to a month, awaiting improved security to move on to Nyala. The convoys can be up to 1,000 trucks at a time, clearly creating huge additional demand for cereals and other food stuffs. The other exception is Malha market in the north of North Darfur, where cereal supplies appear to have

increased in the last few years as the conflict has fuelled a more buoyant economy. See Box 13.

8.2 Conclusions

The stabilizing impact of food assistance in the market, from 2003 to about 2010, both in terms of volumes of cereals traded and prices, is clear. Carrying out this study in 2014, a year of very poor local production, is a stark reminder of the

volatility of cereal trade flows year to year, especially now that in-kind food aid levels have fallen. The case study markets described in this section are also a reminder that there are localized exceptions to the broad region-wide trends. These exceptions need to be contextualized to be fully understood, and may be the consequence of distortions related to the conflict and to the humanitarian response.

Box 13. Growth in the cereal market in Malha during the conflict years

Malha town appears to have expanded substantially during the conflict decade. Initially, this was due to displacement when the town grew from around 5,000 to 12,000 residents (Buchanan-Smith and Jaspars, 2006). As an indication of the growth of Malha town since 2006, there are now 21,000 people registered for food assistance. This growth is in part due to new employment opportunities in the town, especially recruitment of young men into the private and public sectors.⁶⁷ This has brought more income into the town and appears to have created a more buoyant economy. Pre-conflict, Malha was one of the most food-insecure towns in Darfur, with high levels of chronic poverty as pastoralist households who had lost their livestock due to drought and famine moved into the town. Cereals were mostly brought to Malha from neighboring areas in North Darfur such as Al Saiyah, Mellit, Umm Keddada, and Taweisha, often by camel and usually in small quantities. In the early years of the conflict, the market was still poorly supplied⁶⁸ and was vulnerable to periodic disruption of the trade route to Mellit. In 2006, very little food aid distributed in Malha was reaching the market as most households chose to store it instead, and there were almost no commercial cereal trade flows (Ibid.). By 2010, however, the situation looked quite different. Commercial trade flows had increased as cereals were brought into the market through two channels. First, four-wheel drive pick-ups and Land Cruisers, operated by traders and moving between markets within Darfur, brought cereals to Malha, most of which is sold direct to consumers or to petty traders in the market. The second, and more important, channel is transportation of cereals (mostly sorghum) by truck from Omdurman. Although this occasionally happened in the pre-conflict period,⁶⁹ in recent years it appears to have become a much more important trade flow. Both of these channels—4-wheel drive vehicles from within Darfur and trucks from Omdurman—have, since 2010, been delivering 150 to 200 sacks of cereals to Malha per week during the harvest season, and around 100 sacks per week in the hungry season in May/June. Similar to other markets in Darfur, however, flows of cereals have fallen in 2014, by almost 50%. During the harvest season of 2013/14, less than 100 sacks were delivered per week; in May/June 2014, only 30 to 40 sacks of cereals were delivered per week as prices soared, to SDG 600 for a sack of millet and to SDG 400 for a sack of sorghum.

⁶⁷ This includes the security sector, in terms of the Popular Defence Force (PDF) and border guards. Some ethnic Meidob have also returned to Malha from other areas.

⁶⁸ In 2006, for example, there was evidence of only a few *kora* of millet on sale in the market (Ibid.).

⁶⁹ See Buchanan-Smith (1988) for a description of the trade in cereals between Central Sudan and Mellit Area Council in 1987 and 1988.

9. TRADE ROUTES, TRANSPORTATION AND TRADING COSTS DURING THE CONFLICT YEARS



Farmers and traders have adapted their means of transportation during the conflict years

9.1 Trade routes, adaptations, and transport costs

Conflict and insecurity have disrupted trade routes and increased transportation and trading costs. The dynamic nature of the conflict means that traders must constantly adapt the routes they use. A few trade routes have been closed for almost the entire period of the conflict since 2003; for example the direct route between Saraf Omra, Kebkabiya, and El Fashir, through the Kowra mountains. This has only occasionally opened for short periods of time, for two to three weeks. For most of the last eleven years, traders have had to use the longer route from Saraf Omra and Kebkabiya through Kutum, although since March 2014 this route, too, has been disrupted.⁷⁰ See Figures 20b and 20c above. Some of the more significant and long-lasting disruptions to cereal trade routes are presented in Annex 6.

The means of transportation have also had to change. In many areas, it is no longer safe to move cereals using donkeys, horses, camels, or even small trucks. Instead, large trucks (with a capacity of 100 to 200 sacks) are being used for transportation, for cereals as well as for other commodities, and are moving as part of large, heavily guarded convoys. This is the case especially for cereals transported between state capitals, for example from Zalingei to El Geneina, from El Fashir to Nyala, and from Nyala to Ed Daien, where trains with military escorts are also being used. In North Darfur, there has been a different kind of adaptation, a scaling-down of the means of transportation as small four-wheel drive pick-ups are now used to bring cereals from rural areas to El Fashir market, since early in the conflict. There are two reasons for this: first, the volumes being transported are now too small for 10- to 25-ton trucks; second, trucks moving between markets are treated with greater suspicion than pick-ups,

⁷⁰ See DDRA's MMTA Trade and Market Bulletin for March to May 2014, Volume 4, no. 2.

and pick-ups use benzene, which is less popular with militia and rebel groups.

In the early conflict years, transporters describe how they carefully selected their truck drivers according to the area the truck was entering. As long as the driver was from the ethnic group residing in/controlling the area, safe passage was more assured. But as the conflict became more entrenched, this adaptation was no longer adequate; checkpoints were set up and numerous fees now have to be paid for safe passage.

These adaptations—in trade routes and in dealing with threats of insecurity—are part of the reason for rapidly rising transport costs

during the conflict years. Transport costs have risen by 100 to 1,000%, between primary markets and secondary markets, and between secondary markets. See Tables 6.1 and 6.2 in Annex 6. The main factors pushing up transport costs are the imposition of new fees by locality and state government, as well as informal fees charged at the numerous checkpoints, and the cost of protecting trucks and goods in transit. See Tables 5 and 6, which show the breakdown of transportation costs between Umm Dukhn and Ed Daien, and between Nyala and Radom. Large-scale traders are more likely to use government escorts, while smaller-scale traders are more likely to pay for their own private escorts (WFP, 2014a).

Table 5. Breakdown of transportation costs for cereals from Umm Dukhn to Ed Daien, pre-conflict and 2014

Item	Cost per sack of millet, pre-conflict	Cost per sack of millet, 2014
Transport cost	SDG 20	SDG 45
<i>Zakat</i>	10% of the sack price	10% of the sack price
Locality fees		SDG 10
Ministry of Finance fees		SDG 3
Armed escort for convoy		SDG 20
Total	SDG 20 plus <i>zakat</i>	SDG 78 plus <i>zakat</i>

Source: Key informant interviews with large-scale cereal traders in Ed Daien

Table 6. Breakdown of transportation costs for cereals from Nyala to Radom, pre-conflict and 2014

Item	Cost per truck, pre-conflict	Cost per truck, 2014
Transportation cost	SDG 20	SDG 100
Government services	SDG 10	
Town checkpoints–Nyala	SDG 5	SDG 45
Kashalongo checkpoint		SDG 10
Gareida checkpoint		SDG 10
Informal taxes in Buram		SDG 100
Informal taxes in Radom		SDG 100
Total	SDG 35	SDG 365

Source: Key informant interviews with large-scale cereal traders in Nyala

Travel times have also increased substantially, partly because of the need to travel as part of large, slow-moving convoys, and partly because of the deteriorating state of many of Darfur's roads. This is the case on major trade routes. For example, goods could be transported by truck between Zalingei and Nyala in 4 to 5 hours before the conflict; in 2014, the same journey took three days, as part of an escorted convoy. Pre-conflict, trucks carrying cereals from Umm Dukhn reached Nyala in 7 to 8 hours. Now the journey takes 12 to 14 hours. Travel times have also increased on shorter journeys. Within East Darfur, for example, journeys that used to take 1 hour between secondary markets and Ed Daien now take 1.5 to 2 hours because of the poor condition of the roads and the numerous checkpoints.

The rate of increase of transportation costs has accelerated in the last couple of years, also as inflation accelerated. For example, the cost of transporting a 100 kg sack of cereals from El Geneina to Nyala had increased by 50% between 2002 and 2012, but tripled between 2012 and 2013 to reach a record SDG 60 per sack. Federal government's removal of the fuel subsidy in September 2013 was a major factor causing the recent surge in transport costs. WFP's recent

market assessment demonstrates how the increase in fuel prices was passed on to the consumer in terms of higher commodity prices (WFP, 2014a).

On a more positive note, at the time of writing, the Salvation Road connecting El Fashir to Central Sudan is close to completion. This has already made a significant difference in travel times. By the end of 2014, when most of the road had been paved, the journey between El Fashir and Khartoum could be completed by bus in one day rather than three. Trucks could complete the journey in 24 hours compared with five to six days previously. And this has obviously reduced transportation costs.⁷¹ It is key to Darfur's cereal markets becoming better integrated into the national cereal market.

9.2 License fees

License fees for trading cereals have also increased sharply during the conflict years. As with transport costs, the rate of increase has accelerated in the last couple of years. See Table 7. Interestingly, license fees in Nyala are half the license fees in El Fashir and El Geneina, mainly because the authorities in South Darfur have a wider source of revenues to draw upon than in North or West Darfur.

Table 7. License fees for trading cereals in El Fashir, Nyala, and El Geneina

Year	Annual license fee for trading cereals (SDG p.a.)
Cereal trading in El Fashir	
Pre-conflict (1998–2000)	25
2010	125
2014	200
Cereal trading in Nyala	
2010	77
2012	93
2013	100
2014	117
Cereal trading in El Geneina	
2002	36
2010	112
2013	230

Source: Key informant interviews with cereal traders in El Fashir, Nyala, and El Geneina

⁷¹ See MMTA Trade and Market Bulletins, for North Darfur, June to August 2014, Vol. 4, no. 3; and for West Darfur, Vol. 3, no. 2.

9.3 Numbers of transporters

Despite these rises in transportation and trading costs, there appears to be a growing number of people engaged in the transportation sector. In Nyala, for example, transporters estimate that there used to be around 100 people involved in transportation; now there are 500 to 600, mostly renting trucks. Most transporters are involved in haulage of many different types of commodities, according to the prevailing market context and relative profitability, and do not specialize in any particular commodity. This apparent rise in the number of transporters partly reflects the growth of this sector during the conflict years, especially the growth in transportation of commodities into Darfur's main towns to meet the consumption needs of a large urban population, including a large international presence, especially in the form of UNAMID, but also reflects the struggle of displaced and urban households to find a profitable livelihood. Transporters interviewed for this study who have worked in the sector since the pre-conflict period describe declining profits during the conflict years as there are so many new entrants into this sector. They also make a distinction between the large transporters who are able to bid for, and win, contracts to transport WFP food aid, and the majority of transporters, who are operating on a much smaller scale. As WFP's food assistance program has contracted, so has the number of transporters engaged in food aid operations. In El Geneina, for example, there were only a couple of large transportation companies operating in the state in 2003. At the peak of the food aid operation, in 2006, the number expanded to 12 companies, but had fallen to only 6 by 2014 as the food aid operation contracted.

During the conflict, some military trucks have started to engage in commercial transportation, of cereals as well as other commodities, in some parts of Darfur. They have been involved in the transportation of cereals from Kass to Nyala, and from Saraf Omra and Mornei to Zalingei. Rarely do they have to pay checkpoint and other fees, giving them an immediate advantage over commercial transporters.

9.4 Conclusions

A major way in which the conflict has impacted the cereal trade is through the disruption to trade routes and transportation. While a few trade routes have been closed for most of the last decade, others open and close according to the constantly changing dynamics of the conflict. Traders and transporters have developed coping strategies to deal with this fluid situation and have shown remarkable adaptability, not only in switching routes, but also sometimes switching means of transportation. However, these adaptations incur increased costs, especially the cost of armed escorts. The other key factor pushing up trading costs has been the imposition of fees by locality authorities, and informal fees that have to be paid at the numerous checkpoints along Darfur's trading routes. Although the number of transporters operating in Darfur has increased during the conflict years, initially fuelled by the large food aid operation, profitability appears to have declined, especially as there are many new entrants into the sector.

10. ORGANIZATION OF THE CEREAL TRADE: CHANGING PATTERNS DURING THE CONFLICT YEARS



There is an increasing proportion of female cereal traders during the conflict years, especially petty traders

10.1 The market chain for cereals

The market chain for cereals in Darfur is traditionally shorter than the market chain for many other commodities in Darfur, especially livestock. Although the market chain might involve up to six middlemen over long distances, as mentioned in Section 3, as Dukheri et al. observe:

The chain might (also) be as short as producer to trader to wholesalers to consumers or producer to middlemen/grain traders to wholesalers to retailers then to consumers. Truckers and casual grain traders sometimes play the role of market agents. (2004, 17)

In some locations, the market chain may have become even shorter during the conflict years. In Central Darfur, for example, many middlemen appear to have dropped out of the chain, partly because the social fabric that underpinned trading relations has been shattered by the conflict, and large-scale traders in urban markets will no longer provide cash to small traders to purchase cereals in rural areas, and partly because

so many primary markets have closed. Thus, Zalingei market is dependent on local farmers bringing their produce to town; many traders regard it as too risky to take cash out of the town. Even where towns are now supplied from more distant sources, for example if cereal production locally has been disrupted by insecurity and displacement, there is no evidence that market chains have become any longer in terms of the number of traders handling grain before it reaches the consumer.

10.2 Numbers of cereal traders

As Darfur's population grew, pre-conflict, and as its towns expanded, so the number of merchants involved in cereal trading also grew. Whereas there had been around 30 large-scale traders in the cereal market in Nyala in 1988 (Buchanan-Smith, 1988), by 2002 there were around 100, according to cereal traders interviewed for this study. See Table 8. Early in the conflict years, many cereal traders went out of business, especially in El Geneina, where an estimated 30% of small-scale cereal traders went out of

business, and in El Fashir, although this pattern did not appear to have been repeated in Nyala (Buchanan-Smith and Fadul, 2008). But as food aid deliveries increased, and began to replace locally produced cereals in the market (as described above), this sustained the cereal market infrastructure and prevented many more traders leaving the business (Ibid.). Instead, in most markets visited for this study, the number of small-scale cereal traders has risen over the last 11 years: most dramatically in Nyala, where the number has tripled or quadrupled—see Table 8. In El Lait, there are three times as many small-scale traders as there were before the conflict and in Saraf Omra twice as many. From interviews conducted for this study, there appear to be a number of reasons for this:

- (1) there was the boost to cereal trading provided by in-kind food assistance, especially between 2006 and 2008. As the quantities of food aid have since declined, so has the number of cereal traders in some markets, including El Fashir. See figures on the number of cereal traders in Umdafasso market in El Fashir in Table 8 below;
- (2) as so many cereal producers became displaced and dependent on the market for their cereals in Darfur's main towns, new markets opened up. In El Fashir, for example, Al Mawashi market opened in the town, and the IDP camps around El Fashir developed their own substantial markets;

- (3) as other business opportunities contracted or vanished during the conflict years, trading cereals became an attractive option, not only for displaced farmers but also for traders displaced from rural areas and from small towns into Darfur's main urban centers.

As the number of small-scale traders has risen,⁷² most of them seem to be handling smaller quantities, as described in Section 8 above, an indication of how competitive cereal trading has become. Indeed, at the top end of the scale, there are many reports of long-term and large-scale cereal traders leaving the business in search of more profitable alternatives or because they lost their capital, usually early in the conflict years. In Umdafasso market in El Fashir, for example, the number of cereal wholesalers used to be around eight before the conflict; now there are just three, although some cereal traders are now operating outside the formal market, without licensed stores, to avoid taxation and becoming targets of insecurity. In secondary markets in some traditional cereal-producing areas that have been badly affected by insecurity, especially in South and Central Darfur, there has also been a significant fall in the number of cereal traders. See Table 9. Overall, there appears to have been a fall in the number of traders operating between markets in Darfur, a direct result of insecurity and therefore high transport costs and high risks. In Ed Daien, for example, although the number of cereal retailers in the town has increased about five times, the number of traders operating between states has quartered.

Table 8. Fluctuating numbers of small-scale cereal traders (mostly retailers), El Fashir and Nyala

Town	1988	Pre-conflict (2002)	2006–2008	2014
Nyala	30 approx.	100		300–400
El Fashir– Umdafasso market	12 approx.	45	70	23 approx.

Sources: 1988 data (Buchanan-Smith, 1988); other data from key informant interviews with cereal traders in El Fashir and Nyala, 2014

⁷² Some are IDPs and some have switched from other less profitable or more risky business ventures.

Of the markets researched for this study, only in Nyala and Saraf Omra does the number of traders operating between states appear to have increased substantially during the conflict years. In the case of Nyala, this is possibly because of the size of the population in Nyala town and therefore the very large demand for cereals. In the case of Saraf Omra, this reflects the significance of Saraf Omra as a source of cereals during the conflict years. See Box 9 above.

A striking and apparently universal change in market organization during the conflict years is the dramatic increase in the number of petty traders of cereals in urban markets across Darfur. See Table 10. This is again a reflection of the limited livelihood options available in Darfur's main towns; many petty traders were displaced to towns by the conflict. Some petty traders in IDP camp markets act as agents for retailers in

the town market, buying food aid from IDPs that is then sold in the town market to urban consumers. The majority of petty traders are women, an estimated 90% in some markets, often female heads of households. In El Fashir, long-established cereal traders observe that petty traders used to be older women; now they are predominantly young women. In El Geneina, women who used to earn a living out of charcoal trading have shifted into petty trading of cereals as charcoal supplies have dried up.

This pattern of declining numbers of large-scale traders of cereals, especially wholesalers, yet large increases in the numbers of small-scale cereal traders and petty traders, is also evident in the cash crop market (Buchanan-Smith et al., 2013). It indicates a much more fluid movement of traders in and out of the cereal market during the conflict years compared with before. See also Box 14.

Table 9. Falling numbers of cereal traders in secondary markets badly affected by insecurity

Market	Type of trader	Number of cereal traders	
		Pre-conflict	2014
Umm Dukhn	Cereal retailers inside the town	50–60	15–20
	Cereal traders operating between towns	20–25	5–10
Boram	Cereal retailers inside the town	15	9
	Cereal traders operating between towns	20	3
Abu Rey	Cereal retailers inside the town	300	50
	Cereal traders operating between towns	250	75

Sources: Key informant interviews with cereal traders in Umm Dukhn, Boram, and Abu Rey respectively, in 2014

Table 10. Sharp increase in numbers of petty traders of cereals across Darfur

Market	Estimated no. of petty traders of cereals pre-conflict	Estimated no. of petty traders of cereals in 2014
Nyala	200	500–700
El Fashir (Umdafasso market)	15	200–250
El Geneina	70	400–600
Zalingei	110	320
Ed Daien	100	500–700

Box 14. Cameo of a cereal wholesaler in El Fashir, Umdafasso market

A male cereal trader began trading cereals in 1998, bringing supplies from primary markets in North Darfur to El Fashir. Early in the conflict, he left El Fashir for Khartoum because of the destruction of many primary markets in North Darfur and the general insecurity. In 2006 (at the peak of the food aid operation), he resumed trading cereals in El Fashir, sourcing millet from Jebel Marra (Dirbat and then Fango market when Dirbat market stopped functioning in 2010). In 2012, he again stopped trading cereals as the security situation deteriorated in North Darfur. He left for gold prospecting in Southern Kordofan, but was not successful and recommenced cereal trading in 2013.

Many more women have become involved in cereal trading in Darfur during the conflict years. This is most evident in terms of the expansion of petty trading, almost totally dominated by women. But it is also evident amongst cereal retailers and even large-scale traders, except in areas of high insecurity, where women are less likely to have entered the trade. See Table 11 for estimates from Zalingei market of the increased proportion of women engaged in cereal trading. However, there is evidence that women are more constrained than men in expanding their cereal trading business, partly because of lack of access to credit, but also because of lack of access to trading institutions, cultural constraints, and because of the dominance of the wholesale business by men.

10.3 Storage facilities

Storage facilities for cereals in Darfur's private sector are very limited. The findings of this study concur with the findings of an earlier market assessment, which was that most traders' stores have a capacity of only 200 to 600 sacks (Al-Feel and El Awad, 2011). Limited storage

was identified as a constraint by many of the traders interviewed for this study.

While large-scale cereal traders may own their own stores, or rent them within the private sector, cereal retailers often rent their stores from the locality authorities. In central El Fashir, the rent was around SDG 300 per month in April 2014. But most cereal traders must also now hire armed guards to protect their stores. In El Fashir, in April 2014 it cost around SDG 200 per month for one armed guard.

10.4 Credit for traders

In line with Islamic banking policy, formal credit is not provided for cereal trading in Sudan. Some large traders explained that they did not require credit before the conflict began as they had sufficient capital. Other traders, especially cereal retailers, mostly relied on informal credit in-kind, often paying their suppliers (cereal wholesalers or traders bringing cereals from primary markets) once they had sold their cereal stock.

Table 11. Estimated percentage of women and men engaged in cereal trading in Zalingei

Type of trader	2003		2006		2013	
	Women	Men	Women	Men	Women	Men
Large-scale trader	10	90	20	80	30	70
Small-scale trader	20	80	50	50	80	20
Petty trader	95	5	98	2	99	1

Source: Research team estimates based on information collected in key informant interviews

During the conflict years, however, lack of capital has emerged as a major constraint to cereal trading in Darfur, as cereal prices and transportation costs have soared. Many traders interviewed for this study raised the issue of depreciating capital in the face of rapidly rising cereal prices. More than half of the sampled traders in WFP's market assessment cited lack of access to credit and limited resources as major limitations to their activities (WFP, 2014a). The willingness of traders to offer each other credit informally, through delayed payments, has declined as the risks of trading have risen and as distrust between ethnic groups has deepened. While some traders may be able to access informal sources of credit in the current context, for example food voucher traders, this is nearly always from relatives of the same ethnic group. No traders interviewed for this study had accessed credit from formal institutions during the conflict years (even though they were trading in a range of different commodities as well as cereals), and many said they were reluctant to explore this option because of the current risks of trading and therefore the fear of defaulting and its consequences.

Nevertheless, it appears that a number of traders are allowing their customers to buy on credit. In the trader survey for WFP's market assessment, 79% said they provided credit to their customers (WFP, 2014a). However, interviews for this study revealed a higher rate of default on cereals purchased on credit during the conflict years.

10.5 Conclusions

Some significant changes have taken place in the organization of the cereal market during eleven years of conflict. The numbers of traders transporting cereals between state capitals, and wholesalers dealing in large quantities of cereals, appear to have fallen, with a few exceptions such as Nyala and Saraf Omra. For those still in business, there are incentives to move at least some of their trade out of the formal sector, to avoid high levels of taxation and exposure to the risk of attack. Meanwhile, the number of small-scale cereal retailers has increased, and the number of petty traders has increased exponentially. This reflects the limited livelihood options available to Darfur's much-inflated urban

population, including IDP households. Another significant change is the increasing proportion of female cereal traders especially, but not only, at the petty trader level. Shortage of capital emerges as a major constraint for many traders, as cereal prices have risen rapidly, as informal credit networks have broken down, and as formal credit is inaccessible for most traders. Women are often more constrained than men in their access to credit.

11. CROSS-BORDER TRADE IN CEREALS FROM DARFUR DURING THE CONFLICT YEARS

11.1 Cross-border trade with Chad, CAR, and South Sudan

Darfur has a long tradition of cross-border trade, with Chad, the Central African Republic, and now “cross-border” to South Sudan. Foro Boranga, Umm Dukhn, and Umm Dafog have traditionally been important centers of the trade with Sudan’s western neighbors, Chad and Central African Republic. Indeed, trading links with Chad, and integration of the economy between Darfur and the Sila region in eastern Chad, goes back more than a century, to the early 1900s (Young et al., 2014). Many farmers from the border areas in West Darfur also have farms in Chad, and these have long been an important source of cereals for markets in West Darfur close to the border, from Kulbus to Foro Boranga, well before the outbreak of the current conflict in 2003.

During the conflict years, however, cereal production in Chad has become an even more important source of supply for West Darfur, and in particular for El Geneina. This was already apparent in 2008:

Villages in West Darfur that used to supply Al Geneina now provide an estimated ten percent of locally produced cereals according to grain traders with

the remainder coming from Chad.
(Buchanan-Smith and Fadul, 2008, 15)

Tendelti market in West Darfur is at the center of this cross-border cereal trade between Chad and Darfur. See Box 15. Trade flows fluctuate according to the prevailing political context and the performance of the agricultural season. Between 2006 and 2010, when relationships between the Government of Sudan and Government of Chad were at an all-time low and there were high levels of insecurity and conflict along Sudan’s western border, at times the border was closed, and the flow of cereals cross-border from Chad was much reduced. By 2011, the relationship between the Governments of Sudan and Chad had significantly improved, and the cross-border trade recovered. Traders in El Geneina estimate that in 2006 only about 60 sacks (both 90 kg sacks of millet and 50 kg sacks of sorghum) were entering the Geneina market per week from Tendelti, but this increased to around 300 sacks per week in 2011. By 2014, trade flows had fallen again, to an estimated 100 sacks per week, partly a consequence of the very poor harvest in 2013/14 but also because of restrictions imposed by the Government of Chad on the cross-border movement of cereals. The cross-border trade is mainly of locally produced millet.

Box 15. Tendelti market: at the center of the cross-border trade in cereals between Chad and Sudan

Tendelti market used to be supplied by local farmers in West Darfur as well as from farms on the Chadian side of the border. Now it is almost entirely supplied from Chad as farmers in West Darfur have become displaced and as traditional mechanisms for negotiating herders’ access to farms in West Darfur for grazing their livestock have broken down during the conflict. Many farmers from this part of West Darfur are now farming on the Chadian side of the border where there is less risk of fields being grazed before the harvest. They are bringing their produce to Tendelti market for sale, mainly in small quantities by donkey. During the years of hostility between the Governments of Sudan and Chad, around 2006, cereals were often transported at night, to avoid interception by the Chadian authorities. Women dominate this cross-border trade, both as producers and as small-scale traders. However, the number of traders fluctuates according to the trading context. By 2014, the

continued on next page

number had fallen as supplies contracted and as the Chadian government imposed a ban on the cross-border movement of cereals. Nevertheless, this cross-border trade is very important for many livelihoods, for cereal producers selling part of their harvest, and for those engaged in this cross-border trade, directly and as small-scale transporters, as well as consumers benefiting from it.

Umm Dukhn, now in Central Darfur State, is also an important market for the cross-border trade in cereals with Chad, but also with Central African Republic. As with Tendelti, this is predominantly informal trade; in other words, smuggling. Pre-conflict, it was subject to informal taxes and levies imposed by the army in Chad; during the conflict years, it is also subject to informal taxes imposed by militias in Darfur. In 2013/14, an estimated 15 to 20 traders are engaged in this cross-border trade but, as in Tendelti, their business has been impacted by restrictions on cereal movements imposed by the Government of Chad. According to traders in Umm Dukhn interviewed for this study, food aid programs on both sides of the border invigorated the cross-border trade, especially the trade in food aid oil provided to Darfur, which was sold across the border in Chad in the early years of the conflict when the food aid program was at its peak. Cereals produced in Chad, mainly millet, are also being sold across the border in Darfur.

More important in terms of volume than the cross-border trade between Chad and Darfur, however, is the cross-border trade between Darfur and South Sudan. Informal cereal trading between Darfur and South Sudan is not new. During the north-south civil war, Darfur was an important source of cereals to urban areas in South Sudan such as Raja and Wau, as far back as the 1980s (Buchanan-Smith, 1988). Large price differentials between Darfur and South Sudan continued to fuel this informal cereal trade,⁷³ boosted by the availability of food aid sorghum in Darfur in the last decade. But the overall quantities traded are reported to have declined compared with the pre-conflict period,

especially since secession and the trade embargo imposed by the government of Sudan made this trade illegal, thus increasing the risks and the costs. It is now heavily impacted by the state of relations between the Governments of Sudan and South Sudan, which have been notoriously poor since South Sudan seceded.

Nevertheless, the trade has continued, by truck and by donkey, and traders reported a softening of controls at checkpoints during 2014, indicating a greater tolerance, even implicit encouragement, of this trade in recent months. But despite increasing price differentials between Darfur and South Sudan—during field work for this study, in April 2014, cereal traders in Nyala reported that the price of sorghum in South Sudan, in Bahr El Ghazal, was twice as high as the price in Nyala, taking account of current exchange rates—the conflict and current insecurity in South Sudan have acted as a further disincentive to cross-border trading, and a number of Darfuri traders have lost their lives in Wau.

Although the volume of this cross-border trade may have declined in the last few years, the cereal market in Ed Daien is still strongly oriented to South Sudan. According to key informants in Ed Daien market, approximately 10 trucks, each loaded with 150 sacks of 100 kg (15 MT) were transporting cereals from Ed Daien to South Sudan per week during the dry season (December 2013 to May/June 2014). In a year of poor cereal production, like 2013/14, this cross-border trade is seen to be exacerbating local shortages of cereals, especially in East and South Darfur, and pushing up prices, for example in Ed Daien and Buram.

⁷³ In 2006, the price of sorghum in Raja and Wau was more than 30% higher than the price in Nyala, thus encouraging the flow of cereals from Nyala to South Sudan (Buchanan-Smith and Jaspars, 2006).

There are three main trade routes between Darfur and South Sudan, all still functioning:

1. from Gareida through Buram to Bahr El Arab, then Raja and Wau;
2. from Nyala through Ed Daien, to Abu Matariq, then Samaha on the border, into South Sudan;
3. from Nyala through Tullus, Wad Hajam, El Feid, and El Ferga, to Aweil, Raja, and Wau.

11.2 Conclusions

The findings of this study reveal a thriving, albeit mostly informal, cross-border trade in cereals from Darfur, especially to Chad and South Sudan, but also to Central African Republic. The scale and direction of this trade is strongly influenced by conflict, on the one hand creating unnaturally high price differentials across the border, for example between South Darfur and South Sudan in 2014, fuelling an outflow of grain, and between West Darfur and Chad since the Darfur conflict began, fuelling an inflow from Chad. In the latter case, the cross-border trade has become an important source of supply to some markets, including El Geneina. But on the other hand, insecurity associated with conflict also acts as a disincentive because of the increased risks of trading. The lack of policy implementation on the ground, as described in Section 2, to guide and manage this trade, apart from periodic trade bans, is striking.

12. THE IMPACT OF THE FOOD VOUCHER PROGRAM ON CEREAL MARKETS IN DARFUR

12.1 Introduction to the food voucher program

As described in Section 5 above, WFP began to pilot food vouchers in Darfur in 2010 as an alternative to general food distribution. The main purpose of the voucher program is greater cost-efficiency for WFP, increased choice for beneficiaries, and strengthening of markets. It is also expected to create market multiplier effects and stimulate production (WFP, 2014c). The appropriateness and feasibility of food vouchers needs to be determined on the basis of an assessment of beneficiary needs, local food availability, market functioning, inflation, beneficiary access to markets, trader capacity, as well as the safety of financial transfers and security in general (Ibid.). See Box 16 for a

description of how the food voucher program works.

The food voucher program is now largest in North Darfur, particularly around El Fashir, where it was introduced into Abu Shouk and Al Salaam camps⁷⁴ as well as into Saraf Omra and Kebkabiya in 2011, and into Zamzam camp in early 2014. Until 2014, the food voucher program was implemented on a relatively small scale in West Darfur. It has been piloted in Otash camp in South Darfur since 2012, but not yet implemented in other camps in South Darfur, nor in East Darfur. The findings in this section therefore focus predominantly on evidence of the impact of the food voucher program on cereal markets in North Darfur, and especially in and around El Fashir.

Box 16. How WFP's food voucher program works⁷⁵

The voucher used in Darfur specifies 14 food items that can be purchased, ranging from millet or sorghum to oil, sugar, meat, and vegetables. The cash value of the voucher is determined by the local market prices of these selected food items, multiplied by the in-kind ration basket. Local milling costs are added to the cash value of the voucher. Each household member receives one voucher.

Distribution of vouchers is done once a month by WFP's cooperating partner. The prices for all approved voucher commodities are set in a meeting with traders, beneficiary representatives, and other stakeholders, such as the implementing agency and WFP. Beneficiaries are able to redeem vouchers with local traders contracted by WFP. The full value of one voucher has to be redeemed with the same trader, but beneficiary households can use different vouchers with different traders.

Traders interested in participating in the voucher program have to submit an Expression of Interest (EOI) and, if selected, are requested to submit a proposal to WFP. WFP's selection criteria in the EOI include, but are not limited to: financial capacity, bank account, valid trading license, acceptance of WFP payment terms, and agreement to WFP monitoring and inspection.

Traders contracted by WFP have to make the agreed number of food items available. They may provide these in mobile shops, e.g., in the IDP camps, or through their regular shops in the market. If the ration card numbers and numbers on the vouchers match, s/he can provide the requested items to the beneficiary. The trader redeems the paper vouchers with WFP. S/he needs to indicate what food items were bought with each voucher. WFP's verification system then checks for duplicate vouchers and for unredeemed vouchers. WFP's cooperating partner carries out post-distribution monitoring, monitoring of prices and trends, and keeps a database of the commodities procured per beneficiary/voucher to track purchase patterns.

⁷⁴ By 2013, there were 85,100 food voucher beneficiaries in Abu Shouk and Al Salaam camps (Bizarri, 2013).

⁷⁵ This box is based on WFP (2014c). "WFP Sudan Vouchers Standard Operating Procedure; WFP (2011). Food Vouchers."

12.2 The impact of the food voucher program on the cereal market

Assessments that preceded the food voucher program indicated some ambivalence to cereals being part of the program, mainly due to concerns about adequacy of supplies. According to a feasibility study carried out in 2011:

When traders were asked, “if WFP stopped supplying relief to this location and instead gave beneficiaries vouchers or cash, will traders be able to have enough supplies for everyone without increase in price,” they responded “that they would be able to meet the increased demand in most of the markets, with the exception of cereals (particularly sorghum).” (Al-Feel and El-Awad, 2011, 18)

After a good harvest, in 2012, it appears that local production and trade flows within Darfur were able to meet increased demand created by the food voucher program. Millet was supplied from Saraf Omra and from rural areas around El Fashir, and at this time food aid distributed to Zamzam camp was also supplying the market.⁷⁶ But in 2014,⁷⁷ after an exceptionally poor harvest, local production has not been able to meet demand, exacerbated by insecurity and the breakdown in trade flows from Saraf Omra, and the stopping of general food distribution to Zamzam. During the period of field work for this study, both sorghum and millet (although a different variety to the millet variety grown in Darfur) were being brought from Central Sudan to meet demand created by the food voucher program. However, there was also evidence that beneficiaries of the voucher program were selling some of the cereals they received from their vouchers, to raise cash for other expenditures. Thus, there was some “recycling” of the cereals brought from Central Sudan, as recipients sell part of their ration.

Traders in El Fashir describe how the food voucher program has exacerbated steep rises in cereal prices in 2014 as traders compete to purchase the small amounts of millet available in the market. For example, the MMTA Trade and

Market Bulletin for North Darfur reported a 40% increase in millet prices in Zamzam market over a three month period between December 2013 and February 2014 when the voucher program was introduced into Zamzam, while millet prices in El Fashir rose by only 14% over the same time period.⁷⁸

The impact of the food voucher scheme on cereal markets in El Fashir, naturally a cereal-deficit area, has been compounded by two factors: the reduced availability of food aid, which had been a significant source of supply to the cereal market (as described in Section 7); and at the same time, the demand for cereals has greatly increased as former producers, now displaced in the three IDP camps around El Fashir, redeem their food vouchers to meet their cereal consumption needs. WFP’s market assessment, published in 2014, predicted that cereal markets in El Fashir were unable to absorb the increased demand for cereals created by expansion of the food voucher scheme (WFP, 2014a). Thus, prices have been driven up and traders have had to bring in supplies from Central Sudan.

A market assessment carried out in Saraf Omra, El Fashir, and Kebkabiya in North Darfur in 2012 concluded that the perception of limited availability of cereals on the market (as a result of the food voucher program) could mean that farmers are more reluctant to release their cereal to traders, thus exacerbating the limited availability of supply to the market and fuelling price rises (WFP Sudan and North Darfur State Ministry of Agriculture, 2012). This pattern was evident in the initial stages of the switch from in-kind assistance to vouchers, and contrasts with the previous situation described by the same assessment, where:

The continuous flow of considerable quantities of food-aid sorghum to North Darfur in the past seemed to create an image of availability among farmers; hence leading to early release of most of their local produce even if their production was low. (Ibid., 7)

⁷⁶ These findings are based on trader interviews carried out for this study as well as ongoing market monitoring by the MMTA project.

⁷⁷ These findings are also based on trader interviews carried out for this study.

⁷⁸ See North Darfur Trade and Market Bulletin, Vol. 1, no. 4, covering the quarter December 2013 to February 2014.

Of particular concern is the impact of these steep price rises on poor and vulnerable households that are not part of the food voucher program, an issue that has not yet been fully examined.

In Nyala in South Darfur, the impact of the food voucher program on local cereal markets does not appear to have been so acute. As the program was operating only in Otash camp during the period of field work for this study, food voucher traders were sourcing their sorghum supplies from other camps around Nyala, including Kalma, Al Salam, and Deraj camps, buying food aid sorghum from IDPs and then making it available through the food voucher program. In other words, food vouchers were circulating food aid provided through WFP's general food distribution. Millet was being supplied from Saraf Omra in North Darfur, and from Umshaliya, Kereinik, and El Geneina in West Darfur (and from Umm Dukhn, before the incidence of tribal conflict).

Reviews and assessments highlight the domination of large and medium traders in the voucher program (WFP, 2013; Harrison and Wagabi, 2011; Bizzarri, 2013). In April 2014, when fieldwork was being carried out for this study, approximately 40 cereal traders were participating in the food voucher program in El Fashir and the neighboring IDP camps. The

research team heard mixed reports about the profitability of being a food voucher trader, with some saying that a number of traders who were contracted early into the program dropped out because it was not sufficiently profitable, while others claimed it was a profitable venture. There were also reports of the food voucher program pushing traders out of the market, especially petty traders in the camps who have lost some of their customers who now meet their needs through the voucher program. Thus, while the program has probably stimulated markets by increasing trade volumes, it has not necessarily made the market more competitive, nor increased the number of traders in the cereal market.

In South Darfur, 35 traders participated in the food voucher program in Otash camp at the outset (20 traders from Otash IDP camp and 15 traders from Nyala town). By April 2014, the number had fallen to 26. Nine of the traders from Nyala had withdrawn from the program as cereal prices rose, in favor of other more profitable business ventures.

The experience of two food voucher traders, interviewed at length for this study, is presented in Box 17 below.

Box 17. Cameo of two food voucher traders in El Fashir

Trader A

Trader A has been a merchant for 30 years in El Fashir. Thirteen years ago, he began trading cereals. He was one of the first traders to be contracted into the food voucher program when it was introduced by WFP into Abu Shouk and Al Salaam IDP camps in 2010. Initially, he was sourcing cereals (millet) from Saraf Omra and rural areas around El Fashir. By 2014, he was sourcing sorghum from El Obeid, Omdurman, and Gedaref as a result of the lack of availability of cereals locally, and lamenting the very high costs of transportation from Kordofan and Central Sudan. He also commented on how the rapidly rising prices of cereals and other food items has eroded his capital.

Trader A applied for credit through the formal system, but failed to get it, partly because of failure to meet the requirements and partly because of his own concern about defaulting and the consequences. Instead, he is accessing credit informally, as a loan from other traders, and is also receiving food items on credit, paying the suppliers when he is paid by WFP.

continued on next page

Trader A has two stores in his house. Storing food in the IDP camps is more risky, and the food voucher traders must pay for guards to protect the stores. When Trader A moves commodities from El Fashir to Zamzam camp, he must pass a number of checkpoints controlled by different government institutions, paying around SDG 84 for a small truck (of 7 to 10 mt) to pass.

Trader B

Trader B was a retailer, trading cereals as well as other commodities, in Abu Delage in Kelimendo locality before the conflict, and is now contracted as a food voucher trader in Zamzam camp since early 2014. In February 2014, he supplied 100 sacks of millet (of 100 kg per sack) and 30 to 40 sacks of sorghum (of 90 kg per sack). In March, this increased to 200 sacks of millet and 100 sacks of sorghum. In January and February 2014, Trader B's millet supplies came from Saraf Omra, but when the trading route with Saraf Omra closed in March (see Box 9 above), he relied on millet supplies from El Fashir market. His sorghum supplies are from Central Sudan; like Trader A, he commented on the very high transportation costs when cereals are sourced from outside the Darfur region.

Trader B has not attempted to access credit from any formal institutions. Instead, he relies on informal credit from other traders (his relatives), receiving food commodities from them and paying them back when he is reimbursed by WFP.

Trader B has two stores, one in Zamzam camp and the main one that he rents in El Fashir, thus spreading his risk. He also tries to buy food voucher commodities for two months at a time, to mitigate the impact of rapidly rising prices.

12.3 Conclusions

After a good harvest, as in 2012, North Darfur markets appear to be able to meet increased demand for cereals generated by the food voucher program, from local production. But after a poor harvest, like 2013/14, the food voucher program appears to have really stretched the market in El Fashir, exacerbating already steep price increases. As local production has been unable to meet demand, the voucher program has stimulated cereal flows from Central Sudan. While the program has probably resulted in increased trade volumes, the findings of this study indicate that it may have pushed smaller traders out of the market. This is an issue that deserves further investigation.

13. CONCLUSIONS AND RECOMMENDATIONS

13.1 Conclusions

This study set out to explore the impact of a decade of conflict, and a decade of food assistance, on the cereal trade in Darfur. But this has to be understood within the wider national context. At the national level, the study reveals some concerning trends. First, despite the importance of agriculture to GDP and to food security, there has been a long-term decline in cereal productivity in Sudan for sorghum and millet, and more recently for wheat. Second, the variability of harvests appears to be increasing, especially for millet, which is predominantly rainfed and is Darfur's major cereal crop. Despite the stated objectives of federal government policy over the years, it appears to have had little impact in boosting cereal production, and may even have had a negative impact in encouraging unsustainable agricultural practices. Federal and state trade policy is fragmented, and the special exchange rate for imported wheat has introduced serious distortions. Wheat consumption is now rising much faster than consumption of sorghum and millet, which nevertheless remain key rural staples. Sorghum exports have been falling, while wheat imports have risen sharply, raising concerns about the economic sustainability of current policies.

These trends are evident in Darfur—millet yields were declining in the decade preceding the conflict, and annual variability of production is higher than in many other parts of Sudan—and have been exacerbated by conflict. In the early years of the conflict, cereal production plummeted as many cereal producers were displaced and became consumers dependent on urban markets and on food aid. Although there has been some recovery of cereal production since, in 2013/14 it plummeted once again, possibly to the lowest level since the conflict began in 2003, due to poor rainfall and widespread insecurity, negatively impacting the area cultivated and harvested. The constantly changing conflict dynamics mean that different areas are affected in different years, but no major area of cereal production in Darfur remains untouched by conflict, and in some locations

cereal production has stopped altogether. There has been a noticeable shift from millet to sorghum production in Darfur during the last decade, partly triggered by changing consumption patterns related to urbanization of the population and the provision of food aid sorghum, partly because sorghum can be traded as a cash crop, and partly because of its use as livestock feed in urban areas. This could herald a long-term shift in cereal production patterns in Darfur beyond the current conflict as consumption patterns have noticeably shifted away from millet towards sorghum, and to some extent wheat, as the population has become more urbanized, and needs to be taken into account in the provision of agricultural services.

Another significant change in cereal consumption patterns is the much greater use of cereals for livestock feed, for the growing number of peri-urban dairy farms and poultry farms, and for livestock fattening. This is encouraged by the demands of a rapidly urbanized population and by the risks of grazing cattle outside the towns; it has also been fostered by plentiful supplies of food aid sorghum, at least until 2008. These changing consumption patterns in Darfur follow shifts that accompanied urbanization in Central Sudan much earlier, particularly the shift in human consumption to wheat, and the orientation of the sorghum trade to the livestock sector.

Trade flows in Darfur have been badly impacted by conflict. At the most extreme, trade flows have reversed during the conflict years, for example cereals are now flowing into Buram rather than out of it. More often, cereal trade flows that were important pre-conflict have simply dried up as major areas of production have been persistently affected by conflict, for example the Wadi Saleh area in Central Darfur and the Korma area in North Darfur. This indicates the close connection between a breakdown in security locally, and deterioration in food security. Amidst this disruption, the significance of Saraf Omra as a source of supply of cereals to Darfur's state capitals—especially Zalingei, El Fashir, and Nyala—has grown

considerably, yet the risks of this dependence were evident in 2014 when conflict broke out in Saraf Omra, the cereal trade was severely disrupted, and prices soared.

Food assistance has played a vital role in keeping Darfur's cereal markets functioning and in stabilizing prices. Food aid cereals were the main source of supply to Darfur's markets from 2004 until about 2008, more important than locally produced grain. Since the levels of in-kind food aid have fallen, especially as household ration levels have halved or more, and WFP has switched from general food distribution to vouchers for many of its beneficiaries, the picture has changed. In 2014, cereal shortages in the market were widely reported by cereal traders, due to a combination of a very poor harvest, insecurity disrupting key production areas, smaller amounts of food aid available, and increased demand through the food voucher program. The consequence has been record cereal prices and traders moving out of the cereal market.

WFP's food voucher program has a tertiary objective of stimulating Darfur's cereal markets and production. In years of a good cereal harvest in Darfur, this may be the case, although this study confirms the risks identified in earlier assessments, that the food voucher program has encouraged a concentration of market power in larger traders and has pushed some smaller traders out of the market. This study also questions the rationale of expanding the food voucher program in North Darfur (a cereal-deficit area), in a year of very low cereal production across Darfur. Expansion exacerbates escalating prices, which negatively impact households dependent on the market to meet their staple needs, especially poor households that are not part of the voucher program. A more flexible approach to scaling up and scaling down the cereal component of the food voucher program may need to be applied.

Darfur's lack of integration into the national cereal market has long been commented upon and has been hampered by poor transport infrastructure and long distances, and the fact that the national market was dominated by sorghum but Darfur's cereal trade was dominated

by millet. The greater Darfur region was more or less self-sufficient in cereals pre-conflict in years of reasonable rainfall, although years of poor rainfall and poor production triggered sorghum trade flows from Central Sudan. In the last decade, despite the many obstacles to cereal trading in Darfur, the evidence points to greater integration with the national cereal market. First, between 2004 and 2008, there was a thriving trade in food aid wheat and food aid sorghum from Darfur to Central Sudan as, exceptionally, Darfur recorded the lowest sorghum prices in the country, and wheat prices in Darfur were lower than in production areas in Northern State. Second, as local production has slumped, eastern parts of Darfur, including Ed Daien, now draw their supplies from elsewhere in Sudan, from El Obeid and Central Sudan. Third, the food voucher program in North Darfur in 2014 has boosted trade flows of sorghum and millet from Central Sudan to El Fashir to meet demand, especially as cereal production has been badly hit by conflict and drought in areas that are normally surplus-producing in other parts of Darfur. Whether this greater integration into national markets continues when the conflict no longer distorts Darfur's cereal markets remains to be seen, but is already facilitated by the near-completion of the tarmac road linking El Fashir with Central Sudan.

As with other commodities, there has been a spiraling upwards of trading and transportation costs for cereals in Darfur during the last decade, from primary to secondary markets and between secondary markets. There are a number of reasons: the fees charged at numerous checkpoints along the main trade routes; the time it now takes to travel, especially in expensive and slow-moving convoys between state capitals; and the lifting of the fuel subsidy in September 2013. Some of these additional costs may be directly fuelling the war economy, where fees are collected at checkpoints by different militias; this deserves further investigation. Another substantial cost to trading is the fees charged, mostly at locality level, on traded cereals, despite federal policy that agricultural products should be exempt from taxes.

While the volume of cereals traded appears to have fallen, at least in 2014, there has

paradoxically been an increase in the numbers of cereal traders in Darfur, despite some leaving the cereal market since the 2013/14 harvest and evidence that profits have fallen compared with the pre-conflict era. This reflects the limited livelihood options available to most households. The most dramatic increase in trader numbers is in petty trade, dominated by women, especially IDP women. At the other end of the spectrum, there has been a decline in the number of large-scale cereal traders, particularly wholesalers who may have a wider range of options, as cereal trading is no longer seen as such a profitable business venture and as food aid levels have declined. The picture that emerges is of much greater fluidity in the cereal market as traders enter and leave over relatively short time periods. Most traders are now dealing in much smaller quantities than in the pre-conflict period for three main reasons: in 2014, at least, there have been fewer cereals available; there is greater competition between traders, especially between traders in the main markets in town and traders in the IDP camps; and there is a shortage of capital as prices have soared and informal credit mechanisms have collapsed. Limited storage facilities in Darfur are also a constraint (although not a new constraint), especially to retailers and wholesalers.

In both cereal production and trade, women now play a more important role than in the pre-conflict period. They carry more of the burden of cereal production, the full implications of which deserve further investigation. But they are also more involved in cereal trading. On the one hand, this may indicate the growing economic power of women, but they also face gender-specific constraints, especially in scaling up their cereal trading businesses, in access to trading institutions, and in the wholesale business, which is still dominated by men.

Almost all cross-border trade between Darfur and neighboring countries is informal, in the absence of policies to promote or manage this trade, at least on the Sudan side of the border, and is subject to the prevailing state of relations between the Government of Sudan and the government of the respective neighboring country. Since relations between Chad and Sudan have improved, cereals from farms on the

Chad side of the border have become an important source of supply for Darfur's westernmost towns and markets, including Kulbus, El Geneina, Foro Baranga, and Umm Dukhn, although the ban on cross-border cereal trading imposed by the Government of Chad has had a dampening effect. The cross-border trade with South Sudan, in this case outflows of sorghum from Darfur, has continued to thrive during the conflict years but at reduced levels compared with the pre-conflict period. This trade was negatively affected by secession and by the trade embargo imposed by the Government of Sudan. More recently, it has been adversely affected by conflict and insecurity in South Sudan, despite very large price differentials between Darfur and South Sudan. Ed Daien is at the heart of the cross-border trade with South Sudan.

Some of the constraints to Darfur's cereal trade, captured in this study, pre-date the current conflict. These include the long-term policy neglect of the traditional rainfed agricultural sector and infrastructural constraints such as poor road infrastructure and poor storage facilities. Many of these constraints have simply been magnified during the conflict years as agricultural services have more or less collapsed, as roads have deteriorated (major roads and feeder roads), and as there are many additional costs to trading and transportation, ranging from payments for armed escorts for trucks and armed guards for stores, to numerous checkpoint fees that must be paid along almost all of Darfur's trade routes. The decline in cereal production, a direct consequence of the conflict, and thrown into sharp focus in 2014, is a fundamental constraint. Whilst temporarily alleviated by a massive injection of food assistance in the early years of the conflict, which in turn reinvigorated the cereal market, the full impact of declining production has become more evident in recent years. Above all, the study highlights a vacuum of coherent and enabling policy. Policy at the federal level may simply be encouraging an unsustainable shift in consumption patterns away from locally grown staples to wheat. Although there have been occasional positive interventions at state level to relieve food insecurity, such as the targeted release of the Strategic Reserve, these are few, and most policy initiatives picked

up by this study have been at the locality level, where they are fragmented and distortionary, for example attempts to control the movement of cereals and the imposition of fees on cereal trading.

This analysis paints a bleak picture. Despite the adaptability and ingenuity of farmers and traders in Darfur, until there is greater peace and security, cereal production in Darfur is unlikely to recover, and years like 2013/14 will be repeated, when the combination of drought and conflict severely depress local cereal production and prices soar, negatively impacting household food security. In the current context, cereal trading in Darfur is unlikely to be an attractive business choice for large-scale traders with other options, but may continue to attract many petty and small-scale traders because of the limited alternative livelihoods available to them. On a more positive note, completed construction of the Salvation Road will reduce transportation costs and increase Darfur's integration with the national cereal market. There was already evidence of this by the end of 2014, even before paving of the road was fully completed. In years of poor local production, this should help to keep Darfur's cereal markets supplied, from Central Sudan, at which point the ability of Sudan nationally to meet its cereal consumption needs becomes more relevant to food security in Darfur. Completion of the Salvation Road may also open up trading opportunities in years of a good harvest, for cereals and other commodities produced in Darfur.

13.2 Recommendations

These recommendations are organized according to their relevance at state or national level. Some are for immediate implementation, and some are longer-term policy recommendations, arising out of the analysis of the current policy context. If implemented, many of these recommendations would benefit the trading environment beyond just cereals.

STATE LEVEL, WITHIN DARFUR:

A. FOR IMMEDIATE IMPLEMENTATION

Although there is not yet resolution to the Darfur conflict, there are a number of things that can be done in the current context to promote cereal production and trade in Darfur, to support rural livelihoods, to enhance food security, and with wider economic and social benefits. Many of these are consistent with the Darfur Development Strategy.

1. *Promoting cereal production*

Agricultural services provided by state government have almost collapsed during the conflict years. These must be stepped up, including pest control and extension services, and must take account of shifts that have happened during the conflict years, including the increasingly important role that women are playing in cereal production, and the shift from millet to sorghum production. Ways of adapting service provision to the current conflict, for example targeting areas as they become accessible, and working through local NGOs and CBOs to reach more insecure areas, may need to be piloted.

2. *Strengthening monitoring capacity of state governments*

The capacity of state government to collect cereal production and trade data at state level within Darfur must be stepped up:

- The reliability of cereal production data at state level is questionable, yet this is critical information for policy and programming decisions. Ways of strengthening state-level post-harvest assessments should be sought.
- National NGOs and international organizations currently provide valuable market monitoring and analysis services in Darfur. Government capacity to monitor markets, for example trade flows and volumes of cereals traded, should be supported, in order to provide improved data to promote evidence-based decision-making.

3. *Greater policy coherence across the Darfur region*

- There is currently a fragmentation of policies that impact on the cereal trade within the Darfur region, especially at the locality level, where periodic bans on the movement of cereals and the charging of development fees on cereal trading impede free trade and are distortionary and uncoordinated. The Darfur Regional Authority should play a greater role in developing an overall strategy to promote trade and to coordinate policy at state and locality levels across the Darfur region.

4. *Investment in market infrastructure*

- Markets are important economic and social institutions. In a conflict environment, trade and markets can play an important role in bringing different ethnic and livelihood groups together, as a bridge to rebuilding relationships. This can be encouraged through the improvement and rehabilitation of basic market infrastructure in towns, and through the upgrading of feeder roads connecting different areas. In rural areas where people feel it is safe to return, primary markets must be rehabilitated. However, this kind of investment must be based on sound political economy analysis as trade and markets can also fuel war economies in a conflict context.

5. *Supporting the role of women in the cereal trade*

- The gender-specific constraints to female cereal traders should be addressed and, as far as possible, removed. This includes their access to, and participation in, trading institutions, and their ability to access credit. This could commence with a pilot project in a couple of Darfur's state capitals.

6. *Food voucher program*

Whilst there appear to be many benefits to replacing in-kind food assistance with food vouchers (e.g., culturally appropriate food, stimulation of local production and trade) in years of reasonable cereal production, cereal food vouchers are not appropriate in years of very poor local production. The following are recommended:

- ensure that the cereal component of the food voucher program is scaled up and scaled down, according to levels of local production each year, and so that food aid in-kind can be scaled up in years of poor local cereal production;
- there needs to be better understanding of how the food voucher program impacted poor households who are not beneficiaries, especially during the lean months of 2014, when cereal prices reached record highs;
- the impact of the food voucher program in concentrating market power should be monitored on an ongoing basis, in the interests of finding ways of implementing the scheme more inclusively.

B. IN THE LONGER TERM

7. *Investment in transport infrastructure*

- Improved road, rail, and transport infrastructure would greatly benefit the cereal trade (and trade in other commodities, as recommended in “Taking Root”). This includes improved feeder roads within Darfur, between primary and secondary markets, improved roads between secondary markets, and improved transport infrastructure between Darfur and the rest of Sudan to facilitate integration of Darfur's cereal market with other parts of Sudan.
- There is also a need for increased and improved cereal storage infrastructure in Darfur.

NATIONAL LEVEL—POLICY RECOMMENDATIONS

8. *Cereal production:*

- A long-term plan (e.g., for 20 years) is needed for the agricultural sector, with buy-in from all relevant actors, at both federal and state levels, to consider how to address the issue of declining cereal productivity, and how to boost rainfed agricultural production. Such a plan:
 - must address the need for improved data collection to understand better the contribution of the traditional rainfed sector;
 - should include increased investment in research into rainfed cereal production, including exploring how to reduce climate-induced variability (e.g., greater use of water harvesting);
 - must also address the need to improve agricultural services, including extension services and the provision of credit, for the rainfed sector.

9. *Exchange rate policy*

- Unification of Sudan’s exchange rates, including commercial, government, black market, gold, and wheat rates, would go a long way towards removing major distortionary incentives impacting the cereals sector. In particular:
 - local wheat farmers would be at less of a disadvantage;
 - locally grown sorghum and millet would become more competitive against cheap imported wheat;
 - agricultural labor might stop being diverted to gold exploration, driving up cereal production costs;
 - innovative technical ideas such as mixed sorghum and wheat flour should become economically viable, and could be given wider trials;
 - sorghum would no longer be exported even when the domestic price is higher in order to acquire foreign exchange. This would also obviate the need for unpredictable export bans, deterring future production and trade.

10. *Cross-border trade policy*

- In order to develop the full potential of cross-border trade, there must be greater commitment to formulating and implementing cross-border trade policy, to promote this trade in cereals, especially where transnational relations are good, for example between Sudan and Chad, and to deter smuggling without destroying local livelihoods.

11. *The Strategic Reserve*

- The Strategic Reserve has the potential to play a much bigger role in protecting food security, given rising harvest variability. But in order to do this it will need a clearer mandate and objectives, greater analytical capacity, improved management procedures, and greater transparency, and more resources so that it can make timely purchases and targeted disbursements. This should be preceded by an institutional review process, to consider how it could become a federal body with branches and storage facilities at state level.

12. *A review of taxation policy*

- As recommended in “On the Hoof” and “Taking Root,” there needs to be a full review of how indirect federal, state, and locality taxes and fees affect the cereals sector, and how negative impacts can be reduced.

ACRONYMS

ABS	Agricultural Bank of Sudan
ACF	Action Contre la Faim
AOAD	Arab Organization for Agricultural Development
ARP	Agricultural Revival Program
CAR	Central African Republic
CBO	Community-based Organization
CBOS	Central Bank of Sudan
CFSAM	Crop and Food Security Assessment Mission
CSB	corn soy blend
DDR	Disarmament, Demobilization and Reintegration
DDRA	Darfur Development and Reconstruction Agency
DfID	Department for International Development (UK government)
ECHO	EU Humanitarian Aid and Civil Protection Department
EFSNA	Emergency Food Security and Nutrition Assessment
EMMA	Emergency Market Mapping and Analysis
EMOP	emergency operation (WFP)
EU	European Union
FEWS NET	Famine Early Warning System Network, created by USAID
FFA	food-for-assets
FFE	food-for-education
FFR	food-for-recovery
FFT	food-for-training
FFW	food-for-work
FIC	Feinstein International Center, Tufts University
FSTS	Food Security Technical Secretariat (Ministry of Agriculture)
GDP	gross domestic product
GFD	general food distribution
GIEWS	Global Information and Early Warning System
ICRC	International Committee of the Red Cross
IDP	internally displaced person
INGO	International Non-governmental Organization
MMTA	Market Monitoring and Trade Analysis project
MOF	Ministry of Finance
MoFNE	Ministry of Finance and National Economy
NGO	Non-governmental Organization
SDG	Sudanese pound
SIFSIA	Sudan Institutional Capacity Programme: Food Security Information for Action
SLA	Sudan Liberation Army
UNAMID	African Union – United Nations Mission in Sudan
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
VAM	Vulnerability Analysis and Mapping (WFP)
WFP	World Food Programme

GLOSSARY AND CONVERSION RATES

<i>damirga</i>	decorticated millet soaked in water for 2 to 3 days
<i>goz</i>	sandy soils
<i>feddan</i>	local measurement of land. 1 <i>feddan</i> is 0.42 hectares
<i>kora</i>	local measurement for cereals. 1 <i>kora</i> is 1.6 kg (eg in North Darfur, except in some locations where it is 2.4kg)
<i>mokhamas</i>	local measurement of land area. 1 <i>mokhamas</i> is 0.505 hectares
<i>mulwa</i>	local measurement for cereals. 1 <i>mulwa</i> is 3.63 kg
<i>nafir</i>	collective agricultural laboring, long-practiced in Darfur
<i>zakat</i>	giving of alms or charitable gifts

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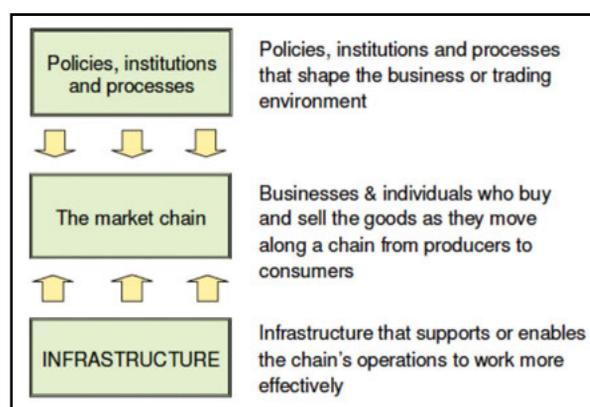
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ANNEX 1. FURTHER DETAILS ON METHODOLOGY

Figure 1.1: Conceptual model of the market underpinning the cereal trade study



Source: Based on the EMMA (Emergency Market Mapping and Analysis) model developed by Practical Action and Oxfam GB, amended drawing on the Tufts adapted livelihoods framework for complex humanitarian emergencies

Table 1.1: Secondary markets included in the cereal trade study, and criteria for selection

State	Market	Criteria for selection			Concluding comment on reason for selection
		Important market in area of surplus production	Important market in area of deficit production	Significant for cross-border trade	
Central Darfur	Umm Dukhn	X		X (CAR & Chad)	Traditionally major area of production & supply; disrupted by tribal conflict
West Darfur	Tendelti			X (Chad)	Important for cross-border trade with Chad
North Darfur	Saraf Omra	X (supplying North & South Darfur)			Major source of supply (recently affected by conflict)
	Malha		X (livestock)		Chronically food insecure; different pattern of cereal trade from rest of North Darfur
	El Lait		X (cash crops)		Deficit area, cash crop producing
South Darfur	Kass	X			Major source of supply, especially to Nyala market
	Abu Rey	X			Impacted by tribal conflict. Traders now in Nyala
	Buram	X			Previous area of production; now experiencing very high cereal prices
East Darfur	Abu Matariq (& Ferdos)	X		X (South Sudan)	Important for cross-border trade with South Sudan

Table 1.2: Numbers of traders, transporters, and other key informants interviewed, per location

Location	No. of cereal traders interviewed	No. of transporters interviewed	Other interviews
Khartoum	4		Ministry of Agriculture, Dept. of Trade, FAO, WFP, Strategic Reserve Authority
Gedaref	3	1	
Kosti	3	2	Ministry of Finance, Ministry of Agriculture, ABS, ICRC, WFP, North Darfur Bakeries Trade Union
El Fashir	7	1	
Nyala	8	3	Ministry of Agriculture, Ministry of Finance, WFP, FAO, Farmers' Union
El Geneina	16	1	Ministry of Agriculture, Farmers' Union, WFP
Zalingei	6		Ministry of Agriculture, State Legislature, market authorities, Zakat Chamber, FAO, WFP
Ed Daien	>6		Ministry of Agriculture, Ministry of Finance, Farmers' Union
Malha	13	6	
Saraf Omra	>20		
El Lait	6	2	
Kass	2		Farmers' Union, Native Administration, cereal producer
Abu Rey	2		
Buram	3		
Tendelti	8	1	Cereal producers
Umm Dukhn	5	7	

ANNEX 2. RESEARCH TEAM CARRYING OUT THE STUDY

Margie Buchanan-Smith

Margie Buchanan-Smith is a Visiting Fellow with the Feinstein International Center at Tufts University. She is an independent policy researcher with more than 28 years' experience in the humanitarian sector. She first worked in Darfur in 1987 as Agricultural Economics Adviser to the Agricultural Planning Unit of the Darfur Regional Government. During this time she carried out a study of the grain market in Darfur and initiated a drought early warning system for North Darfur. Her consultancy and research work has particularly focused on Sudan and the Horn of Africa. She is currently an adviser to the Market Monitoring and Trade Analysis project run by the Darfur Development and Reconstruction Agency, and led the previous two in-depth trade studies in Darfur between 2011 and 2013: "On the Hoof" on the livestock trade, and "Taking Root", on the cash crop trade. She is Senior Research Associate with the Humanitarian Policy Group at the Overseas Development Institute in London.

Dr. Abduljabar Abdalla Fadul

Dr. Abduljabar Abdalla Fadul was Assistant Professor at El Fasher University in North Darfur State. He is now a freelance consultant and Executive Manager for the Darfur Development Services and Information consultancy company, based in El Fasher. He has many years' experience with, and extensive knowledge of natural resources, livelihoods, and conflict in Darfur and has contributed to many research projects and studies in Darfur since the 1980s. He is currently an adviser to the Market Monitoring and Trade Analysis project run by the Darfur Development and Reconstruction Agency, and participated in the previous two in-depth trade studies in Darfur between 2011 and 2013: "On the Hoof" on the livestock trade, and "Taking Root", on the cash crop trade. He worked as a government Veterinary Officer in Darfur and as a Provincial Veterinary Inspector between 1975 and 1981. He holds an M.A. in Rural Development and Food Security from the University of East Anglia in the UK.

Dr. Abdul Rahman Mohammed Tahir

Dr. Abdul Rahman Mohammed Tahir is Associate Professor of Range Management at Nyala Agricultural Research Centre within the Ministry of Agriculture in South Darfur. He is also the focal point for the climate change project in South Darfur and was one of the team members for the Darfur Joint Assessment Mission in 2012. He participated in the previous two in-depth trade studies in Darfur between 2011 and 2013: "On the Hoof" on the livestock trade, and "Taking Root", on the cash crop trade. With many years of experience of range and pasture management, he has worked for the Agricultural Research Corporation for 16 years and for the Western Savannah Development Corporation for 14 years, and has been a part-time lecturer at the Universities of Nyala, El Fasher, and Zalingei. He completed his Ph.D. in Agriculture at the University of Khartoum in 2003, and holds a M.Sc. in Agriculture from Cranfield Institute of Technology in the UK.

Dr. Musa Adam Ismail

Dr. Musa Adam Ismail is currently Dean of the Faculty of Agriculture at the University of Zalingei. Between 2001 and 2005, he was Director of the Centre for Peace and Development Studies at the University of Zalingei. He has a wide range of experience in the agricultural field, having worked for the Ministry of Agriculture in Iraq between 1986 and 1988, for the Ministry of Agriculture in South Darfur State between 1995 and 1996, and for Save the Children UK between 1991 and 1995. He has been a member of research teams for a wide range of studies in Darfur on topics ranging from coping strategies and wild food to socio-economic and targeting studies and studies on pastoralism and pastoralist livelihood analysis, including the cash crop trade study, "Taking Root", with Tufts University in 2013. Dr Musa is also an adviser to the Market Monitoring and Trade Analysis project run by the Darfur Development and Reconstruction Agency.

Dr. Nadia Ibrahim Ahmed

Dr. Nadia Ibrahim Ahmed is currently Director-General of the Ministry of Agriculture, Animal and Natural Resources in West Darfur State. She started work in the Natural Resources Department as an Agricultural Inspector and subsequently became Director of the Department for Agricultural Planning and Information within the Ministry of Agriculture. She holds a Ph.D. in agricultural extension and rural development from the University of Khartoum. Dr. Nadia's research and consultancy activity has focused on food security, livelihood strategies and policy analysis. She participated in the cash crop trade study, "Taking Root", with Tufts University in 2013. She also contributed to the Sudan institutional capacity-building program, 'Food Security Information for Action, as the focal point for West Darfur State.

Mohamed Zakaria Haroun

Mohamed Zakaria is an economist and social planning development expert with over 22 years' experience in project planning, implementation, monitoring, and evaluation. He currently manages and leads the team working on DDRRA's MMTA project; he coordinates and oversees all project activities, including data collection, data analysis and the production of quarterly bulletins. Before this he was the Deputy Director of Planning and Development at the Ministry of Finance in North Darfur. He holds a MSc. in Accounting and Finance from the University of Gezira, and is currently a PhD student at Sudan's University for Science and Technology.

Zakaria Yagoub Kaja

Zakaria Yagoub Kaja is currently Project Officer with DDRRA's MMTA project in West Darfur State. He participated in the cash crop trade study, "Taking Root", with Tufts University in 2013. He was previously West Darfur government's representative for UNDP's crisis and recovery mapping and analysis project in 2011. Before that, he was Inspector of Public Expenditure and Inspector of Planning and Development with the Ministry of Finance in West Darfur. He also worked with Save the Children USA in 2005 carrying out an emergency assessment. He obtained his B.Sc. in Statistics from Juba University in Sudan.

El Hadi Abdulrahman Aldou

El Hadi Abdulrahman Aldou is currently an Officer with DDRRA's MMTA project in Central Darfur. He was previously stationed in the Head Office of the Rain-Fed Sector in the Ministry of Agriculture in Central Darfur, and was also Livelihoods Coordinator for Qatar Red Crescent (2012), and a consultant to the Ministry of Agriculture in Central Darfur. He holds a diploma in General Agriculture from the University of Sudan, and a BSc. and MSc. in Agricultural Economics from the Rural Economics Department of Zalingei University.

Mohamed Ibrahim Hussein Abdulmawla

Mohamed Ibrahim Hussein Abdulmawla is currently working in North Darfur State Ministry of Agriculture, as an Agricultural Officer in the Department of Agricultural Planning. He has worked as a government partner with many international agencies, including WFP, FAO and NGOs such as ACF. His main experience is in data collection, assessment, food security and livelihood surveys. He holds a BSc. in Agriculture Science from Dongola University.

Abdalla Ali Hassan Ibrahim

Abdalla Ali Hassan Ibrahim is Head of the Planning Department in the Ministry of Agriculture, South Darfur. He was formerly Director of Investment and Public Cooperation until 2012. He holds a general diploma in Agriculture from Abunaama College of Agriculture and Natural Resources, and a BSc. in Plant Propagation from Omdurman Islamic University.

Yahia Mohamed Awad Elkareem Fadl Emoula

Yahia currently works as a Field Monitor Coordinator at FEWSNET. He has contributed to a number of research studies for a range of organisations, including a 'Descriptive Study of Sudanese Agricultural Exports' and an 'Agricultural Insurance Study'. Yahia holds a BSc. Honours in Agricultural Sciences and Agricultural Economics from the University of Gezira, as well as a MSc. in Agricultural Economics from the University of Khartoum.

Dr. Laura James

Dr Laura James is an analyst specialising in the interface between economics, politics and conflict, especially over natural resources, in the Middle East and Africa. Now a UK-based consultant teaching at the University of Cambridge, she spent six years in Sudan, most recently as the economic adviser to the African Union High-Level Implementation Panel on Sudan, covering the Sudan-South Sudan negotiations, and as the economic adviser to the European Commission. Previously she was employed as senior economist with DfID in Sudan, and as a Middle East analyst at the Economist Intelligence Unit in London. Her doctoral thesis, focusing on Egypt, completed at the University of Oxford, was published as a book by Palgrave Macmillan.

Susanne Jaspars

Susanne Jaspars is an independent emergency food security and livelihoods researcher and a PhD Candidate at Bristol University. Her PhD is on the history and evolution of food aid in Sudan, examining in particular its relation to governance. Susanne has thirty years' experience in emergency nutrition, food aid, food security and livelihoods in conflict and natural disaster contexts. Her main work has been in the Horn, East and Central Africa, including Sudan, both as a practitioner and researcher. She first worked in Darfur in 1989 as a nutritionist for Oxfam, and has worked there on a regular basis since. This has included consultancies for WFP and research projects with the Humanitarian Policy Group at the Overseas Development Institute in London. Susanne advised on food aid and cereal trade issues throughout the study, and drafted the chapter on food aid.

ANNEX 3. ADDITIONAL NOTES ON CEREAL CONSUMPTION IN SUDAN

a) Changing diets

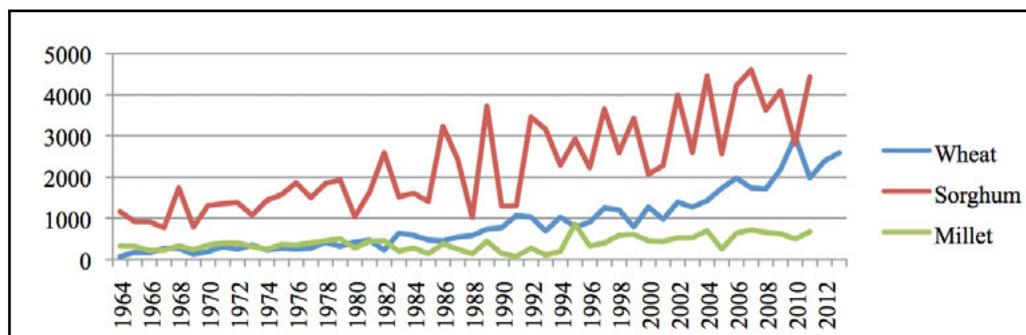
Cereals and cereal products account for about 56.6% of total daily dietary energy consumption in Sudan—a high level, and far above any other food product group (the next highest, sugar, was 11.8%, followed by oil/fat at 9% and meat at 5.2%). Nationally, sorghum predominated, although wheat was more important in some states, including Khartoum, and millet was the main cereal consumed in North Darfur and West Darfur. Sorghum is also the main source of dietary protein (SIFSIA 2010, 36). There are no good detailed consumption breakdowns available at a national level in Sudan; however, cereal consumption can be estimated based on production, the trade balance, and standard assumptions for losses and seed use. See Figure 3.1. Most of the cereal requirement is for human consumption; in the absence of good survey data, it is estimated that around 5% of sorghum, maize, and millet produced is used as livestock feed, an average of 4.5% of all cereals is used as seed, 10% of maize is lost post-harvest, and 5% of other cereals is also lost (FSTS, 2014, 30).

The results show that sorghum is still the most-consumed cereal in Sudan, but consumption of wheat is rising much faster, at an average of 5.2% per year since 1989. Average per capita wheat consumption has risen from 18.6 kg during the period 1963/64–1967/88 to 48.5 kg in 2003/04–

2005/06 and 62 kg in 2009/10–2011/12 (Ijaimi, 2014). This is largely as a result of the relatively low subsidized price, but it is also linked to ongoing urbanization and rising per capita income (related to the education of women). Other key factors include the distribution of wheat as food aid, growing consumer awareness, the entry of women into the labor market (leaving them less time for the longer cooking processes associated with millet, especially, but also sorghum), increased consumption of *fuul* (a fava bean-based dish, habitually complemented by bread), and variability in millet and sorghum harvests (Ijaimi, 2009, Mustafa et al, 2013). Once the switch is made, it is hard to reverse: buying or even making bread is easier and quicker than preparing sorghum-based foods.

It also appears that sorghum consumption is highly variable: this is largely because it depends on harvests—subsistence farmers will consume more when they produce more—but may also reflect the limitations of the data, which do not allow for unrecorded smuggling, and include sorghum utilization for animal feed as well as human consumption. Use of sorghum for livestock fodder (especially cattle and poultry) is reported to be rising, which suggests that the decline in human consumption may be sharper than the aggregate data might imply (El-Dukheri, 2007).⁷⁹

Figure 3.1. Cereal consumption trends in Sudan (*000 tons)⁸⁰



Source: Calculations based on data from Ministry of Agriculture, Ministry of Trade, FAOSTAT, CBOS (2012), and FSTS (2014).

⁷⁹ Confirmed by interviews with key informants.

⁸⁰ Consumption data has been calculated from production, import, and export data, and from CFSAM wastage estimates. The spike in wheat consumption in 2010 may be caused by stockpiling by the private sector in anticipation of the partial removal of the wheat subsidy, thus also explaining the fall in 2011, which may have been compounded by secession.

b) Rising deficits and prices

According to the Arab Organization for Agricultural Development, Sudan's cereals self-sufficiency ratio has decreased, from 77.5% in 2004–08 to 70.6% in 2011 (AOAD, 2012).

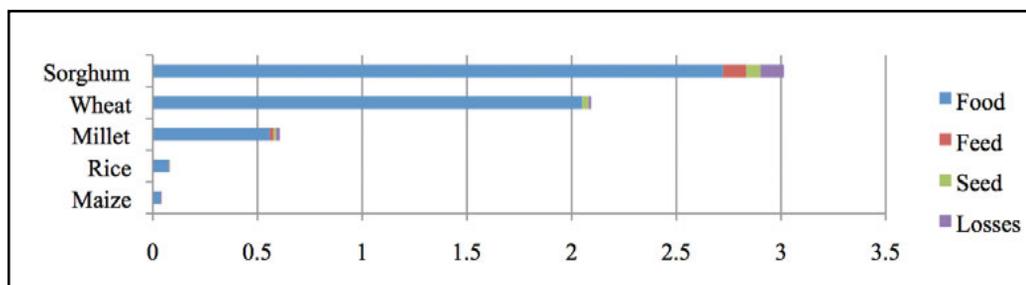
The latest Crop and Food Security Assessment Mission (CFSAM) reported that in the most recent season, from December 2013 to November 2014, there is a total expected cereal utilization of 6.45 m tons in 2013/14, 50% of which would be sorghum, 39% wheat, and 10% millet. See Figure 3.2. With estimated stores of 0.5 m tons and production of 2.9 m tons, this suggests an import requirement of just over 3 m tons of cereals (FSTS, 2014, 30).

Such a deficit is unusually large, but broadly in line with recent trends (the bumper harvest of 2012/13 excluded). The wheat requirement of 1.9 m tons is well within expected parameters; the

projected import requirements of 777,000 tons of sorghum and 267,000 tons of millet are higher than has ever been recorded in previous years. Overall, this suggests that demand for sorghum and millet may, as previously, be converted into demand for wheat, given the favorable exchange rate applied to wheat imports.⁸¹

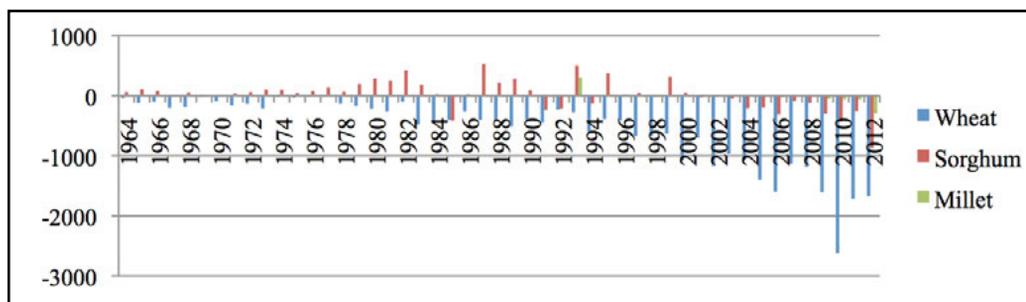
The result of this deficit has been record highs in cereal prices in early 2014: in March 2014, in the main markets in Sudan, sorghum prices increased fourfold—13% compared with the previous month, and millet by 10–23%. Wheat was up by 49% year-on-year, and almost double its five-year average, despite the special exchange rate which, in theory, should have helped to keep the price fixed. These hikes were also in part blamed on stockpiling by large traders expecting further price rises (FEWSNET, 2014). Even for subsidized bread, SDG 1 now purchases three small loaves rather than five.

Figure 3.2. Expected cereal utilization, December 2013–November 2014 (m tons)



Source: FSTS (2014)

Figure 3.3. Annual surpluses and deficits of main cereals ('000 tons)



Source: Calculations to 2011 based on data from the Ministry of Agriculture, Ministry of Trade, FAOSTAT, CBOS (2012), FSTS (2014). Break in series for 2012, Ministry of Agriculture (2012); Ijaimi (2014).

⁸¹ Some household-level market research seems to contradict this, suggesting that many households in the middle- to lower-income bands are reducing consumption of wheat flour as a result of tightening economic conditions, and switching in part to substitutes including *asida* (made at home from sorghum or millet flour, which is in higher demand among poorer groups). They would, however, continue to purchase subsidized bread, especially when stale, which is much cheaper than pre-prepared *kisra*. In addition, sorghum-wheat mix substitutes for wheat flour are failing to make progress, despite promising test results, on the grounds that they are not economic Dal Group (2014).

ANNEX 4. CEREAL PRODUCTION DATA FOR DARFUR

Official data on cereal production in Darfur from the federal Ministry of Agriculture—see Table 4.1 below—paints a relatively positive picture of cereal production since conflict broke out in 2003, but this is not borne out by interviews with any key informants in Darfur. The official data show that the average area planted to millet and harvested per year has declined slightly during the conflict years compared with the preceding 11 years pre-conflict, but that annual average production of millet increased because of higher yields. This seems highly unlikely in view of the long-term decline in millet yields and the collapse of agricultural services. In contradiction

to information collected at state level, it shows that there has been a rise in the area planted to sorghum compared with the pre-conflict period. Yet key informants interviewed for this study and for earlier studies in Darfur⁸² consistently reported that the area under cereal production, yields, and total production for both millet and sorghum had fallen during the conflict years. However, there does appear to have been a shift from millet to sorghum production in Darfur, confirmed in key informant interviews and discussed in greater detail in Section 4 in the report.

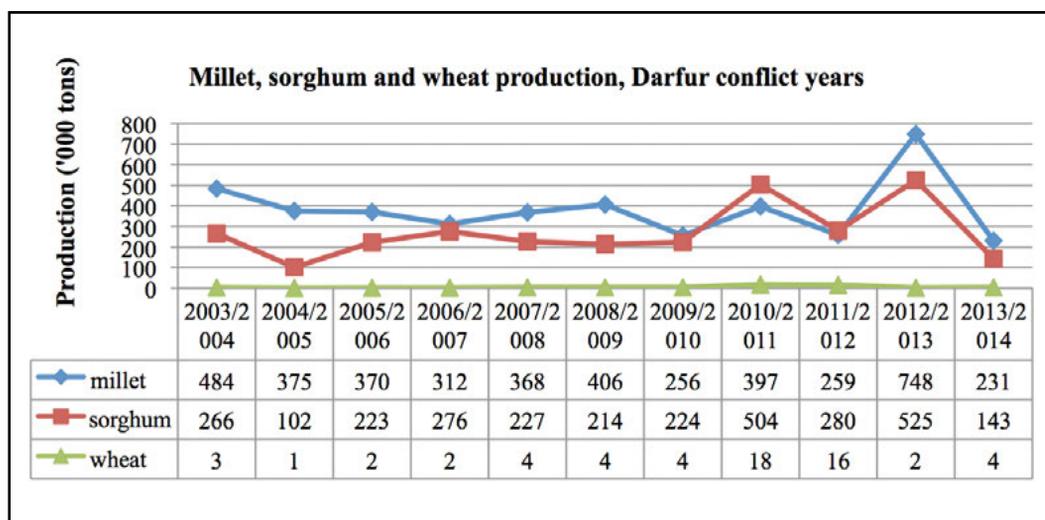
Table 4.1. Annual average cereal production in Darfur pre-conflict (1992/93 to 2002/03) and during the conflict (2003/04 to 2013/14)

	Area planted (’000 feddans)	Area harvested (’000 feddans)	Production (’000 MT)	Yield(kg/fd harvested)
MILLET				
Before conflict	4623	2820	351	124
During conflict	4352	2615	387	148
% change compared with pre-conflict	94%	93%	110%	119%
SORGHUM				
Before conflict	1203	848	224	263
After conflict	1895	1211	271	223
% change compared with pre-conflict	158%	143%	121%	85%
WHEAT				
Before conflict	12	10	5	500
After conflict	13	11	5	510

Source: calculated from federal Ministry of Agriculture data (Ijaimi, 2014)

⁸² For example, WFP’s study: “Conflict, Camps and Coercion” by Buchanan-Smith and Jaspars.

Figure 4.1: Cereal production in Darfur, 2003 to 2014



Source: Federal Ministry of Agriculture

Note of caution: the data presented in this graph do not correspond to information collected during field work for this study, about cereal production in Darfur. Nor do the data correlate with cereal production data from state Ministries of Agriculture in Darfur.

ANNEX 5. CHRONOLOGY OF THE FOOD AID PROGRAM IN DARFUR DURING THE CONFLICT YEARS

Year	General food distribution (MT)	Beneficiary numbers	Cereal ration	Coverage	Comments
2003	52,650 allocated between Nov 2003–March 2004 ⁸³	600,000 (planned)	65% sorghum ⁸⁴	IDP camps	Start of WFP distribution
2004	WFP ⁸⁵ distributed: 126,583 mt ICRC distributed 8,500	1.18 million but increased to 2 million in October due to poor harvest and increased displacement	77% sorghum	WFP: IDP camps ICRC: rural populations ⁸⁶	Start of ICRC distribution 2004 EFSNA found more than 50% of households were missing oil, pulses, and CSB from the distributions in September 2004 ⁸⁷
2005	WFP ⁸⁸ distributed: 438,804 mt ICRC distributed 32,000	2.3 million by end of first half of the year, then 3.25 million at end of 2005	69% wheat	WFP starts distribution in rural areas	First re-registration exercise Increase in cereal and addition of sugar as income support and to support local markets 43% of the households reported selling part of their food ration to meet other food and non-food essentials ⁸⁹

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⁸³ WFP, 2006.

⁸⁴ Dorosh and Subran, 2009. Same for other % of cereal types.

⁸⁵ WFP, 2006.

⁸⁶ All ICRC information from ICRC annual reports, except quantities distributed, which were from WFP evaluations.

⁸⁷ WFP, 2006.

⁸⁸ WFP, 2006.

⁸⁹ WFP and UNICEF, 2005, "Emergency Food Security and Nutrition Assessment," WFP, Rome.

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Year	General food distribution (MT)	Beneficiary numbers	Cereal ration	Coverage	Comments
2006	WFP: N/A ICRC: 22,445	2,728 million planned ⁹⁰	69% sorghum	ICRC takes over distributions in Jebel Marra from WFP Up to 85% of IDPs received rations in July. % of resident households receiving food aid increased from about 50% in January to 61%–63% in August ⁹¹	WFP rations halved in April due to funding problems ⁹² ICRC also halves rations Almost 30% of the food aid beneficiaries indicated that they had sold at least one of the food ration commodities ⁹³
2007	WFP: distributed: 422,456 mt ⁹⁴ ICRC: N/A	Actual WFP: 3,277,195	Sorghum	Almost 90% of the IDPs and 81% of the residents had received food aid at least for some time during the 8 months preceding the survey ⁹⁵	17% of the households had sold or bartered at least one food aid commodity. Mostly IDPs and mostly cereals or oil ⁹⁶ ICRC starts seasonal food distributions along with seeds

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⁹⁰ WFP EMOP for 2006.

⁹¹ WFP, Government of Sudan, and UNICEF, 2007, "EMERGENCY FOOD SECURITY AND NUTRITION ASSESSMENT IN DARFUR, SUDAN 2006. Final report," WFP, Khartoum.

⁹² Young, 2007.

⁹³ WFP et al., 2007.

⁹⁴ Actual figures for GFD distributed was provided by WFP Khartoum from 2007 onwards.

⁹⁵ WFP, Government of Sudan, and UNICEF, 2008, "Food Security and Nutrition Assessment of the Conflict-affected Population in Darfur, Sudan, 2007. Final report," WFP, Khartoum.

⁹⁶ Ibid.

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Year	General food distribution (MT)	Beneficiary numbers	Cereal ration	Coverage	Comments
2008	WFP distributed: 359,554 mt ICRC: N/A	Actual: 3,735,294	Sorghum	Start of WFP seasonal distribution to rural populations	Ration cuts as security hinders food dispatches to Darfur (deliveries halved) ⁹⁷ Less than 16 percent of recipient households reported that they sold some of the food aid they received in September/October 2008 ⁹⁸
2009	WFP distributed: 369,240 mt ICRC: N/A	Actual: 3,795,308	N/A	Some mixed populations (IDP/residents) changed to seasonal support	First 70% then 60% ration for IDPs (cereal reduced by 1/3, pulses and oil halved, sugar reduced by 2/3, and CSB removed in 60% ration). Residents receive 50% ration at first and sorghum and oil only from November. Frequent pipeline breaks ⁹⁹
2010	WFP distributed: 304,829 mt ICRC: N/A	Planned: 3,800,500 Actual: 3,650,720	N/A	ICRC unable to access Jebel Marra. Access to rural North Darfur restricted from 2010	Rations retained at 50%

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⁹⁷ WFP Sudan, 2008.

⁹⁸ WFP et al., 2009.

⁹⁹ Ibid.

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Year	General food distribution (MT)	Beneficiary numbers	Cereal ration	Coverage	Comments
2011	WFP distributed: 220,491 mt of food and about 54,000 mt worth of food vouchers ¹⁰⁰ ICRC: N/A	Planned: 3,769, 683 MT for GFD Actual: 3,104,912 actual GFD beneficiaries Vouchers: 346,002 (not including non-cereal vouchers) ¹⁰¹	N/A		Start of IDP verification and re-registration
2012	Actual: 166,105 MT for GFD About 260,000 MT including food value of vouchers ICRC: N/A	GFD beneficiaries: 2,842,318 Voucher beneficiaries: N/A	N/A	Seasonal support in some rural areas transitioned to FFA activities. ICRC emergency distributions following clashes in East Jebel Marra	Non-cereal vouchers stopped in Zalingei area as they were not cost-efficient nor cost-effective. ¹⁰²
2013	Actual: 131,794 MT. Tonnage including food value of vouchers: N/A ICRC: N/A	GFD: 1,677,000 Vouchers: around 270,400 ¹⁰³		Seasonal support in some rural areas transitioned to FFA activities.	Half ration consists of only cereal and pulses due to the selling of fortified vegetable oil on the market.

¹⁰⁰ WFP, 2013.

¹⁰¹ WFP Sudan, 2011.

¹⁰² Bizzarri, 2013.

¹⁰³ Ibid.

ANNEX 6. CEREAL TRADE ROUTES: DISRUPTIONS AND RISING TRANSPORT COSTS

Major cereal trade routes disrupted by conflict

East Darfur

Umm Dukhn to Ed Daien

Used to be: Um Dukhn to Towal to Antikaina to Khorshamam to Tullus to Gereida to Umelkhairat to Asalaya to Ed Daien

Now: Um Dukhn to Antikaina to Khorshamam to Tullus to Sabor Kayah to El Gougana to Kilakli Mojou to Asalaya to Ed Daein

South Darfur

Katila to Nyala

Used to be: Katila to Iddelfursan to Nyala

Now: Katila to Abuajora to Nyala

West Darfur

Beida to El Geneina

Used to be: Beida to Misterei to Trbaba to Kangoharaza to El Geneina

Became: Beida to Arara to El Geneina

North Darfur:

Saraf Omra to El Fashir

Used to be: Saraf Omra to Kebkabiya to Ed Alnabig to Kawra to Tawilla to El Fashir, which closed in 2005

Became: Saraf Omra to Abugamera to Abuliha to Kutum to El Fashir

Table 6.1. Costs of transportation of cereals from areas of production to Nyala and Zalingei markets, respectively, pre-conflict and 2014

Route	Pre-conflict transportation costs (SDG/sack of 100 kg)	Transportation costs in April 2014 (SDG/sack of 100 kg)
Kass to Nyala	10	20
Katila to Nyala	10	50
Umm Dukhn to Nyala	10	50
Umm Dafog to Nyala	10	50
Western Goz to Nyala	10	50
Mershing to Nyala	5	15
El Geneina to Nyala	10	60
Saraf Omra to Zalingei	3–4	30–40
Mornei to Zalingei	3–4	15–20
Umm Dukhn to Zalingei	6–7	50–60
Abata to Zalingei	1–2	10–15

Source: Key informant interviews with large-scale cereal traders in Nyala, and with cereal traders in Zalingei

Table 6.2. Change in trade route and increasing transportation costs for cereals from Abu Rey to Nyala

Period	Trade route	Transport cost (SDG/sack)	Reason for change
Pre-conflict	Abu Rey to Katila to Nyala	3	
Early in the conflict (2003–2005)	Abu Rey to Rahed El Berdi to Nyala	3	Tribal conflict between groups in Katila and in Idd El Fursan caused the route to change
Later in the conflict (2006 to 2010)	Ditto	9	Increased number of checkpoints, and high levels of taxes and fees caused the transport costs to rise
Current (2013/14)	Ditto	20	Deterioration in security, increasing numbers of checkpoints, and rising taxes and fees caused transportation costs to increase further

Source: Key informant interviews with cereal traders in Abu Rey



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