Feinstein International Center
Tufts University
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UNEP

On the Hoof

Livestock Trade in Darfur

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Executive Summary

This study set out to understand what has happened to the livestock trade in the greater Darfur region during the conflict years: how it has responded to the constantly shifting conflict dynamics since 2003, how it has adapted, and to what extent (if at all) it has recovered. It also set out to identify how the livestock trade can be supported in order to better sustain the livelihoods of different groups in Darfur, both while the conflict continues and in the longer term to support the eventual recovery of Darfur's economy and to contribute to the national economy. It is estimated that Darfur's livestock account for between one-quarter and one-third of Sudan's livestock resources post-secession.

Sudan's national export trade in livestock and meat, oriented towards the Middle East, is heavily dependent on a small number of markets—Saudi Arabia, Egypt, and Jordan—making it vulnerable to changing trade regimes in those markets and to losing its market share to competitor exporting countries that have more sophisticated production and marketing infrastructure, especially as welfare, hygiene, and disease control regulations become stricter in livestock-importing countries. During the years of petroleum wealth in Sudan, the livestock sector received rather little attention in terms of government policy and investment, although this now seems to be changing, with renewed government interest in the livestock sector and the role it can play in future economic growth in Sudan post-secession.

Darfur's livestock trade was immediately and badly affected by the conflict. Early on, in 2003–4, when large numbers of rural households were displaced, looting of livestock was widespread. Prices plummeted as distress sales of livestock soared, and many of the looted animals were sold quickly and locally, usually for meat consumption. Many livestock traders went out of business and/or were bankrupted in these early years; others switched to trade in less-risky commodities. Large-scale livestock traders from Omdurman withdrew from Darfur's livestock markets because of insecurity and the risks associated with trekking animals on the hoof, effectively transferring the risk of trekking livestock to central Sudan to smaller-scale Darfuri traders. By March 2011, there were signs of limited recovery in Darfur's livestock trade as some large-scale traders from Omdurman returned to the region, especially to South Darfur, but this recovery is fragile and could be threatened by shifting conflict dynamics.

All traders interviewed for this study recounted a contraction in the volume of livestock traded during the conflict years, of at least 50%, sometimes more, and a deteriorating quality of livestock brought to the market compared with the pre-conflict years. Most secondary livestock markets have contracted in terms of volume of sales, and many primary village markets in Darfur have been closed since the conflict began. There has been a sharp fall in the number of livestock traders operating in Darfur, as well as an ethnic concentration of livestock traders during the conflict years, reported in all markets in Darfur visited for this study. In some parts of the region, agreements have been forged between otherwise hostile groups to secure access to trade where there are mutual livelihood and economic interests, showing how trade can be a bridge to rebuilding relationships between otherwise hostile groups, and of the benefits to all concerned and to the economy when this succeeds.

Livestock traders have adapted to the conflict environment by switching to more secure yet longer and more circuitous trekking routes. They have reduced the number of animals moving in a single herd to reduce exposure to looting and now employ armed guards to accompany the herds. Each of these adaptations has substantially increased the transport costs per head of livestock. Overall, trading costs have soared during the conflict years, rising by 100 to 700% compared with 2002, not only due to the hiring of armed guards for protection but also due to the payment of fees at numerous checkpoints on many routes, and due to substantially increased formal taxes. A major grievance amongst livestock traders is that they see little benefit from paying inflated taxes in terms of improved market infrastructure or services. Instead, much of the market infrastructure in Darfur and along the trekking routes appears to be deteriorating.

No livestock traders interviewed for this study in Darfur had accessed formal credit, a major constraint to livestock trading, as the amount of capital needed to trade has soared during the conflict years. Although the livestock marketing system in Darfur and Omdurman has long depended upon informal credit arrangements, these carry their own risks, and some traders have gone out of business when others have defaulted on payments on credit.

Cross-border trade with Libya, Chad, and CAR has long been a feature of Darfur's livestock trade, much of it informal. Although Egypt is officially Sudan's most important market for the export of camels, in Darfur the export trade to Libya is currently preferred, mainly because of the informality of the trade and lack of regulation. Recent political upheavals in both Egypt and Libya temporarily disrupted the camel trade, although it has since resumed. Cross-border trade in livestock between West Darfur and Chad was also disrupted by political hostilities between the respective governments, but has resumed since 2010. There has been some shift in market activity during the conflict years away from the long-distance trade of animals, with its associated risks, to the local slaughter of livestock to meet Darfur's growing demand for meat. The rapid and distorted process of urbanization in Darfur during the conflict years has triggered an emerging and important local meat industry.

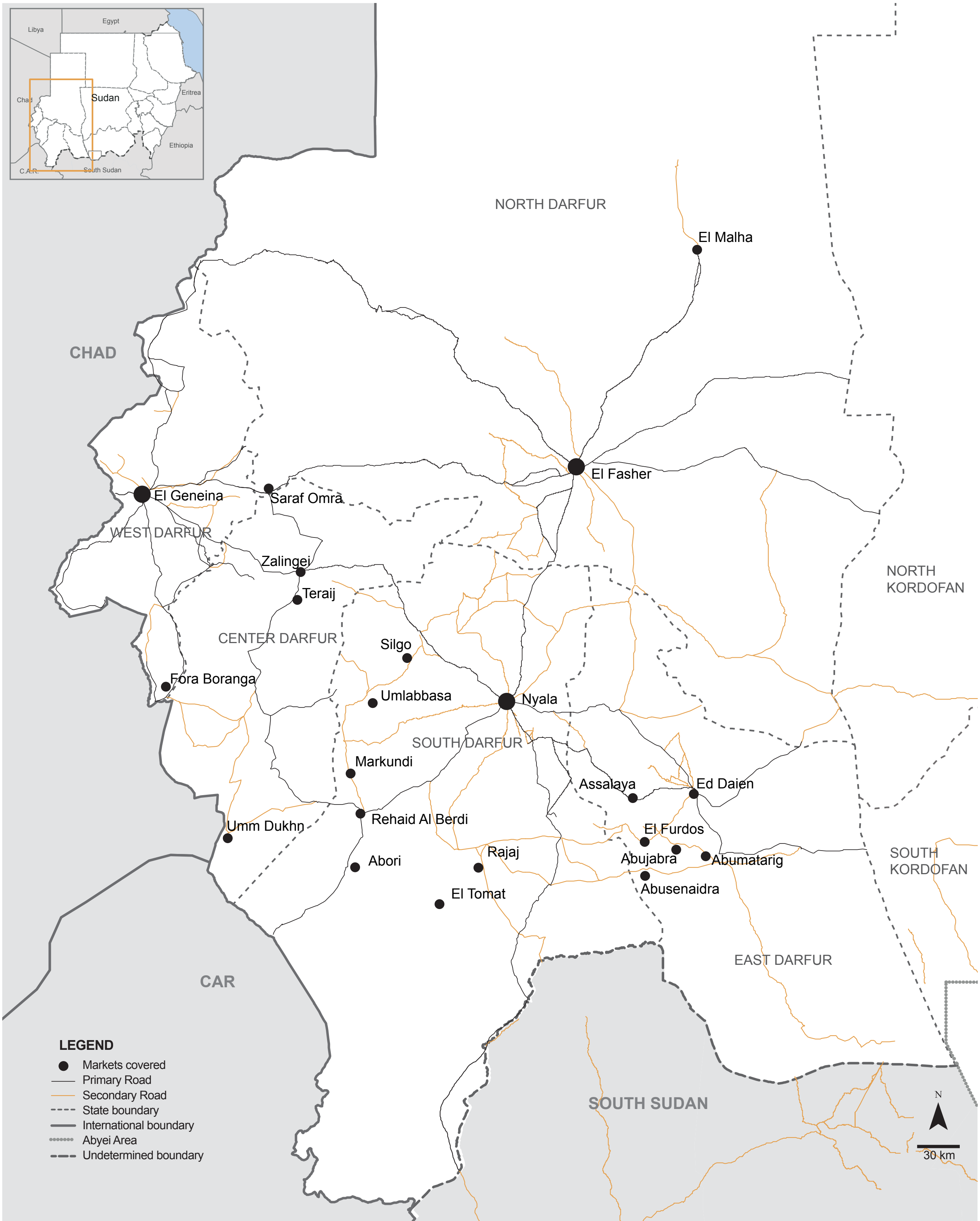
Despite Darfur's prominence as one of Sudan's most important livestock-producing areas and as a major contributor to livestock exports, the region has only one poorly functioning slaughterhouse, located in Nyala. Plans to construct a new abattoir in Nyala are progressing very slowly, and an abattoir constructed in Geneina has never been completed, yet such facilities could play a critical role in stimulating Darfur's livestock trade and in efficiency gains if livestock no longer had to be trekked on the hoof to Omdurman, especially during the dry season.

Trade in hides and skins, an important by-product of the livestock trade, has flourished in Darfur during the conflict years, mainly focused on West Africa. Most of the hides and skins are exported directly, for example through El Fasher and Geneina, and transported overland.

Although there are some such positive trends to report, the overall picture that emerges is of many inefficiencies in the way that Darfur's livestock are currently traded, exacerbated by the much-increased trading costs associated with the conflict, which further reduces the competitiveness of Sudan's livestock exports. The livestock sector and livestock trade will be critical to the eventual recovery of Darfur's economy and to the recovery of rural livelihoods. Planning on how to support such a recovery, as inclusively as possible, can start now.

SUDAN: Darfur - Markets covered under this study

September 2012



Creation date: 11 September 2012 **Sources:** Boundary(CBS,IMWG), Settlement(OCHA).

Map created by OCHA

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Final status of the Abyei area is not yet determined.

1. Introduction

1.1 Why this study?

Livestock is one of Darfur's main economic assets and a central component of most rural livelihoods. It is estimated that the region accounts for one-quarter to one-third of Sudan's livestock production.[1] The greater Darfur region has long been a major exporter of camels, cattle, and sheep, while goats are mostly traded and consumed locally. The outbreak of conflict in Darfur in 2003 has badly affected the livestock sector. There was widespread looting of livestock in the early years of the conflict, affecting traders as well as producers, as so much of the livestock trade involves trekking animals over long distances. This became a risky business. As the conflict continued, other constraints have affected the livestock trade; for example, a heavy taxation burden, although some trading opportunities have also opened up. The significance of the livestock sector to Darfur's economy at the macro level, and to livelihoods at the micro level, means that recovery of the livestock sector and of livestock trade will be key to the long-term economic recovery of the region. Since the secession of South Sudan and the loss of oil revenue, the livestock sector is of increasing importance to Sudan's economy at the national level.

The purpose of this study is to understand what has happened to the livestock trade in Darfur during the conflict years, and to identify how trade can be supported. The specific objectives are, first, tracking how the livestock trade has been impacted by the conflict in Darfur since 2003, how trade 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. The second objective is to identify ways in which the livestock trade can be supported to better sustain the livelihoods of different groups in Darfur while the conflict continues, and, in the longer term, to support the eventual recovery of Darfur's economy, and contribute to the economy at the national level. It builds on earlier studies during the conflict years that have looked at the livestock sector and livestock trade.[2]

The study is part of UNEP's "Sudan Integrated Environment Project" (SIEP). Led by the Feinstein International Center (FIC) of Tufts University, the study feeds into Tufts' overall research program on livelihoods in Darfur that began in 2004. Carried out over a twelve-month period between February 2011 and February 2012, this in-depth study of the livestock trade complements ongoing monthly monitoring of trade and markets that the non-governmental organization (NGO), the Darfur Development and Reconstruction Agency (DRA), is managing in North and West Darfur through local community-based organizations (CBOs) with advisory input from Tufts University. Together, both of these market research initiatives aim 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. These initiatives also aim to identify peace-building opportunities through trade. This livestock trade study complements a parallel initiative by the Feinstein International Center on pastoralism, which aims to promote understanding of pastoralist livelihood systems among local, national, and international stakeholders and to strengthen the capacity of pastoralist leaders, organizations, and other advocates to articulate the rationale for pastoralism in Sudan. The livestock trade study in Darfur and the project on pastoralism are being carried out in close collaboration, both being components of the environment and livelihoods theme of the SIEP.

1 Based on 2011 figures from the Ministry of Animal Resources, Fisheries and Range, for Sudan after the secession of South Sudan.

2 See, for example, Young et al. (2005), El Dukheri et al. (2004).

Sustainable livestock production is critical to livestock trade, domestically and internationally, and thus to economic growth. Well-managed and supported by clear and coherent policies, both can contribute to sustainable natural resource management. Poorly managed, both can undermine the sustainable management of natural resources and be destructive. Indeed, where otherwise hostile groups have overcome their differences in order to continue livestock trading, there may be potential to extend this collaboration to the co-management of natural resources.

This report presents the findings of the livestock trade study. It begins with an overview of the livestock trade in Sudan, its significance to the economy, and provides a description of the evolving policy context—section 2. Section 3 describes the livestock trade in Darfur pre-conflict and provides an overview of how the livestock trade has contracted during the conflict years. Section 4 analyzes how market activity has shifted in Darfur in response to the conflict, both in terms of the market network and in terms of livestock trade routes, drawing on primary data collected during the study. The changing profile of livestock traders in Darfur is presented in Section 5, which shows the concentration of market power during the conflict years. Section 6 shows how the costs of trading have soared since 2003 based on an analysis of data collected during 2011. Section 7 draws out the implications of the study's findings for livestock production, and presents a couple of hypotheses about how livestock production and ownership in Darfur appears to have changed during the conflict years, according to feedback from traders and other stakeholders interviewed during 2011. Section 8 assesses how cross-border livestock trading from Darfur has been affected during the conflict years and shows the growing significance of domestic meat consumption within Darfur. Trade in hides and leather from Darfur appears to be growing in importance; this is reviewed in Section 9. Finally, section 10 presents the conclusions from the study and makes recommendations about how the livestock trade in Darfur can be supported in the immediate and longer-term future.

1.2 Methodology

This study builds on previous research into the livestock trade in Darfur and how it has been impacted by conflict, in particular "Livelihoods Under Siege," (Young et al, 2005), which provided an account and analysis of the early impact of the conflict on the livestock market, and a subsequent study carried out in 2007 in Darfur's state capitals: "Adaptation and Devastation," (Buchanan-Smith and Fadul, 2008) which began to show how the livestock trade had adapted four years into the conflict. This most recent study provides an overview of how nine years of widespread conflict have impacted on the livestock trade, with a particular focus on the state of the livestock trade in 2011.

The first step was drawing up a set of research questions to guide the study. See Box 1. Subsequent steps in carrying out the study were as follows:

1. ***A review of secondary documentation*** on livestock trading, principally from Sudan but also more broadly, for example, from the Horn of Africa, to ensure this study provides added value by building on previous work and existing knowledge.

2. ***A period of fieldwork to collect primary data in Darfur's state capitals***: El Fasher, El Geneina, and Nyala. This was carried out in March 2011 by four senior researchers, each with existing knowledge and experience of the livestock trade in Darfur. (See Annex 1). Key informant interviews were conducted with different types of livestock traders in each market visited, purposively selected to be representative of the range of traders currently engaged in the livestock trade. Interviews were also carried out with government officials who administer the livestock market and collect taxes, with herders employed by traders on the main livestock trading routes throughout and beyond Darfur, and with other stakeholders and resource people, including academics, who have data and information about the sector.

3. ***A review of official statistics and government policy on livestock trading*** was carried out by a national consultant in Khartoum, in order to identify trends and to understand the macro policy environment within which Darfur's livestock trade is operating (Ijaimi, 2011).

4. ***A second period of more detailed fieldwork in 14 markets across the three Darfur states*** was completed between April and June 2011. (See the map for markets researched during this study). Ten local researchers were recruited to carry out this phase of the study, most of whom were agricultural officers and assistant vets in Darfur, familiar with their local market and having strong contacts with livestock traders and producers. See Annex 1. This team of local researchers was trained in a 2-day workshop in El Fasher in March 2011, provided with questionnaires and a short report form to complete, and met again for a 3-day analysis workshop in Khartoum in June 2011.

5. ***Interviews with livestock traders and exporters in Omdurman*** were carried out in January/February 2012.

6. The ***final analysis*** of all the data and materials gathered was carried out in February/March 2012.

This study relies on both quantitative and qualitative data, some of it drawn from secondary sources, while much of it is primary data collected during the respective periods of field work. Quantitative data cover indicators such as prices, trading costs, and estimates of numbers of traders and numbers of livestock traded. We have indicated where these are estimates, and therefore the numbers need to be treated with caution. Qualitative data cover issues such as trade routes, trader profiles, and evidence of geographical shifts in market activity. In order to capture the impact of the conflict on trade, interviewees were asked to make comparisons between the livestock trade in 2011 and in 2002, before conflict in Darfur was widespread. These comparisons often rely on recall, as reliable written records are scarce.

Carrying out primary research in the current Darfur environment is challenging and subject to many constraints. Principal amongst these are:

(1) insecurity and restricted access to a number of markets within Darfur: a team of local researchers based in each of these markets was therefore recruited and trained to overcome this constraint;
(2) the dynamic and fluid situation in Darfur, which means that data and analysis can quickly become outdated: where possible the team has done follow-up monitoring to ensure that early findings are still relevant or to update them, but the rapidly-changing environment should be borne in mind when considering the findings of this study;
(3) traders being suspicious of questions and in-depth interviews and therefore reluctant to participate. The team used local networks and trusted personal relationships to overcome this constraint;
(4) at the national level, the lack of official statistics on some aspects of livestock trading, for example, the relative share of domestic versus international trade and numbers of livestock exported from Darfur, has been a constraint. Also, official statistics prior to July 2011 refer to Sudan including South Sudan, although this study is being completed after secession and therefore makes recommendations for the newly defined (northern) Sudan. The lack of official statistics is even more acute at the Darfur level, constraining the quantitative analysis that was possible.

In carrying out a study of this kind, it has been important to generate support for the work from government and other stakeholders: the fact that it has been carried out at a time when government is giving increased attention to the livestock sector and its potential as a source of economic growth has intensified interest in, and support for, the work.

The study aims to address an ambitious list of research questions. Where it was not possible to provide conclusive answers, the findings are posed as hypotheses that require further investigation; for example, in response to question 3 in Box 1 on the main producers of livestock currently traded in Darfur.

Box 1.

Research questions that the study sets out to answer

(1) Overall, how has the livestock trade been affected by, and how has it responded to, the constantly shifting dynamics of conflict in Darfur since 2003? How has it adapted, and to what extent (if at all) has the livestock trade recovered?

(2) Specifically, how has the volume and value of the livestock trade in Darfur been affected by the conflict, and how has this impacted on livestock exports from Sudan? How does this compare with other factors affecting the livestock trade in the last decade?

(3) Who are the main producers of livestock currently traded in Darfur, and how does this compare with the pre-conflict years?

(4) How has the market chain for livestock been affected by the conflict, from producers to consumers/exporters?

(5) How has the concentration of market power amongst different livestock traders changed during the conflict years; for example, geographically and ethnically? Who trades with whom? What determines access to the livestock market (in order to become a trader), and how has this been impacted by the conflict context?

(6) How have trading routes changed throughout the period of the conflict, and why? What does this tell us about security and conflict dynamics?

(7) How have trading and transaction costs in the livestock trade been affected by the conflict? What are the increased risks, and who bears the cost of those risks? What can we learn from an analysis of trading costs about current inefficiencies in livestock trading and how these could be resolved?

(8) How significant is cross-border trade in livestock from Darfur (eg., into Chad, Central African Republic, and Libya), formally and informally, and who is involved?

(9) What are the implications of all of the above for the livelihoods of different groups in Darfur, including current and former (ie., pre-conflict) pastoralists, agro-pastoralists, and farmers?

(10) What are the implications for all of the above for sustainable livestock production and trade in Darfur's economy in the future?

The livestock trade in Sudan is almost entirely dominated by men. Therefore, this study has mainly been carried out through interviewing male traders. Because of lack of access to livestock producers, few women were interviewed as key informants, which is clearly a gap. The commercial involvement of women in the livestock sector is mainly in the trade of livestock products, such as milk and leather. Trade in hides and skins has been explored briefly, but it was beyond the resources of the study to carry out a full analysis of trade in livestock products. This is a gap which needs to be filled for a truly gendered analysis of the trade in livestock and associated products.

2. An overview of Sudan's livestock trade and the policy context

2.1 The significance of livestock production in Sudan

Since the discovery of oil in Sudan in the mid-1990s, petroleum has been hugely important to Sudan's economy. As a result, Sudan enjoyed one of the highest growth rates in Africa between 2000 and 2009, of almost 8% p.a. But even during this period, agriculture was significantly more important to GDP (Gross Domestic Product) than petroleum, and much of this was due to the livestock sector. See Figure 1. In terms of exports, however, petroleum eclipsed the agricultural sector. Having accounted for about 80% of national exports before oil was discovered, the contribution of crops and livestock combined dropped to between 5 and 10% of national exports after 2000. See Figure 2.

This has changed abruptly with the secession of South Sudan in July 2011. With 75% of known oil reserves in South Sudan, the loss of revenue to the economy of Sudan is serious. It has rapidly reverted to an economy much more dependent on agriculture, with its fluctuating levels of annual production. The loss of oil revenue is associated with a rapid deterioration in macro-economic indicators, as oil accounted for 75% of Sudan's foreign exchange. Foreign exchange reserves are low and inflation is running at around 30%, according to official data at the time of writing. This has contributed to renewed government interest in the livestock sector and the role it can play in future economic growth in Sudan. See Section 2.3 below.

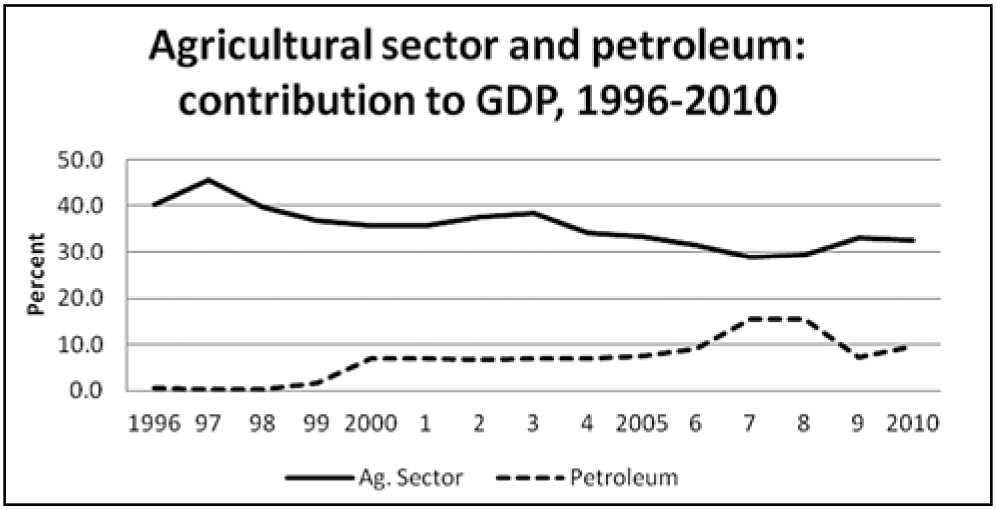
Indeed, the significance of livestock relative to crop production in Sudan's domestic economy has increased. According to the Central Bureau of Statistics (CBS) (quoted in Behnke, 2012), livestock now accounts for more than 60% of agriculture's total contribution to GDP and crop production less than 40%, despite the fact that the latter has been given most attention by government and in policy initiatives. See section 2.3 below. As a proportion of agricultural exports, the rising contribution of livestock is striking. Between the late 1950s and early 1970s, livestock accounted for 3 to 6% of all agricultural exports. Between the late 1990s and 2009, livestock accounted for 27 to 47% of agricultural exports, depending on the year (Ibid.).

Before the secession of South Sudan, it was widely quoted that the greater Darfur region accounted for one-fifth of Sudan's livestock resources; the proportion was believed to be very similar for camels, cattle, sheep, and goats (World Bank, 2007). It is now believed that Darfur's livestock resources account for approximately one-quarter to one-third of Sudan's livestock resources post-secession. However, such estimates should be treated with caution, as the last livestock census was carried out in 1975, more than 35 years ago. Since then, official statistics on livestock production have been extrapolated, based on projected growth rates and models that indicate livestock numbers increasing rapidly during the 1990s. Bennke's (2012) recent comparison of the findings of state-level exercises to count livestock and projections based on the 1975 census illustrates why it is important to treat these extrapolated figures with caution. In the three, now five (East, South, Central, West, and North) Darfur states, there have been no attempts to update livestock figures since 1975. Not only have there been significant droughts since 1975, the last nine years of violent conflict have had a serious impact on livestock holdings and on concentration of ownership. In these circumstances, it is unwise to attempt an estimate of current livestock numbers.

2.2 An overview of the livestock trade in Sudan, with a focus on livestock exports

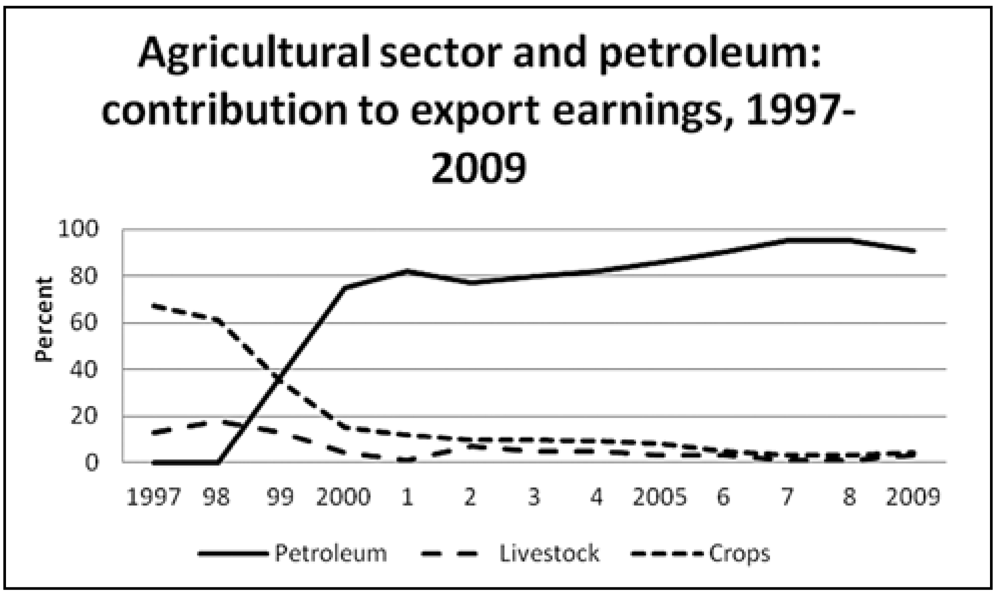
Livestock are a key component of most rural livelihoods in Sudan, and especially in Darfur, whether as a productive asset for meat and milk, and/or as a form of capital. Trade in livestock and livestock products is an essential part of rural livelihood strategies. Sometimes livestock and livestock products may be traded between livelihood groups; for example, between pastoralists and farmers as the former sell animals to purchase grain and other foodstuff and as the latter invest in animals, often with income from

Figure 1. Contribution of the agricultural sector to GDP in Sudan



Source: Central Bureau of Statistics, unpublished data, taken from Behnke (2012)

Figure 2. Contribution of the agricultural sector to national exports in Sudan



Source: Central Bureau of Statistics, unpublished data, taken from Behnke (2012)

selling part of the harvest. Livestock are also sold to butchers for domestic meat consumption. Long-distance trade in livestock has long been a part of Sudan's economy: the "40 Days Road"—*Darb El Arbaein*—for trekking camels from Darfur and Kordofan to Egypt, for example, is believed to have existed for centuries. Official figures do not indicate the relative significance of domestic versus international trade,[3] although the growth in livestock exports in recent decades—see below—may have acted as a stimulus to livestock production, especially to sheep production. Indeed, Behnke (2012) suggests that there has been a reorientation of livestock production to satisfy external markets.

[3] Informally, experts estimate that the value of domestic trade in livestock is many times greater than the international trade in livestock in Sudan.

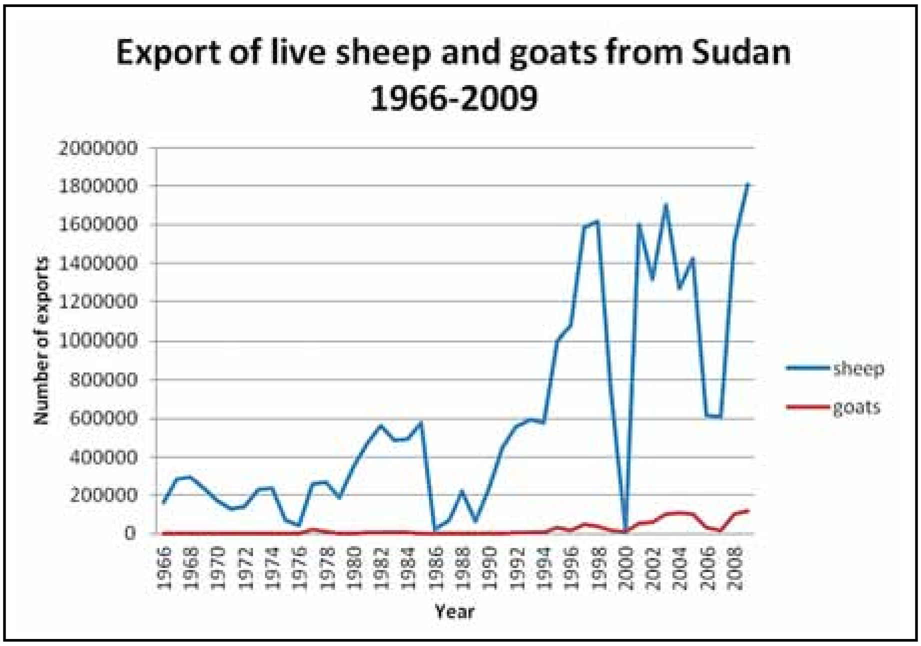
The main methods for exporting livestock and meat from Sudan are as follows:

- shipping live sheep, goat, camels, and cattle to the Middle East through Port Sudan and Suakin
- trekking camels on the hoof to Libya and to Egypt
- trekking cattle from Sudan (Darfur) to Chad and the Central African Republic
- flying chilled meat (from small stock, cattle, and camels), mainly from abattoirs around Khartoum, to the Middle East, and occasionally from Nyala in South Darfur.

(ICRC, 2005a)

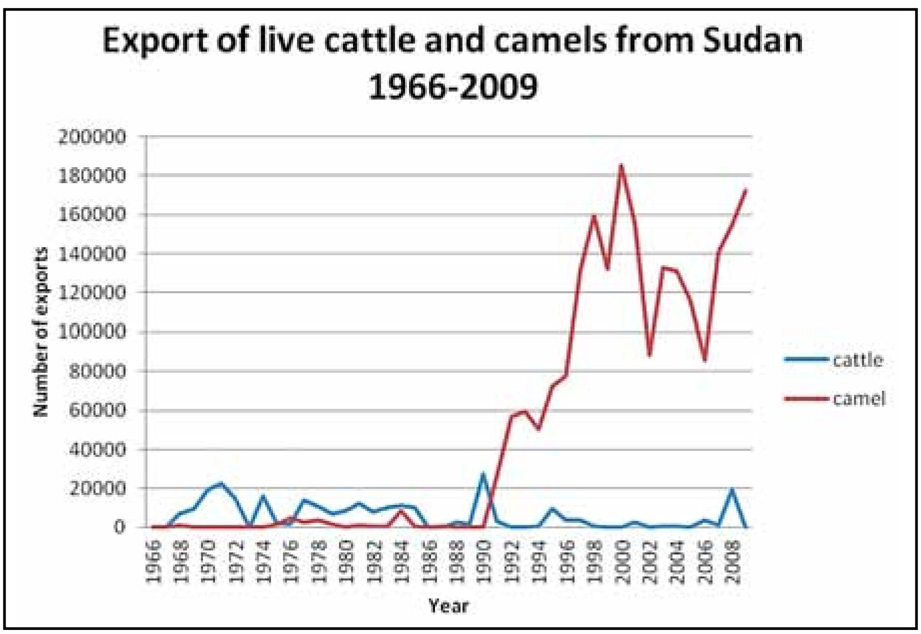
While most of this is formal trade, recorded in official statistics, there is a significant component of informal cross-border trade, particularly from

Figure 3. Sudan's export of live sheep and goats



Source: MoARF&R

Figure 4. Sudan's export of live cattle and camels



Source: MoARF&R

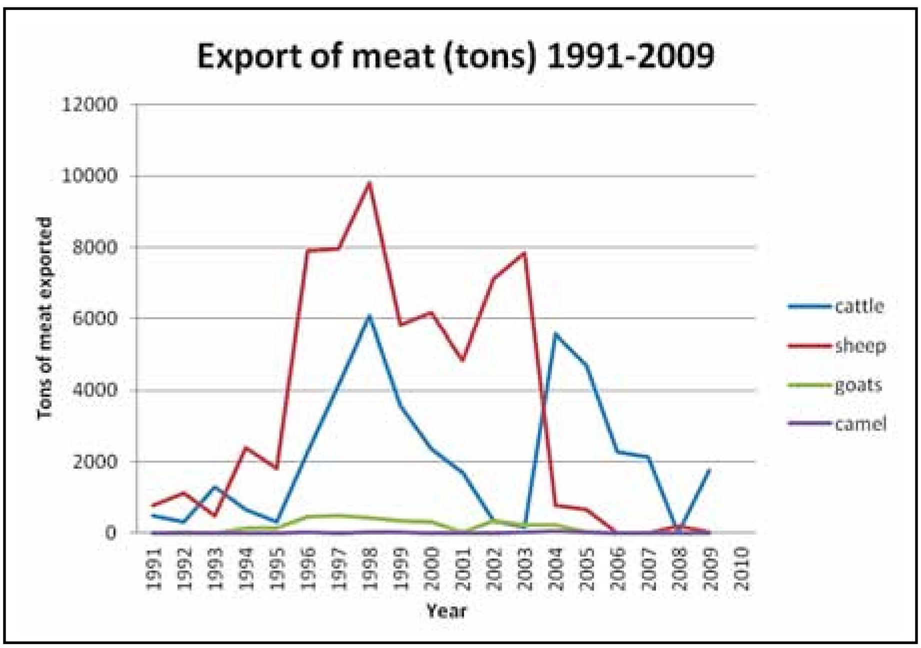
Darfur, for example the camel trade to Libya.

Live sheep are Sudan's most important livestock export and the volume of trade has trebled since the early 1980s, although there is high variability year on year. See Figure 3. Indeed, the export of live sheep and goats accounts for more than 90% of Sudan's total livestock export earnings averaged over a number of years. This is followed by the export of live camels, which increased rapidly in the mid- to late- 1990s as demand for camel meat increased in Egypt. See Figure 4. A much smaller number of live cattle are exported; instead, most are slaughtered within Sudan and the meat is exported. Official statistics on Sudan's meat exports only date back to 2003, although Sudan has been exporting meat since the 1970s. Beef now accounts for approximately 65% of Sudan's total meat exports. See Figure 5.

Most of Sudan's livestock and meat exports are destined for the Middle East, particularly Saudi Arabia, which accounts for over 90% of Sudan's export of live sheep and goats.[4] The export of live sheep peaks during the two months prior to the annual Hajj festival. Saudi Arabia is a rapidly growing market for meat and for live animals as the population becomes more urbanized, as incomes rise, and as the immigrant worker population increases (Dirani et al., 2009). The Saudi market for live animals is estimated to be growing at a rate of 8% p.a.

Although Saudi Arabia is Sudan's most important export market for livestock, Sudan is much less significant to Saudi Arabia. Between 1998 and 2009 Sudan accounted for an annual average of 24% of Saudi Arabia's total imports of live sheep and goats (by value). Between 2000 and 2007, Sudan accounted for 18% of Saudi Arabia's total imports of mutton (by value).[5] The main export market for Sudanese beef has been Jordan, and, since 2010, also Egypt. This reveals Sudan's exposure to a small number of export markets—three in particular, Saudi Arabia, Jordan, and Egypt. This leaves Sudan highly vulnerable to changing trade regimes and/or demand within those markets. The consequences of such high exposure have been evident on at least two occasions since the beginning of the 2000s. In 2000/01, Saudi Arabia banned the import of sheep from eight African countries, including Sudan, because of an outbreak of Rift Valley Fever in the southern part of the kingdom. This was repeated in 2006/07 because of an outbreak of viral hemorrhagic fever (VHF). The devastating impact on Sudan's export earnings can be seen in Figure 6. Overall, Sudan is in danger of losing its share of the market, in Saudi Arabia in particular,

Figure 5. Sudan's export of meat



Source: unpublished data from the Ministry of Foreign Trade

4 According to unpublished data from the Ministry of ForeignTrade.

5 According to unpublished data from the Ministry of Foreign Trade.

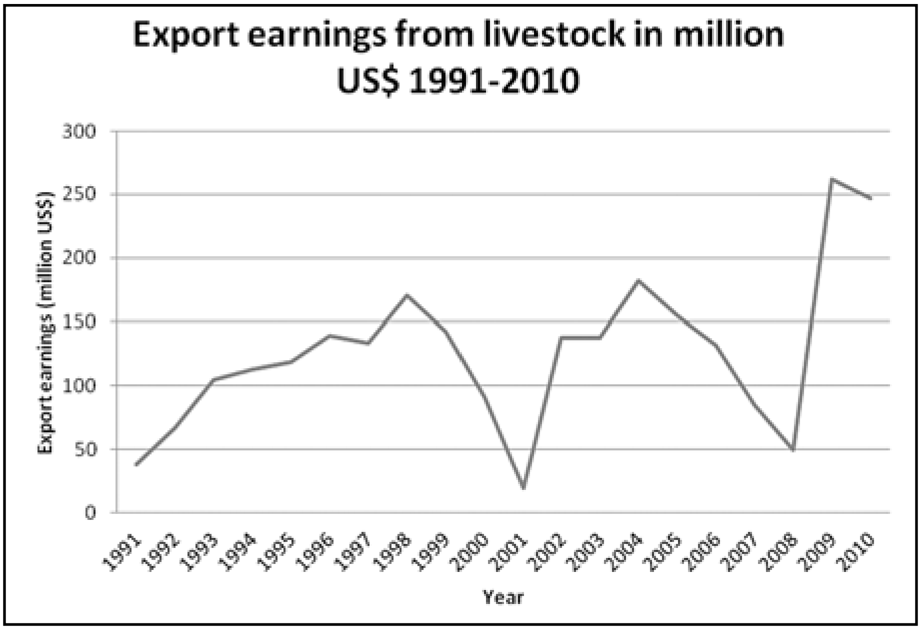
as other exporting countries with more sophisticated production and marketing infrastructure emerge as major competitors. Australia has become a major competitor in the live sheep market. Sudan lost its market share of sheep meat to Saudi Arabia in 2008 and 2009, to the benefit of Pakistan, Ethiopia, and India. See Figures 7a and 7b.

Sudan's imports of live animals and of meat are minimal: in 2002 this represented less than 2% of the value of its exports for live animals and just over 1% of its exports of meat (FAO, 2005).

2.3 The policy context

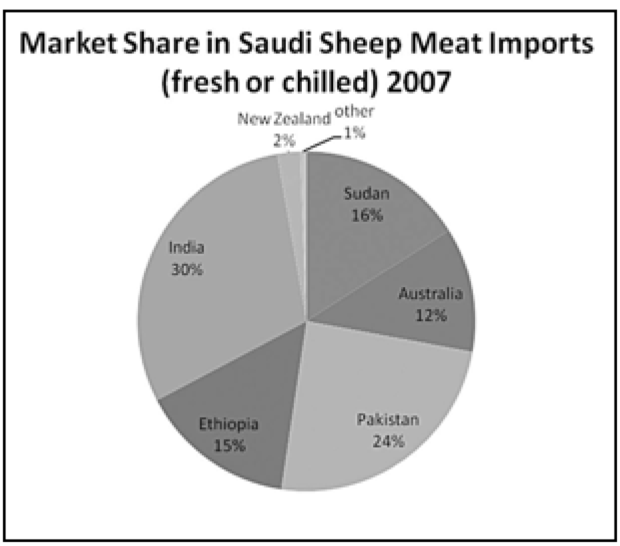
Since independence, the livestock sector has been relatively neglected by government policy in Sudan, which has long favored crop production

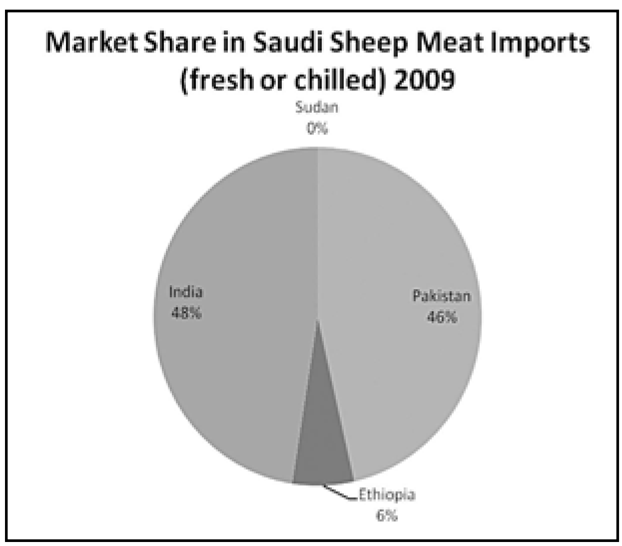
Figure 6. Sudan's export earnings from livestock



Source: Central Bank of Sudan

Figures 7a. and 7b. Sudan's market share of Saudi sheep meat imports, 2007 and 2009





Source: unpublished data from the Ministry of Foreign Trade and especially the expansion of semi-mechanized rainfed agriculture, often at the expense of livestock production and pastoral livelihoods.[6] During the years of oil production before South Sudan seceded, the attention given by government to both crops and livestock diminished considerably. Although there have been a number of ambitious government plans and strategies, most recently the Agricultural Revival Programme (ARP) covering the period 2008 to 2011, implementation of these plans has tended to be weak and their impact limited. The ARP, which has just entered a second phase from 2012 to 2016, aimed at modernizing livestock production, improving market efficiency, and adding value through processing.[7] However, progress has been limited (although it did rehabilitate Suakin quarantine facilities in the first phase); this study did not pick up evidence of how this has benefited the livestock trade in Darfur.

Government policy on livestock has traditionally emphasized animal health and vaccination programs, often at the expense of wider concern for animal production issues and livestock marketing. The control and eradication of Rinderpest through vaccination has been a high priority.[8] Initially, vaccinations were provided free of charge, but during the 2000s this switched to an emphasis on cost recovery and the role of the private sector in supplying veterinary drugs (ICRC, 2005b). While some commentators lament declining government support to disease control (Ibid.), others highlight how Sudan's live quarantine system has served its export trade, especially compared with parts of Somalia (Somaliland and Puntland), which had no state-sanctioned quarantine system and were therefore unable to export live sheep to Saudi Arabia between 2001 and 2009, while Sudan faced the ban for just one year (Behnke, 2012).

One of the most significant changes in government policy affecting Sudan's livestock trade was the disbanding of the Livestock and Meat Marketing Corporation (LMMC) in 1992. A government parastatal and service provider, the LMMC had supported livestock trade through the development of market infrastructure, especially during its first phase, running certain markets and attempting to introduce an open auction system (see below), the provision of market information and support to the livestock export trade. Within the greater Darfur region, the LMMC managed Nyala and Ed Daien livestock markets in South Darfur, El Fasher and Mellit livestock markets in North Darfur, and El Geneina livestock market in West Darfur. It also ran subsidized trains carrying livestock from Nyala to Omdurman. When the LMMC was dissolved in 1992, its assets were passed onto the Animal Resources Bank (ARB), which had a commercial livestock marketing arm—the Animal Resources Service Company. However, the bank has since become a commercial high street bank and all livestock marketing is now done by the private sector (ICRC, 2005b). This change in government policy is still lamented by many livestock traders and is associated with a concentration of market power since. Whereas many traders had worked as agents of the LMMC, the number of exporters appeared to decline when the LMMC was abolished; for example, the number of live sheep exporters declined from 350 in 1985 (many were agents of the LMMC) to 21 in 1995 (Dirani et al., 2009), and are believed to be even fewer today.

This concentration of market power was exacerbated by the government's decision in 2003 to allocate authority for Sudan's livestock exports to the Gulf countries to only one trader. Five major traders had previously dominated the terminal livestock market in Sudan, but government decided to restructure the export trade following the 2000/2001 collapse of livestock exports, effectively removing competition and creating a monopoly (Fahey and Leonard, 2007). This continued until 2005. A number of Sudan's livestock exporters have gone bankrupt over the years, and were jailed for their inability to pay back bank loans (Aklilu, 2002a).

Without the LMMC, there is no single government body at federal level with a strategic

6 See, for example, Fahey and Leonard (2007).

7 See the Executive Program for Agricultural Revival, April 2008.

8 Pioneering work by researchers from Tufts University who developed a rinderpest vaccine that could be transported to rural areas without refrigeration was critical to this achievement. See **http://vet.tufts.edu/pr/20110629.html** (last viewed 22 June 2012).

mandate for promoting the livestock trade, domestically and internationally, despite the importance of this sector to the national economy. Instead, a range of government bodies have some responsibility for livestock marketing, including state and locality administrations, the Ministry of Foreign Trade (MoFT) and the Ministry of Animal Resources, Fisheries and Range (MoARF&R). Livestock traders have to deal with all of these bodies as well as banks, customs, transport companies, etc. (Aklilu, 2002a). The MoFT created a Live Animals and Meat Export Promotion Council in 2004, which was apparently effective in easing some government restrictions on exporters, but livestock producers were not well-represented on the Council (Ibid.). The ARP established a series of commodity councils, including a livestock council comprising three committees for livestock, meat, and leather respectively. The objective is to promote strategies and policies for developing livestock, particularly through coordination of all activities in the commodity chain up to the point of consumption, from research through production, processing, and quality control. It is judged to be one of the more effective of the nineteen councils established by the ARP[9] and has drawn government decision-makers' attention to some of the constraints to livestock marketing, including high taxation and fees and poor animal health services, as a result of which government has taken action to rehabilitate the quarantine facilities in Port Sudan and in Khartoum North, and to establish an export promotion fund held by the Bank of Sudan. At the time of writing, the World Bank MDTF (Multi-Donor Trust Fund) project is working with MoARF&R to develop a strategy for developing the livestock sector.

With the demise of the LMMC, livestock markets became the responsibility of the respective locality in which they were located. Effectively, responsibility for managing livestock markets has been decentralized to state and locality levels, where they are regarded primarily as a source of income, and there is little evidence of those tax revenues being reinvested to support the livestock sector (Dirani et al., 2009). As with trade in most other agricultural produce, numerous taxes and fees are applied to livestock. An analysis of available studies in 2002 showed that "taxes and fees constitute up to 27% of the cost of the exported animal and may go up to 40% if fodder is included" (Aklilu, 2002a, 69).

A more recent World Bank study records taxes and fees accounting for 14 to 20% of total marketing costs when animals from western Sudan are transported on the hoof and sold on the domestic market, and averaging around 13% if transported by truck (Mina and Van Holst Pelekaan, 2010). This is further explored in relation to the livestock trade in Darfur in section 6 below, which shows the extent to which locally imposed taxes have risen. It is widely accepted that Sudan has one of the heaviest and most complex taxation regimes in the region (Aklilu, 2002a).

There have been various attempts over the years to introduce an auction system for Sudan's main livestock markets, widely regarded as an efficient method for livestock trading because of the transparency of market information associated with open auction.[10] The LMMC established eleven market centers with weighing scales and auction yards before it was disbanded, but these failed, apparently because the system was sabotaged by brokers who did not support it, and an auction system required immediate cash payments whereas Sudan's livestock trading system has traditionally been based on trust and credit (Aklilu, 2002a). More recently, a project supporting livestock markets, funded by the MDTF and administered by the World Bank, has once again attempted to introduce an auction system into six markets that it is rehabilitating, although none is in Darfur: the closest is Ghibeish market in West Kordofan, important for sheep.[11]

In terms of livestock production, a major piece of legislation that could affect the livestock trade is the 2010 Agriculture and Animal Producers' Act. If endorsed by the General Assembly, this would effectively cancel the Organizations of Farmers and Pastoralists Act of

9 According to the ARP report on the performance of the councils in 2011.

10 This contrasts with the "Silent Auction System" that prevails in Sudan, which means that livestock prices are hard to obtain and market information is not readily available (Aklilu, 2002b).

11 Ghibeish, El Nihood, El Khowei, Abo Zabad in North Kordofan state, El Damazeen in Blue Nile state, and Sinja in Sinnar state.

1992. Producer Associations would replace the Pastoralist Union and Farmers Union and would include traders. There is concern that this would reduce the voice and representation of small-scale livestock producers (Young et al., 2012).

Since the secession of South Sudan and the abrupt fall in oil revenues, federal government in Khartoum has once again turned its attention to livestock (as well as agriculture) as a potential driver of economic growth and source of foreign exchange.[12] However, lack of resources appears to be constraining efforts and at the time of writing there is no evidence in the three Darfur states of any new government investment.

2.4 Livestock exports: the major constraints

Although Sudan's export trade in livestock and livestock products shows an upwards trend overall, it faces many constraints, which could halt future growth and development in the face of increasing and more aggressive competition from other major livestock exporting countries in the future. This in turn could impact on future growth of the livestock trade in Darfur, of which exports are an important component. Dirani et al. (2009) have explored some of these constraints in relation to exports of live sheep and sheep meat, while other authors have documented the factors constraining livestock exports more generally.

Some of the most significant constraints are the following:

(1) Globalization of trade regimes is resulting in increasingly strict welfare, hygiene, and disease control regulations in livestock importing countries in Europe and the Middle East (ICRC, 2005b). In Saudi Arabia, Sudan's main export market, there is increasing demand for chilled and frozen meat, which demands more rigorous inspection and certification systems. Sudan does not currently have adequate policies, veterinary services, or physical infrastructure to support its livestock trade in responding to these more rigorous requirements, especially when competing with new suppliers like Australia, Brazil, New Zealand, and the European Union (EU) that are better equipped to comply with such regulations (Idriss, 2008).

(2) High dependence on a small number of export markets, particularly Saudi Arabia and Egypt, leaves Sudan's export trade vulnerable to national bans and/or changing trade regimes. There is also a high level of variability in Saudi's demand for live sheep annually, which in turn affects Sudan's export trade (Ijaimi, 2011).

(3) Sudan's major livestock producing areas are located far from Khartoum and far from its main export markets. Lack of infrastructure means that most livestock are trekked on the hoof to Khartoum. During the dry season, when water and grazing are scarce, this is an inefficient form of transportation that takes considerable time and has negative consequences for the health and quality of the animals and for the quality of the meat (Dirani et al., 2009).

(4) The extent to which Sudan's livestock trade is broker-dominated is said to be "without any parallel in the region" (Aklilu, 2002a, 57). Animals may change hands between two and six times between the point of purchase and the final point of sale, between Darfur and Khartoum, for example (Ibid.). How this impacts on market efficiency of the supply chain for livestock, however, requires further investigation.

(5) For live sheep, Sudan's main livestock export, the screening and testing of animals for export happens late in the chain, resulting in a high level of rejection: 31% of sheep offered for export between 1997 and 2005 were rejected. This increases costs and reduces competitiveness. Lack of capacity to screen and test animals at the primary inspection stage thus contributes to market inefficiency (Dirani et al., 2009).

12 See, for example, the 2011 National Salvation Plan, and the interim Poverty Reduction Strategy Paper (PRSP).

(6) Limited or no access by livestock traders to formal credit is another constraint, further discussed in relation to traders in Darfur in section 6.2 below.

(7) Official exporters of livestock must use the official exchange rate, although this is currently far below the black market exchange rate and means, for example, that sheep cannot be sold in Saudi Arabia profitably. This is driving some exporters out of the livestock trade and encouraging informal export trading/ smuggling.

Many of these constraints relate to the policy context for livestock trading, and/or could be addressed through government strategies and policies that support the livestock trade. Ways of addressing some of these constraints are explored in section 10.2 below.

3. An overview of the livestock trade in Darfur, and its contraction during the conflict years

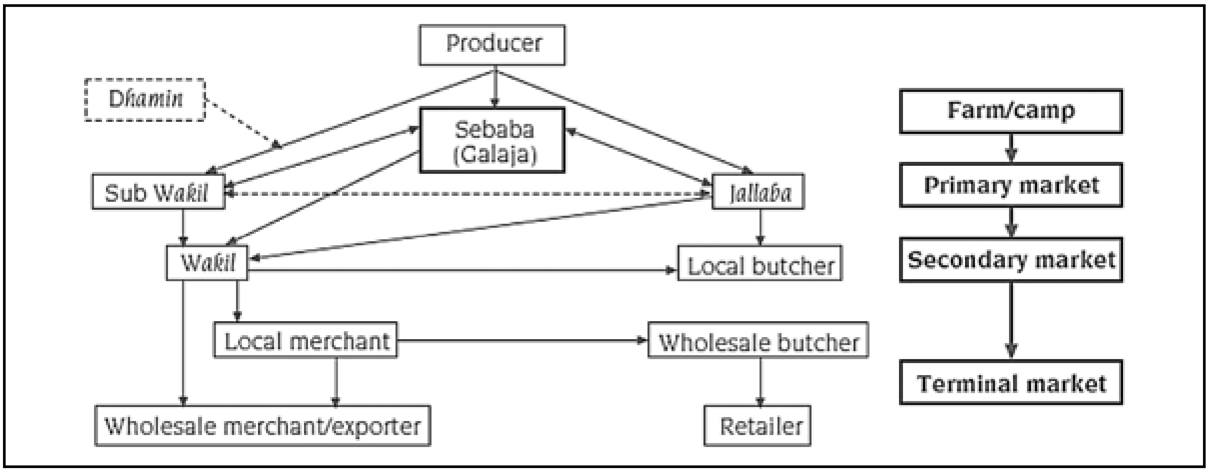
3.1 A description of the livestock trade in Darfur, pre-conflict

The greater Darfur region has long been one of the most important sources of livestock production in Sudan, alongside the Kordofan region, supplying both the export market and internal markets within Central Sudan. South and West Darfur are major cattle producing states, while North Darfur is important for camel and sheep production, although there has been a shift from cattle production to sheep production since the 1970s, especially in North Darfur. While this is partly a response to the drought of the mid-1980s and rainfall variability since, it also appears to be export-driven: sheep from North Darfur and from North Kordofan are particularly sought after in Saudi markets, and the numbers of sheep exported have been increasing as described above (Buchanan-Smith and Fadul, 2008; Behnke, 2012). North and West Kordofan are the main sources of supply of exported sheep—mostly the *hamari* breed. The popular *hamari* breed has also replaced the traditional *zaghawa* breed of sheep in North Darfur in the export trade to Omdurman. West and South Darfur are important sources of supply of cattle, especially bulls, which are traded domestically in Central Sudan, and cattle meat, partly for export (El-Dukheri et al., 2004). South Darfur is famous for the *nyalawi* (western *baggara* shorthorn zebu) breed of cattle, prized for its beef and performance in feed lots. North and West Darfur are important sources of supply of camels exported to Egypt and Libya.

The market structure for livestock in Darfur is based on a hierarchy of primary, secondary, and terminal markets (Buchanan-Smith and Fadul, 2008). Primary markets at the village level are usually held weekly and are the first assembly point for livestock sold by producers. Small-scale traders and agents of large-scale traders may use these markets to buy small numbers of livestock. However, many livestock sales happen "in the bush." In other words, livestock traders or their agents approach livestock owners where the animals are grazing outside the village or town, or at water points, and a deal is negotiated. This is common in all three Darfur states, for sheep, cattle, and camels. Small-scale traders buy the livestock and then bring them to the market for onwards sale to *gallaga* (small-scale traders operating within Darfur) and larger-scale traders. Secondary markets are intermediate town markets, usually held twice per week, where small-scale livestock traders will trade with the agents of larger-scale traders. Terminal, or urban, markets in Darfur's major towns of El Geneina, El Fasher, and Nyala operate on a daily basis and are a point of export: each has a major livestock market with daily trading activity, although there are usually one or two days which are the main market days for livestock. These, along with some important secondary livestock markets such as Fora Boranga, Ed Daien, Mellit, and Seraf Omra, were the point of export for most of Darfur's livestock pre-conflict. Livestock were gradually bulked into larger lots through the market hierarchy until there was a herd ready to be transported on the hoof (Young et al., 2005). If these were cattle, then they would usually be destined for Sudan's main terminal market—El Muweli in Omdurman. If camels, then they would be transported on the hoof direct to Libya, or through Dongola to Egypt. Sheep were usually bulked into herds of 250 to 300 and trekked to Omdurman, either by a Darfuri trader or by an agent of one of the large-scale Omdurman traders. The livestock market chain is shown in Figure 8.

There is a seasonality to Darfur's livestock trade. For cattle, most trading activity takes place at the beginning of, and throughout the rainy season, which is the preferred time to assemble and trek cattle out of Darfur because of the greater availability of water and pasture; this means that the animals can be grazed and fattened en route to the terminal market. Cattle are also trekked out of Darfur in the winter season, between January and February when temperatures are lower (Young et al., 2005). In contrast, the camel trade to Libya and Egypt peaks in the dry season. Most traders exporting camels, sheep, or cattle from Darfur managed just two shipments per year pre-conflict because of the lengthy process of purchasing and assembling the livestock,

Figure 8. The livestock marketing chain in Sudan, from Young et al. (2005)



and because of the time it takes to trek the animals from Darfur to their destination—45 to 70 days, depending on the season. Some larger livestock traders managed as many as four shipments per year, thus exporting more.

Box 2 shows the major trade routes out of Darfur pre-conflict. The livestock market in Darfur has generally been well-integrated with livestock markets in Central Sudan because it is such an important source of supply to Central Sudan. Thus, livestock prices in Darfur usually followed the same trends as livestock prices in Omdurman.

Although the export of livestock from Darfur has long been one of the major components of Darfur's economy (along with groundnuts and gum arabic—Darfur's other major traditional exports), in the past, the livestock trade within Darfur was almost as important as its export trade (Morton, 1985).

3.2 Trends in livestock trading post-2003

Darfur's livestock trade was immediately and badly affected by the conflict.[13] See Box 3 for a brief overview of Darfur's conflict. Early on, in 2003/04, when the violence was at its worst, large numbers of rural households were displaced and looting of livestock was widespread. Livestock became a liability, and a household or individual with livestock holdings was vulnerable to attack. Those displaced with their livestock sold them quickly before they died and/or to avoid looting. Distress sales of livestock were high and prices plummeted. In these early years of the conflict, many of the looted animals were sold quickly and locally, usually for meat consumption. During this period livestock traders were also vulnerable to attack; livestock herds being trekked from one market to another were frequently looted, sometimes on a massive scale. Young et al. (2005) document how 3,500 camels were seized from traders in September 2003 as they were being trekked from Darfur to Libya. As villages were abandoned and security deteriorated, the primary market network virtually collapsed.

From 2006 onwards, inter-tribal fighting has become a significant cause of conflict within Darfur, with numerous incidents of local clashes, causing heavy casualties and displacement of local populations.

During these early years of the conflict, many livestock traders went out of business, some because they went bankrupt if they suffered large capital losses when livestock herds were looted. Others chose to switch trade to less-risky commodities such as crops and groceries. See section 5.1 below. Most of the large-scale livestock traders from Omdurman withdrew from Darfur's livestock markets because of insecurity and the risks associated with trekking animals on the hoof.[14] This had a massive impact on Darfur's livestock trade. There was a serious drop in demand for livestock that were exported to

13 See Young et al. (2005), and Buchanan-Smith and Fadul (2008).

14 In Nyala, there had been 40 to 50 agents working for large Omdurman traders pre-conflict and even into the early conflict years. This had dropped to around 10 by 2011.

Box 2.

The major livestock trade routes in Darfur pre-conflict

Cattle and sheep – Muweli terminal market (Omdurman)

- **The northern route:**
  - Sheep from Kebkabiya, Seraf Omra, and West Darfur were trekked through El Fasher, Um Keddada, Hamrat Elsheikh, Bara, Jabra, and then to Muweli. Small numbers of cattle were also trekked on this route.
  - Sheep from Mellit were trekked through Wadi Ousher and Maraiga to Umbetateekh, Jabra, and then to Muweli.
  - From Malha, trekkers passed through Hamrat and Al Sheikh to reach Jabra.
- **The southern route:**
  - Sheep and cattle from Fora Boranga, Raheid El Bedri, Bhar Al Arab, and Tulus converged at Nyala. They then followed the "early rain" route north of the railway line to Mahartya and El Lait, reaching Muweli through Foja or El Obeid.
- The "late rain" route ran south of the railway line, crossing it at Ed Daien. The route then ran towards Guebesh and branched either to Foja or El Obeid, before proceeding to Muweli.

Camels to Egypt

- Id Ahmed was the converging point for camels from Darfur destined for Egypt. From Mellit, camels were trekked through Mareiga or Umbetateekh. From West Darfur camels were herded through Kebkabiya and Seraf Omra to El Fasher, and then to Id Ahmed. From Id Ahmed the camels were taken to Dongola (where official documents are processed) and then to Wadi Halfa, the border point.

Routes to Libya (Kufra)

- Mellit was the merging point for camels coming from West Darfur (through Kutum), South Darfur (through El Fasher), and North Darfur. From Mellit, the camels were taken to Kufra through Karab Altom, the last converging point for camels coming from points further north, such as Malha.
- To a lesser extent, camels from West Darfur were trekked through Tina on the Chadian border and through Chad to Kufra.

Source: adapted from Young et al., 2005

Central Sudan and beyond, particularly cattle and sheep; there was a fall in available capital as the Omdurman traders had previously provided their Darfur agents with cash in advance; and many of the Darfuri agents lost their jobs, although some continued trading independently. The large traders from Central Sudan continued to buy Darfuri livestock but no longer in Darfur, instead buying when they reached Omdurman, having been trekked by other smaller-scale traders. Effectively, Darfuri livestock traders who wanted to stay in this business had to carry the risk of buying and trekking livestock from the three Darfur states to Central Sudan; the large traders in Omdurman, with other options available to them, were no longer prepared to take this risk.

All traders interviewed for this study recounted a contraction in the volume of livestock traded during the conflict years, of at least 50%, sometimes more. Examples of this are shown in Table 1, which illustrates the overall decline in the numbers of animals traded, as well as the fall in business for individual traders. (Official statistics on the volume or value of the livestock trade in Darfur in recent years have been hard to obtain). After the period in 2003/04 when distress sales of livestock were high, many agro-pastoralist households no longer had livestock

Box 3. A brief overview of the conflict in Darfur

The history of the conflict in Darfur goes back many years and is rooted in long-held grievances about the economic and political marginalization of Darfur and a crisis of development. In 2003, the conflict became violent and widespread across most of the Darfur region when armed attacks by Darfur's rebel movements triggered a major counterinsurgency response by government, taking advantage of existing ethnic rivalries. In 2003/04, large numbers of the rural population became displaced, and the livelihoods of many were devastated. Since then the conflict dynamics have been fluid, constantly shifting. For example, inter-tribal fighting has escalated since 2006 and become a significant factor triggering further displacement. One way of understanding Darfur's conflict is to consider three different levels of conflict: local, national, and regional. 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. 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, as struggles for political power in Khartoum and in N'Djamena became closely intertwined, each supporting rebel movements from the other's country, fighting proxy wars across the Darfur–Chad border. An analysis of the Darfur conflict in 2011 stated that:

> Several different levels of conflict have continued unabated in parts of Darfur, including inter-tribal fighting, ongoing fighting between the government forces and SLM/JEM, fighting along the disputed north-south border between the Sudan People's Liberation Army and Darfuri Arab tribes, rampant banditry and generalized insecurity, and continuing clashes between Chadian and Sudanese forces along the Chad border. (Researchers at FIC, 2011, 7)

These different levels of conflict are also intertwined; for example, grievances between groups at the local level may be fuelled and/or manipulated by competing political agendas at the national level. Despite various efforts to find resolution to Darfur's conflict since 2004, at the time of writing none has yet been wholly successful. Indeed, after the signing of the Darfur Peace Agreement (DPA) in 2006 by the government of Sudan and some (but not all) rebel movements, insecurity in parts of the Darfur region escalated, and many of the rebel movements fragmented. Peace-keeping troops have been present in Darfur since 2007, at the time of writing provided by the hybrid United Nations-African Union Force (UNAMID).

Based on Bromwich (2008); De Waal (2007); Giroux, Lanz, and Sguaitamatti (2009); and Researchers at FIC (2011)

holdings that they could sell, either because they had become displaced or because they had divested of this asset that had become a liability. (See section 7 below on livestock producers). For those who still had livestock, the risks of bringing them to the market in such an insecure environment were high. As a result, livestock prices have risen substantially during the conflict years, also a consequence of the much- increased costs associated with livestock trading. See section 6. Nyala market has been particularly badly affected since 2006/07, when the area surrounding Nyala became increasingly insecure. Traders could no longer safely graze livestock around the town while they built up their herd ready to trek to Omdurman, but instead incurred substantial additional costs by employing armed guards to protect the herd.[15] Although livestock

[15] One cattle trader in Nyala reported that four guards are required to protect a herd of 200 cattle in the area around Nyala, at a cost of SDG20 to 25/day/guard in March 2011.

Table 1. Anecdotal evidence of contraction in the volume of Darfur's livestock trade

Market	Feedback	Source
Nyala	There has been a 50% reduction in the number of cattle brought to Nyala per market day, compared with pre-conflict numbers.	Cattle *gallaga*, Nyala
	The number of cattle sold per day in Nyala market fell from 500–600 per day in 2006, to 100–200 in 2011.	Agent to Omdurman cattle trader, Nyala
	Pre-conflict, 200 sheep were sold per market day. In 2011, the number was just 50 per market day.	Sheep trader, Nyala
	One trader used to trek 1,200 cattle per year, pre-conflict, from Nyala to Omdurman, in four shipments. He now treks a total of 480 cattle per year, in two shipments, because of lack of capital and lack of supply.	Cattle trader, Nyala
El Fasher	Cattle shipments to Omdurman from El Fasher market are down by more than 50% compared with pre-conflict years.	Quarantine Dept., El Fasher
	One trader used to buy 1,000 to 2,000 sheep per week from local markets in North Darfur, pre-conflict. It now takes him two months to gather that number, because of a fall in the supply of sheep and because local traders can no longer move with cash to grazing areas and water points to purchase sheep because of insecurity, especially banditry.	Sheep trader, El Fasher
El Geneina	Cattle supplied to Geneina market have fallen by about 40% compared with pre-conflict levels. The cattle market used to operate on a daily basis; it is now weekly. Most cattle are consumed locally; few are of adequate quality for export.	Cattle trader, El Geneina

Source: Research team interviews with livestock traders, March 2011

looting peaked in the early years of the conflict, the risk of looting is still high, although it is less clear what is happening to the looted animals now. Livestock traders in Nyala consistently reported a decline in market activity since 2006/07.

Traders interviewed for this study widely reported the deteriorating quality of livestock—cattle, camels, and sheep—now being brought to the market in Darfur compared with the quality pre-conflict. This is attributed to a range of reasons. First and foremost, the concentration of animals in confined areas because of insecurity restricts their grazing and results in a shortage of pasture and water. In some cases, it is also to do with which groups are now supplying livestock to the market and their orientation to the export market—see section 7 below on production. According to MOARF&R officials in West Darfur, very few camels of adequate export quality are currently being supplied to Geneina market.

This has had a direct impact on Darfur's contribution to national livestock exports. According to the Chamber of Commerce in Khartoum, Darfur used to account for around 30% of Sudan's livestock exports before the conflict; this has now fallen by at least 15%. Other states appear to have filled the breach: White Nile, Eastern Sudan, and the Kordofan states. White Nile and Blue Nile states are increasing their share of the export market of live sheep in particular. The export of live sheep from Darfur has been particularly badly hit by the conflict, because the sheep cannot endure the longer trekking routes that many traders have had to use in order to find a safer passage to Omdurman. As small stock, sheep are also more vulnerable to looting than larger animals like cattle and camels. Consequently, the sheep trade in Darfur appears to have re-oriented to meeting local consumption needs first and foremost. Meanwhile, sheep traders in Omdurman are lamenting the fall in supply from Darfur. One sheep exporter interviewed explained how the number of sheep he now exports to Saudi Arabia has fallen by 40% compared with the number exported before the Darfur conflict: the collapse in the supply of sheep from Darfur is a key reason, forcing prices up. Regression analysis carried out on volumes of meat exported from Sudan indicates a negative growth rate of 52% between 2002 and 2008. This had been positive at 23% between 1994 and 2000 (Ijaimi, 2011). This may be partially caused by the decline in Darfur's livestock trade since the conflict began.

When the fieldwork commenced for this study, in March 2011, there were signs of some limited recovery in the livestock trade. Most notable was the return of the large and significant Hadoub livestock trading company to South Darfur, to Nyala, and to Fora Boranga. See Box 4. Not only did this give a boost to demand in Nyala's livestock market, it was also a sign of recovering confidence in Darfur's livestock trade. Some local livestock traders who had withdrawn from Fora Boranga also returned to the livestock market when security improved after 2008. However, this recovery is fragile, and deteriorating security and shifting conflict dynamics could quickly extinguish any such hope.

One of the consequences of the contracting livestock trade has been a decline in imports of certain goods into livestock-producing areas. For example, when meat was no longer being flown out of Nyala to Jordan, the import of electronic goods into Nyala fell. See Section 8.5 below.

Box 4.

The Hadoub Brothers and their involvement in the livestock trade in South Darfur

The Hadoub family has been trading livestock in Sudan for four generations. Mohamed Modawi Hadoub and Brothers is one of Sudan's major livestock exporting companies. Its involvement in Darfur has been mainly in the cattle trade in South Darfur, buying cattle through agents in markets such as Nyala, Fora Boranga, Zalingei, Rajaj, Murkundy, and Umm Labasa, and trekking the cattle to Omdurman, where the company has its own slaughterhouse and meat exporting business. Egypt is one of the main export markets for its beef. Pre-conflict, the company ran a ranch, some 80 km south of Nyala, for collecting and fattening cattle before they were trekked to Khartoum on the hoof, or transported by train. The Hadoub Brothers withdrew from South Darfur in 2006 in response to deteriorating security, but returned in January 2011 to some markets, including Nyala and Fora Boranga, for three main reasons: because of some improvement in security in South Darfur, because of government's renewed emphasis on livestock as a driver of economic growth in Sudan, and because the livestock trade had resumed with Egypt in 2011. The Hadoub Brothers used to trade around 25,000 cattle from South Darfur per year before the Darfur conflict. In 2011, they were trading 4,000 to 6,000 per year. Their return to South Darfur had an immediate impact on Nyala market: the number of bulls supplied to the market increased substantially.

Source: interview with one of the Hadoub brothers, March 2011

4. Shifting market activity in response to the conflict

4.1 Introduction

Conflict and trade dynamics are usually closely intertwined, and tend to become more so if the conflict becomes protracted. The emergence of a "war economy" is a prime example of the inter-dependence of conflict and trade, when the warring parties engage in trade, often illicit and in natural resources, in order to fund the conflict; their livelihoods can thus become dependent on perpetuation of the conflict.[16] Examples of this in Darfur include trade in four-wheel drive vehicles looted from humanitarian organizations and from Darfuri citizens, usually by militias, and trade in hardwood and firewood by the military or by groups operating in areas formerly managed by communities now displaced (UNEP, 2008, Young et al., 2009). A "parallel economy," or "shadow economy," is also common in protracted conflict environments, operating on the margins of the conflict where there is little regulation. And then there is the coping economy, which is how the majority of the population engage in the market; for example, selling livestock and firewood and engaging in petty trading, in order to sustain their livelihoods during the conflict, when the overall economy may be highly distorted and their "normal" pre-conflict livelihood strategies are no longer available or viable.

In terms of the livestock trade in Darfur, much of the looting done by militias and rebel movements is clearly part of the war economy, used to fund the conflict itself. Examples of the shadow economy include livestock bought and sold in markets in IDP camps, which are beyond the reach of government to regulate and tax. This is most significant for livestock that are killed for local consumption, and this has been one way in which looted livestock could be disposed of. For livestock that are transported from one market to another, and particularly livestock that are exported out of Darfur, the IDP camp markets are rarely used, as the animals have to pass through government-held territory and therefore cannot be exempt from regulation and taxation. In terms of the coping economy, as livestock ownership appears to have become more concentrated during the conflict years, as explained in section 7 below, fewer households are engaging in livestock production and in livestock trade compared with the pre-conflict years.

Many of the ways in which the conflict has impeded the livestock trade in Darfur have already been described. However, traders are creative and entrepreneurial and will seek ways around these impediments wherever they can. Monitoring and understanding how traders have adapted to the conflict and to constantly shifting patterns of insecurity can thus be insightful in terms of monitoring shifting conflict dynamics.

This section explores how the market network has changed during the conflict years since 2003 and how trading routes have changed.

4.2 Changes and adaptations in the market network

As well as the closure of many primary rural markets, there have been major shifts in market activity between secondary markets in all three Darfur states. Table 2 is a snapshot of how these shifts had affected Darfur's main livestock markets by 2011, almost all of which were visited and researched during the fieldwork for this study. The majority of secondary markets had contracted: twelve in Table 2, including Mellit in North Darfur, and Ed Daien and Rajaj in South Darfur—all of which were major livestock markets before the conflict began. Interestingly, some other livestock markets have grown in significance as market activity has been displaced, usually to more secure areas. For example, Tomat market in South Darfur has replaced Rajaj as the major cattle market in Dimso locality—see Box 5. Seraf Omra has become the center of North Darfur's camel trade as market activity has been displaced from other nearby centers. Of all the livestock markets visited in 2011, only two were

[16] See Collinson (2003) and Lautze and Raven-Roberts (2006) on war economies, shadow economies, and the coping economy.

continuing to function relatively unchanged compared with the pre-conflict years: Markundi and Rahed El Birdi in Rahed El Birdi locality. This area has generally remained calmer and more secure than most other parts of South Darfur since 2003.

The reasons for the shifts in market activity between secondary markets in Darfur's three states can be summarized as:

(1) insecurity in certain areas affecting the supply of livestock to the market and the willingness of traders to trek livestock out of the area, for example, affecting Ed Daien;

(2) greater security in other areas where pastoralists and agro-pastoralists can graze their livestock more securely. This has boosted market activity in some places such as Tomat in South Darfur;

(3) certain ethnic groups not having access to certain markets due to tribal conflict. This is a particular feature of livestock trading in South Darfur, affecting many markets, including Assalaya near Ed Daien, Abu Mutarig, and Rajaj markets (see Table 2). In 2011, during the period of field work, it was striking that the Habbaniya had lost access to many markets that they would have used before the conflict because of tribal hostilities; they no longer had access to markets in Rizeigat or Fellata territory and were using Gareida market instead. At the time of writing in 2012, access to some markets had improved due to local agreements between different ethnic groups, but these are constantly shifting dynamics;

(4) small rural markets collapsing and all market activity shifting to one secondary market, for example to Seraf Omra in North Darfur;

(5) some localities charging high rates of taxation, driving traders to markets where taxes are lower, for example from Abu Matarig market (Abu Matarig locality) in South Darfur to El Meiram in South Kordofan.

For some markets, trading activity has waxed and waned according to fluctuating conflict dynamics. (See Box 3 for an overview of the Darfur conflict). This may be the result of local conflict dynamics as hostilities between ethnic groups intensify or subside. For example, in Assalaya market, some 40 km west of Ed Daien, the livestock trade declined in 2004 when the Birgid–Rizeigat conflict was at its height and the Birgid no longer brought their animals to the market. It was again negatively affected in 2006 when the Rizeigat–Habbaniya conflict meant that the Habbaniya stopped using the market. However, reconciliation between the Rizeigat and Birgid, and between the Rizeigat and Habbaniya in 2008 triggered a revival in market activity as all three groups used the market once again. Fluctuating trading activity may also be affected by higher-level political and conflict dynamics at the national or regional level. See Box 6 on Fora Boranga market, where trading activity has waxed and waned according to the state of relations between the Sudanese government in Khartoum and the Chadian government in N'Djamena.

Table 2. Shifts in market activity in Darfur's secondary livestock markets during the conflict years, until 2011

Change in market	Name of market	Reason for change during the conflict years
Contracting markets	El Fasher, N. Darfur	Reduced supply of livestock and fall in export trade.
	Mellit, N. Darfur	Limited access for certain ethnic groups supplying livestock. Very high taxes. No banking facilities. Kordofan markets replacing Mellit.
	Malha, N. Darfur	Groups that used to supply the market have stopped eg., Zayadia, Kababish. Omdurman traders withdrew.

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Change in market	Name of market	Reason for change during the conflict years
	Nyala, S. Darfur	Reduced supply of livestock. Insecurity around Nyala town since 2007/08. Withdrawal of Omdurman traders.
	Ed Daien, S. Darfur	Most Omdurman traders withdrew in 2004, and avoided Ed Daien completely after a well-known livestock trader who had supplied much capital to Ed Daien market was killed in 2008.
	Assalaya, S. Darfur	From 2004 affected by Birgid-Rizeigat conflict and Birgid stopped using the market. From 2006/07 affected by Rizeigat-Habbaniya conflict, so no Habbaniya cattle brought to the market. Tribal reconciliation between the three ethnic groups led to some recovery of the market after 2008.
	Abu Matarig, S. Darfur	From 2007/08 affected by Rizeigat-Habbaniya conflict, also increases in taxes have encouraged pastoralists from Bahr El Arab to use El Meiram market in West Kordofan instead. Omdurman traders withdrew.
	Rajaj, S. Darfur	Insecurity. From 2006 affected by Fellata-Habbaniya conflict.
	Um Labasa, S. Darfur	Reduced supply of livestock due to insecurity and displacement, although some recovery in recent years.
	Geneina, W. Darfur	Reduced supply and quality of livestock. Decline in the export trade.
	Fora Boranga, W. Darfur	Reduced supply of livestock, although evidence of some recent recovery in the livestock trade.
	Zalingei, W. Darfur	Reduced supply of livestock because areas of production are far from Zalingei and the routes are insecure.
Expanding markets	Seraf Omra, N. Darfur	As nearby markets have declined or closed, market activity in cattle and camels has shifted to Seraf Omra. Trade agreements between Arab and Zaghawa traders.
	Saiyah, N. Darfur	Trade shifted from Mellit and Malha to Saiyah. Reconciliation between Meidob, Zayadia, and Berti.
	Tomat, S. Darfur	Shift of market activity from Rajat to Tomat, which is more secure and unaffected by tribal conflict.
Markets that have changed less	Markundi, S. Darfur	Security and good pasture.
	Rahed El Birdi, S. Darfur	More secure, supplied by surrounding area. Small decrease in volume of livestock traded and cross-border trade with CAR suspended until 2010.

Source: field work in March to May 2011

Box 5.

A case study of Tomat, an expanding market in Dimso locality in South Darfur

The volume of cattle passing through Tomat market per year has more than doubled during the conflict years compared with pre-conflict market activity. For sheep and goats, the growth in trade has been even higher and has increased approximately five-fold. High levels of supply are maintained throughout the year, although most market activity takes place during the rainy season. The livestock trade that used to be channelled through Rajaj, a major livestock market pre-conflict, has now shifted almost entirely to Tomat. The main areas supplying livestock to Tomat market are Kateela, Idd El Firsan, Um Takaina, Um Dafoug, Dimso, Rahed el Birdi, and the area immediately surrounding Tomat. These are relatively secure grazing areas. However, the Habbaniya can no longer access Tomat market as a result of the Habbaniya–Fellata conflict. The number of livestock traders working in Tomat market had doubled between 2003 and 2011. Livestock traders from Zalingei and El Fasher are now buying cattle in Tomat; there were around 30 agents working for larger-scale livestock traders in 2011 compared with around 13 agents pre-conflict.

Source: local researcher in Tomat market

Box 6.

A case study of Fora Boranga market, West Darfur: Fluctuating market activity related to shifting conflict dynamics

In Fora Boranga market, one of Darfur's major livestock markets, there were initially high levels of distress sales in the early years of the conflict. Livestock supplies fell thereafter, particularly cattle and camel supplies due to insecurity, but the numbers of sheep and goats traded in the market have increased, partly reflecting a change in herd composition as sheep and goats are less vulnerable to looting at the level of the producer (although they are vulnerable to looting when being trekked over large distances between markets). Since 2008, improved security in the area, partly related to improved relations between Sudan and Chad, has resulted in an increase in livestock trading activity, further encouraged by the return of the Hadoub brothers to Fora Boranga market in 2011.

Source: local researcher in Fora Boranga market

4.3 Changing trade routes

When the conflict erupted, livestock traders adapted rapidly to a more insecure environment and began to change some of their trade routes in order to find the most secure route. A second adaptation was reducing the number of animals moving in a single herd to reduce exposure to looting and to losing all their capital. The third adaptation was employing armed guards to travel with the livestock herds as protection, an adaptation that livestock producers have also adopted. All three strategies have substantially increased the transport costs per head (Buchanan-Smith and Fadul, 2008).

Certain trade routes that were used pre-conflict have stopped altogether since 2003; for example, the trekking of sheep from Geneina to Omdurman. Others have been closed for most of the conflict years but occasionally re-open; for example, the route from Geneina through Kebkabiya to El Fasher and Central Sudan. Tracing the new trade routes that livestock traders have chosen indicates which areas are regarded as more secure, and/or where agreements have been made between ethnic groups that may otherwise be hostile to one another in order to allow the safe passage of the livestock.

A number of the livestock trade routes from Darfur to Omdurman have shifted substantially. Two examples are:

(1) ***Trekking cattle from Geneina to Omdurman***: the most direct route was through Kebkabiya to El Fasher, Umm

Keddada, and then through North Kordofan to Omdurman. This used to take 45 to 60 days. During most of the conflict years, this route has been too insecure and cattle have been trekked through South Darfur, via Idd El Fursan, Buram, Ed Daien, and into Kordofan and then Omdurman. This southern route took at least four months. During the period of field work for this study, in March 2011, some traders had started to re-use the Kebkabiya route, although it had closed again at the time of writing in 2012.

(2) ***Abu Mutarig and Ed Daien to Omdurman***: the route used pre-conflict was from Abu Mutarig to Ed Daien to Abukarinka to Grainshatta to Wadbanda to Alkowaikeeta to Algammama to Jebailat Zaghawa to Jabra to Abutabra to Omdaraba to Fattasha and finally to El Muweli in Omdurman. When one of the rebel movements (SLA—Minni Minawi) took control of part of the route, the traders found an alternative: Abu Matarig and Ed Daien to Abujabra to Um Shiwaika to Al Tuboon Al Majroor to Taira Hemaira to Aburay to Al Saata to El Obeid to Um Ruwaba to Tandulti-Wad Ashana to Kosti, and then from Kosti to Al Gazeir or to Omdurman. However, conflict between the Missiriya and Rizeigat in 2008 resulted in the new route becoming insecure and closing, and traders resumed trekking cattle along the original route.

There are a number of livestock trade routes from Nyala to Omdurman. Some of these have been more consistently used throughout the conflict years; for example, the route from Nyala through Shearia to Hassan Jadeed to Kalimundo to Jabir to Forja in Kordofan and eventually to Omdurman. This route takes between 45 and 60 days as it did pre-conflict, but the costs of protecting a herd of cattle have gone up considerably. One trader described hiring three armed guards at a cost of SDG20 per day while the herd is being accumulated in Nyala, and one of these armed guards will accompany the herd to the area where one of the rebel movements is in control. At this point, the rebel movement must be paid SDG10 per head of cattle for protection to the Kordofan border. Checkpoint fees and locality taxes are all additional to these protection costs.

This implies that livestock traders must have an intimate knowledge of the conflict dynamics, and in particular who is controlling which area. They must also build up a relationship with different ethnic groups and individuals affiliated to different movements in order to hire the right guards for the right territory.

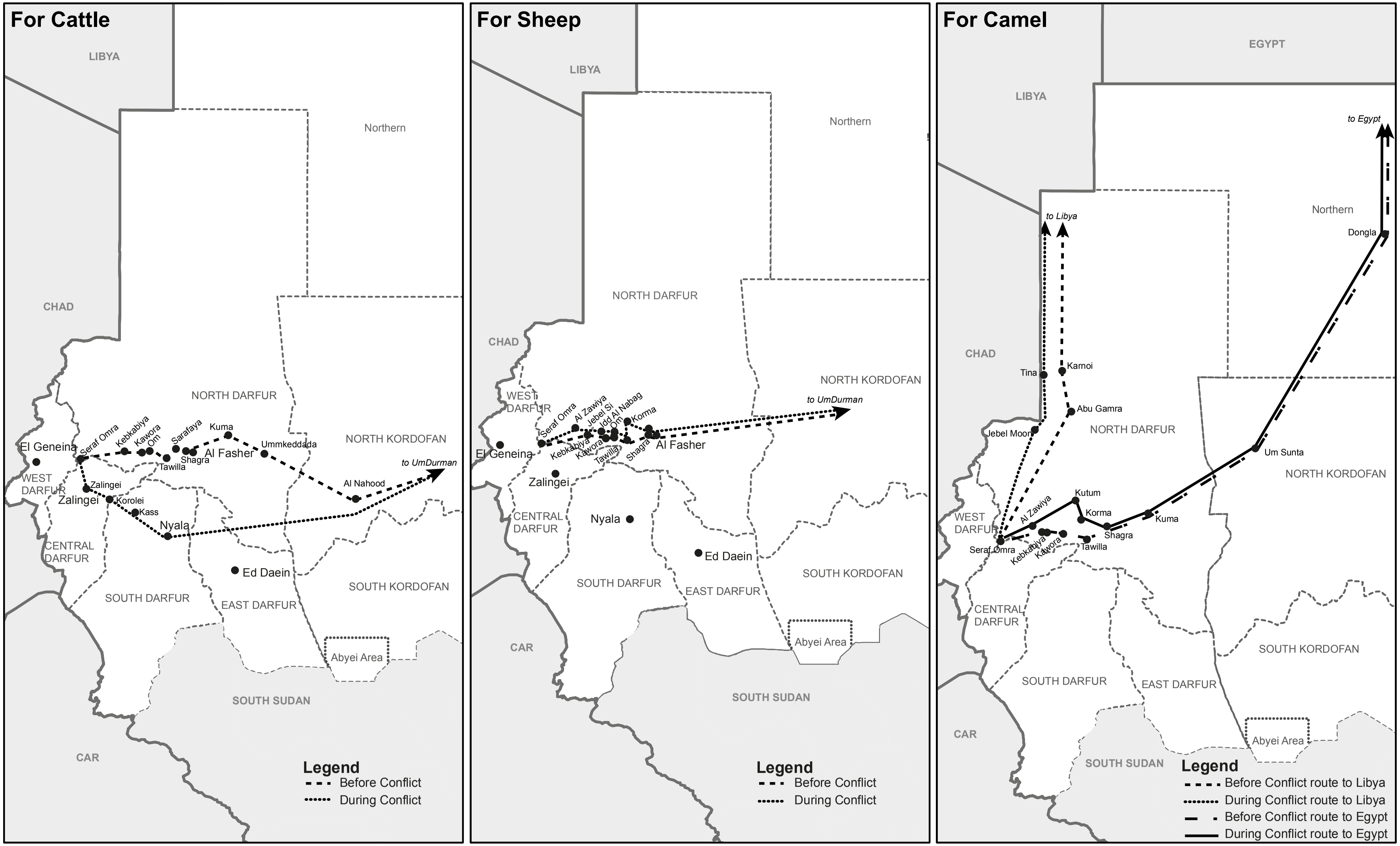
In order to trek camels from Seraf Omra—now Darfur's major camel market—agreements have been made between particular ethnic groups. The route that camels destined for Egypt used to take, via Kebkabiya and Tawilla, is now too insecure, so the camels are trekked further north, via Kutum and Korma instead, to reach Dongola and then travel along the Nile to Egypt. See Figure 9. However, there had to be an agreement with the Zaghawa in control of the portion of the route from Gurra to Serafaya to ensure that the camels could be trekked safely. Section 5.3 below describes the extent of some of these local trading agreements between different ethnic groups to facilitate the livestock trade out of Seraf Omra. Figure 9 also shows how the trade routes for cattle and sheep from Seraf Omra to Omdurman have changed during the conflict years.

On some routes where animals are being trekked on the hoof, it has become a priority to move them faster to reduce the risk of looting. For example, cattle used to be trekked from Seraf Omra to El Fasher market at a leisurely pace to allow them to graze, usually over a 12-day period. Now they are moved at speed, over just five days, so they are less at risk of banditry. Both sheep and cattle from Seraf Omra follow the same route described above for camels, through Kutum and Korma to reach El Fasher in order to avoid the more direct but insecure Kowra to Tawila route.

While it is relatively safe to truck livestock from some parts of Darfur, from Malha to Omdurman for example, it is not from others. Both sheep and cattle used to be trucked from Ed Daien before 2003, but this stopped during the conflict years, because the trucks were at risk of being stolen. In contrast, in Malha in the northeast of North Darfur, traders bringing goods from Omdurman are loading up with sheep for the return journey as a more secure means of carrying their wealth in kind, rather than returning with cash, which leaves them vulnerable to attack. Approximately 50% of Malha's sheep exports to Omdurman are now being taken by truck, a new development since the conflict began; the remaining 50% are still being trekked on the hoof, as happened pre-conflict.

It is not only the routes for livestock being trekked out of Darfur that are affected by the conflict; the routes that producers use to take their livestock to market have also been affected. As described in section 4.2 above, some ethnic groups are no longer able to access markets in areas controlled by other ethnic groups; this particularly affects the cattle trade in South Darfur. Generally, livestock are supplied from areas close to the market; it is too risky for producers to move over larger distances to the market.

Darfur - Livestock trade routes from Saraf Omra



Creation date: 11 September 2012 Boundary(CBS,IMWG), Settlement(OCHA).

Map created by OCHA

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Final status of the Abyei area is not yet determined.

5. The changing profile of livestock traders

5.1 The falling number of livestock traders

There has been a sharp fall in the number of livestock traders operating in Darfur. Table 3 captures this in Nyala market, where the number of livestock traders has fallen by 50% or more since 2003. In North Darfur, there used to be around 20 traders engaged in exporting sheep from the state; in 2011, there were only three, of which one was an agent for an exporter in Central Sudan. In Fora Boranga, the number of local livestock traders halved from around 150 pre-conflict to about 70 in 2008, and the number of agents more than halved from around 50 to only about 20; since late 2010, however, there has been some recovery in the market, and the number of traders and agents has started to rise again. Similarly in Ed Daien, another major livestock market pre-conflict, the number of local livestock traders more than halved from around 170 pre-conflict to around 80 in 2011, and the number of agents also halved.

There are a number of reasons for so many traders leaving the livestock business:

(1) ***the increased risks of livestock trading*** since the conflict began are a major disincentive. If a herd is looted while trekking between markets, the trader may lose a large part of his capital, sometimes all of it in the case of a *gallaga* or small-scale trader. Most livestock traders interviewed for this study recounted stories of how their livestock had been stolen at some time (sometimes more than once) during the conflict years while trekking from one market to another. As described in section 3.2 above, Darfuri traders have had to carry the risk of trekking livestock on the hoof when the large-scale Omdurman traders withdrew from Darfur. For some traders, the looting of a herd forced them out of business if they went bankrupt as a result. Other traders who had a choice have switched to trading in less risky commodities, such as agricultural crops, groceries such as sugar, or servicing the large presence of the international community: for example, one sheep trader interviewed in El Fasher is now supplying UNAMID as a supplement to livestock trading;

(2) as livestock prices have shot up during the conflict years and as the taxation burden has increased, livestock traders ***now need more capital***. Without access to formal credit (see section 6.2 below), this has squeezed a number of traders out of the business, especially smaller-scale traders and *gallaga* who simply don't have enough cash to trade any more. This has been another reason for former livestock traders switching to other commodities that require less capital to trade;

(3) in these circumstances, Darfuri traders have found it ***hard to compete with***

Table 3. Numbers of livestock traders in Nyala, pre-conflict and 2011

Type of trader	Approximate number pre-conflict	Approximate number in 2011
Cattle traders	150 to 200	40 to 50
Sheep traders	100	50
Camel traders	40	10
Gallaga	60	20

Source: Trader interviews, Nyala market, March 2011

large-scale traders and companies based in central Sudan, many of which have preferential access to credit and services. Darfuri camel traders in El Fasher describe how the camel export business to Egypt has been taken over by traders from Dongola and companies from Northern State. Political affiliation can bring certain benefits such as tax exemption, and makes it hard for Darfuri traders to compete, resonating with the findings of an earlier study:

> The danger is that the Darfuri private sector is being gradually weakened and squeezed out by more favoured commercial interests from Central Sudan, undermining Darfur's capacity to recover from the conflict once peace is restored. (Buchanan-Smith et al., 2011, 11)

(4) the ***drop in livestock supplied to the market*** compared with the pre-conflict years is another reason why there are fewer traders engaged in this business. This is partly a consequence of many former livestock producers becoming displaced and no longer owning significant numbers of livestock.

Small-scale livestock traders are most likely to have gone out of business, and many examples were raised during interviews for this study. Larger-scale livestock traders are also at risk of going out of business. The cameo of a former sheep trader from El Fasher, who went out of business in 2008, is a good example of the challenges faced. See Box 7. Some livestock traders have chosen to "downshift;" for example, to become *sebaba* or butchers, which also reduces their need to be mobile. For traders of certain ethnicities who no longer feel able to move safely between markets or to trade on a significant scale, this option has enabled them to stay in the livestock business but to operate out of one location.

Exceptionally, in three markets there appear to be more livestock traders in 2011 compared with the pre-conflict years. In Geneina market, a substantial increase in traders in camels and cattle was reported, most of whom are from different Arab tribes, some of whom have become livestock traders for the first time. A number of these new traders made their money renting houses and vehicles to members of the international community and have then invested in the livestock trade; some have the backing of government. However, as the number of livestock traded in Geneina has fallen during the conflict

Box 7.

Cameo of a sheep trader who went out of business in North Darfur

This sheep trader started business in 1993 and used to export between 1,000 and 2,000 sheep per year from North Darfur to Omdurman. One of the long-term constraints facing Darfuri (and other) traders who trek animals to Omdurman is the system of payment at the terminal market. Payments are often deferred by as much as six months. Negotiating power between the trader and exporter in Omdurman is highly unequal. It is not unusual for exporters to ask the trader to wait with his animals for 10 to 15 days before a deal is secured, thus incurring feed and water costs for the Darfuri trader. The animals often lose weight in the process, and the trader is eventually forced to agree to the terms dictated by the exporter. Before the conflict years, on two occasions in the 1990s (1997 and 1998) this trader lost over $50,000 in total when the exporter to whom he sold the sheep in Omdurman defaulted on payments. In the 1990s, he was able to survive these setbacks, but during the conflict years the additional pressures of insecurity, increased taxes and levies in different localities, and instability in the export market, as well deferred payments by exporters, meant that sheep trading became untenable. In 2008, he stopped trading in livestock and is now involved in the grocery trade instead.

Source: interview in El Fasher, March 2011 years—see section 3.2 above—this implies much greater competition between traders, although it should also be noted that Omdurman traders are no longer present in Geneina, so local traders appear to have taken over their market share. In Seraf Omra the number of local traders and *gallaga* has doubled during the conflict years. This is a consequence of the growth in market activity in Seraf Omra as other neighboring markets have contracted or closed, and a consequence of agreements being made between different groups that allows the livestock trade to continue—see section 5.3 below. The number of traders has also increased in Tomat market. See Box 5 above.

5.2 The ethnic concentration of livestock traders

In all the Darfur markets visited for this study, an ethnic concentration of livestock traders was reported during the conflict years. In other words, former livestock traders of particular ethnic groups were no longer operating, and a much smaller range of ethnic groups is now represented in the livestock market. Examples include:

(1) In the ***cattle trade in El Fasher***, there used to be traders of many different ethnic groups, including Fur, Berti, Tunjur, Gimir, and Zaghawa, operating in the market before the conflict. Now the livestock traders are almost all from Arab and Zaghawa backgrounds.

(2) In ***Ed Daien and Abu Mutarig*** markets, there were traders from the Southern Rizeigat, Birgid, Masaleet, Habbaniya, Salamaat, Missiriya, and Ma'aliya backgrounds before the conflict. In 2011, there were only Southern Rizeigat traders operating in the market; some Birgid traders were returning to the market as a result of the reconciliation between the Southern Rizeigat and Birgid, but there were no traders of other ethnicities.

(3) In ***Seraf Omra***, despite the overall increase in the number of livestock traders, some ethnic groups appear to be excluded from trade on a significant scale, namely the Fur, Masaleet, and Bergo, some of whom have downshifted from being traders to becoming gallaga or agents of traders of other ethnic groups. The livestock trade is dominated by groups of Arab origin, mainly the Northern Rizeigat, including the Mahriya, Shatiya, Mahameed, Ereigat, as well as the Awlaad Zeid, Jellool, Awlaad Janoob, and the Zayadia. Some Arab groups are entering the livestock trade for the first time, namely the Nawa'yba, Awlaad Murmur, Eteifiyoon, and Korobat. There are also Zaghawa, Beni Hussein, Tama, Gimer, and Missiriya traders.

The overall picture is of the livestock trade dominated by particular ethnic groups. In West Darfur, and in Geneina in particular, it appears to be dominated by Arab groups to an unprecedented extent, many of whom are new to livestock trading, having formerly been involved only in livestock production. In North Darfur, livestock trading is dominated by Zaghawa and Arab groups. Before 2003, Zaghawa and Meidob traders dominated the camel trade to Libya; for example, by 2011 the trade was dominated by Zaghawa and Arab *abbala* groups, particularly the Northern Rizeigat. In South Darfur, there appears to be a greater range of ethnic groups still trading in livestock, but geographically segregated: in any one livestock market there are a smaller number of ethnic groups present, and hostility between groups means that some groups can no longer access particular markets.

5.3 Trade and access agreements between different ethnic groups

In the greater Darfur region, there have been a number of agreements between hostile groups during the conflict years to grant access to trade where there are mutual livelihood and economic interests. Sometimes these appear to have been sanctioned by decision-makers at the political level; for example, to allow the trade in oranges between Jebel Marra and El Geneina, as documented in 2007/08, crossing between SLA-controlled and government-controlled territory (Buchanan-Smith and Fadul, 2008). Sometimes they appear to be informal agreements between traders of different ethnic groups; for example, "secret agreements" between Zaghawa and Arab traders that enabled the export of camels from Seraf Omra to Libya, as documented by Young et al. (2009).

These latter agreements are no longer so secret, but they are essential to the continued functioning of certain livestock trading routes and help to explain how Seraf Omra has developed into such an important market for livestock, especially camels, during the conflict years. Initially many of these agreements were between individual ethnic groups, for example:

(i) between Arab groups and Zaghawa groups to allow Arab traders to trek their camels through Jebel Moon and Tina—both of which were under Zaghawa control—north to Libya;

(ii) between Zaghawa groups and the Gimr and Missiriya so that Zaghawa traders could pass through Gurji Gurji near Jebel Moon, and into Dar Zaghawa.

Towards the end of 2008, there was a collective agreement involving many different ethnic groups, facilitated by the Nazir of the Beni Hussein, to promote safe access of livestock across the land controlled by each respective ethnic group. After approximately eighteen months, this had the dramatic consequence of closing many of the checkpoints that had hindered the movement of livestock and that had contributed to such high trading costs (See section 6 below). First, checkpoints between Seraf Omra and Zalingei were closed, then between Seraf Omra and Geneina, and finally between Seraf Omra and Kebkabiya in early 2010. At the time of the fieldwork for this study, in May 2011, this agreement was still holding. The well-respected Nazir of the Beni Hussein had initiated this agreement, and the *sheikhs* and *omdas* (local tribal leaders) of a number of different ethnic groups had participated in the negotiations and signed up to the final agreement.

In addition, there are interesting examples of "business agreements" between traders of different ethnic groups around the export of camels to Libya (although this trade was suspended during the Libya crisis at the end of 2010/2011). Two came to light during fieldwork for this study. First, for the route through Kutum to Libya, Arab and Zaghawa traders cooperate closely. Thus, Zaghawa and Arab traders purchase the camels in Seraf Omra; Arab drovers trek the camels to Kutum, at which point Zaghawa drovers take over for the trek across the desert to Kufra in Libya. The Arab traders fly to Kufra to meet the caravan and to sell their share of the herd in Libya. Second, for the route through Jebel Moon, the business arrangement may be more complex, involving traders from more groups: Arab groups, Zaghawa, and Missiriya. Traders from the three different groups will bulk their animals into one herd of 120 to 150, and each group will take responsibility for trekking the herd through their respective territory. Thus, Arab groups will take the lead from Seraf Omra to Girji Girji, Missiriya will take the lead to Jebel Moon, Zaghawa will take the lead to Tina, and onwards to Wadi Hawa and eventually to Subh in Libya. Once again, the Arab traders may fly to Libya to meet the herd when it arrives.

Similar agreements exist between Zaghawa and Arab traders for trading sheep and cattle from Seraf Omra. Zaghawa would sometimes give money to Arab traders to buy the sheep and cattle, Arab drovers would trek the animals to El Fasher, and Zaghawa drovers would then trek them through Dar Meidob and Kordofan to Omdurman, but avoiding Zayadia territory and thus the normal pre-conflict route through Umm Keddada because of tribal hostilities.

These are encouraging signs of how trade can be a bridge to rebuilding relationships between otherwise hostile groups and of the benefits to all concerned and to the economy when this succeeds. Around the world and within Sudan there are examples of trade providing peace-building opportunities.[17] In the words of Brian d'Silva in the Foreword to a study of Peace Markets in Northern Bahr el Ghazal in the early 2000s:

> When evidence exists that trade can flourish in times of war and can provide a forum for communication, interaction, and an exchange of goods, a tremendous feat has been accomplished. In such a context, trade represents a mutually beneficial activity that can coalesce warring peoples and can provide outlets for communication, while requiring that each side realizes that the other's products are necessary to carry on with day-to-day activities. (SUPRAID et al., 2004, v)

[17] See, for example, SUPRAID et al. (2004) and Yusuf (2009).

6. The costs of trading and access to credit

6.1 The rising costs of trading

Analysis of trading costs carried out for this study shows how they have soared during the conflict years, well above the rate of inflation.[18] At the very least, they have doubled; for example, for cattle trekked from Nyala to Omdurman, for which the trade route has changed the least. In the case of camels trekked from Seraf Omra to Dongola en route to Egypt, and sheep trekked from El Fasher to Omdurman, trading costs have increased by well over 200%. For cattle trekked from El Fasher to Omdurman, the costs have increased by 600%, and for cattle trekked from Geneina to Omdurman on the long circuitous route through South Darfur, the costs have increased by 700% compared with 2002. See Annex 2.

There are two main reasons for these soaring costs: first, the cost of protecting the livestock herd since the conflict began. Traders must now pay for armed guards to accompany their herds, and must also pay numerous checkpoint fees on certain routes to ensure the herd's safe passage.[19] Table 4 illustrates the impact of this on the cost of trekking cattle from Seraf Omra to El Fasher: these two components alone— informal fees at checkpoints and the cost of armed guards—accounted for over 50% of the total trekking costs. Second, formal taxes have increased substantially, within the main markets and also at the locality level. See Table 5, which shows formal taxes on cattle in Abu Matarig market in Abu Matarig locality in South Darfur. The formal taxation burden had almost doubled by

Table 4. Trading costs for trekking cattle from Seraf Omra to El Fasher, pre-conflict compared with 2011: Herd of 50 cattle

Item	Cost before the conflict (SDG)	Cost in 2011 (SDG)	% increase
1. Formal taxes	12 per head	33 per head	175%
2. Other costs (eg., *zakat* (alms), animal health)	3–4 per head	6 per head	71%
3. Informal fees at 5 checkpoints, per herd		3,000 (60 per head)	
4. Lead drover, for 4 herds	300 (1.5 per head)	1,000 (5 per head)	233%
5. 2 drovers per herd	300 (1.5 per head)	1,000 (5 per head)	233%
6. Supplies for drovers	100–150 (2.5 per head)	500 (10 per head)	300%
7. 2 armed guards, for 4 herds	Not required	2,000 (10 per head)	
Total	***21 per head***	***129 per head***	***514%***

Source: Group interview with cattle traders in El Fasher market

[18] Inflation has increased most rapidly in the last 12 to 18 months. By July 2012, it was around 37% (Sudan's Central Bureau of Statistics).

[19] At the time of writing there is some evidence of a reduction in checkpoints and in the fees that they are charging, particularly across North Darfur (see DRA Trade and Market Bulletin for North Darfur, vol. 1, no. 4).

2011 compared with 2002. Most individual taxes have increased substantially, and a number of new taxes have been introduced. This was a common pattern reported across all the livestock markets covered by this study in the three Darfur states, with some experiencing an even steeper rise. It is partly a consequence of the *de facto* decentralization of responsibility for livestock marketing to the locality level (see section 2.3) and a lack of standardization of the taxation regime between localities.[20] At the same time, the number of localities has increased. In South Darfur, for example, the number of localities increased from 12 (demarcated in 1995) to 30 in 2010. There is evidence of traders, and in some cases producers as well, now selecting the market where they will do business according to the local tax regime—high taxes in Abu Mutarig market in South Darfur, for example, drove pastoralists from Bahr El Arab to use El Meiram market in West Kordofan, where taxes are lower. Traders are also adjusting the trekking route for their livestock in order to avoid the localities that are charging the highest taxes. Livestock traders in Nyala reported a 300% increase in formal taxes on camels in the Nyala market, from SDG10 to 15 per head for camels pre-conflict to SDG40 per head in 2011. Previously, taxes were paid only in the market where the animals were purchased; now localities are charging taxes all along the trekking route, at an estimated cost of SDG200 per head of cattle just to reach the border of South Darfur, according to livestock traders in Nyala. The cost of a licence to trade livestock has also increased, by 400% or more in Nyala market. Large-scale livestock traders must now pay SDG185 per year to trade in Nyala market, whereas the licence used to cost SDG27 per year pre-conflict. For small-scale traders, the licence fee has risen from SDG15 per year to SDG60 per year by 2011.

In five of the analyses of trading costs for different routes presented in this report (in Table 4 above and in Annex 2), informal fees paid at

Table 5. Formal taxes imposed on cattle trading, Abu Matarig market, South Darfur

Type of formal tax	Pre-conflict, tax per head (SDG)	2011, tax per head (SDG)	% increase
1. Fee on animal sale	5	11	
2. Development fees	1	2	
3. Education tax	0.5	2	
4. Native administration fee	2	2	
5. Security fee	0.5	0.5	
6. Other taxes	7	10	
7. Agricultural services		0.5	
8. Stamp duty		2	
9. Regulation of nomadism		2	
10. Zakat	10% of price	10% of price	
11. Veterinary fees	3.5	6	
Total	***19.5***	***38***	***95%***

Source: field work in South Darfur, March to May 2011

[20] One livestock trader described how the union of traders had lobbied state government in Kordofan to reduce the taxation burden, but state government was unable to influence the localities.

checkpoints were the number one cost. This was particularly the case in North and West Darfur. Either the costs of paying herders to accompany the animals or formal taxes ranked second.

A major grievance amongst livestock traders is that they see little or no benefit from paying inflated taxes; in other words, the revenue is not invested in market infrastructure and services, nor in improving the quality of livestock production. Instead, much of the market infrastructure is deteriorating; for example, water points along the trekking routes are not being rehabilitated, nor are new water points being developed. Before the demise of the LMMC, trains were used for transporting livestock from South Darfur to Omdurman. Since then, the condition of the railway has deteriorated due to lack of investment, in turn increasing the amount of time it takes to make the journey. Some large traders like the Hadoub Company have occasionally used the train to transport livestock (usually cattle) to Central Sudan during the conflict years, but have had to buy their own train to do so and have to employ 50 security guards to protect the train.

As mentioned in section 5.1, rapidly rising livestock prices has resulted in many traders leaving the business because they do not have adequate capital. Another problem of having to trek livestock from Darfur over large distances to terminal markets is that traders' capital is tied up in the livestock herd for weeks or even months. Not only does this carry the risk of looting or losing livestock en route, but the continued rise in livestock prices—both in real terms and because of inflation—has a ratchet effect: by the time the trader has sold the animals in Omdurman and returned the proceeds to Darfur, the cost of purchasing the next herd may have increased significantly, while the trader's purchasing power has not. Darfuri livestock traders must also face the risk of Omdurman traders defaulting on a payment, which is often done on a credit basis in the first instance—see examples of this in Box 7 above.

As a consequence of all of the above, traders' margins have been squeezed during the conflict years. A number of traders interviewed indicated that their profit margins had fallen by 50% or more. It has been beyond the scope of this study to carry out a value chain analysis from the point of livestock production to the terminal market, and therefore to calculate accurately the percentage of the final price received by the producer. Earlier studies, however, report livestock producers in Darfur receiving approximately 50% of Omdurman prices and 30% of export prices (ICRC, 2005b).

6.2 Access to credit

The entire livestock marketing system in Darfur and in Omdurman currently depends upon informal credit arrangements; no livestock traders interviewed for this study in Darfur had accessed formal credit. This is a striking finding and a major constraint to livestock trading. The larger livestock traders/exporters were more likely to have accessed formal credit in the past, but are reluctant to do so now because of the high risks of livestock trading in the last nine years and the well-known cases of livestock traders imprisoned in Khartoum because of their inability to pay their debts. Many other livestock traders indicated they did not have access to formal credit. Indeed, a study carried out in 2010 demonstrated the inadequacy of formal financial services in Darfur, particularly for micro-finance: "only two of the 16 banks (present in Darfur) provide microfinance at any volume" (Khojali and Hansen, 2010, 5), mostly in South Darfur, where it reaches just one per cent of the estimated number of households demanding micro-finance. Two of the branches of the Agricultural Bank of Sudan (ABS) closed during the conflict, in Garsila and Mukjar. The general availability of formal financing contracted considerably during the conflict years and the head offices of both the ARB and the Islamic Cooperative Development Bank (ICDB) limited the authority of their respective branch mangers to loan approvals of SDG 50,000 (Ibid.).

Yet the provision of credit, especially on favorable terms, would appear to be of benefit to livestock traders who are clearly constrained by lack of capital in an era in which livestock trading has become increasingly expensive, not just because of rising livestock prices, but also because of the steeply rising trading costs associated with livestock marketing during the conflict years. The informal credit arrangements that traders have entered into instead carry their own risks. Some Darfuri traders reported regularly having to wait 50 to 60 days to receive payment from livestock exporters in Omdurman, sometimes much longer. The unequal negotiating power between Darfuri livestock traders bringing animals to Omdurman and the exporters is a major factor disadvantaging the Darfuri trader, some of whom have gone out of business as a result of larger Omdurman traders defaulting on their payments on credit.

7. Livestock production and market supply within the greater Darfur region

7.1 Livestock producers

Most livestock production systems in Darfur are based on varying degrees of livestock mobility in order to make use of seasonally available resources. There is little information or data available about the relative significance of different producer groups as suppliers of livestock to Darfur's markets, although in the past some traders have indicated the relative importance of settled agro-pastoralists and investors in livestock as sources of supply.[21]

Livestock production by all groups has been impacted by the conflict in some way, although there is very limited data and analysis that documents this. A recent consultative socio-economic mapping exercise with nomadic and pastoralist groups in 2010 across the three Darfur states spells out how their livelihoods have been negatively affected by the market constraints described in this study. In North Darfur, they fed back that:

> Many markets have been closed or market access has been blocked. Cattle have been lost to theft and banditry activities. These losses have led to poverty amongst the nomads and created the inability to meet their daily needs for health, education and other basic services. This has resulted in continued displacement to other areas to look for alternative livelihood options. (FAO and UNDP, 2010a, 13)

Young et al.'s study of the Northern Rizeigat (2009) documents their loss of local and transnational markets, although trading arrangements between ethnic groups, described in section 5.3 above, have been an interesting and pragmatic approach to being able to stay engaged in the livestock trade.

During the conflict years in Darfur overall, livestock producers have fed back that many of them are avoiding supplying animals to the market because of high taxation and other levies, which reduce the profitability of selling livestock (FAO and UNDP, 2010b).[22] Other conflict adaptations by livestock producers may have also negatively impacted the livestock trade; for example, the reduction in herd sizes to reduce risk in the face of banditry and looting. Thus, the Italian NGO, Coopi, found it hard to buy large numbers of quality goats in North Darfur for their restocking program: producers are now moving with much smaller herds.[23] Different ethnic groups are said to have adapted differently. For example, while the Ta'aisha and Fellata reduced their holdings of cattle early in the conflict, the Southern Rizeigat apparently did not. The veracity of these perceptions and their consequences deserve further attention and follow-up: how have different livestock producers adapted to the changing conflict context, and what are the consequences of these adaptations for social relations, the natural resource base, and for the recovery of livelihoods and the economy in Darfur? In short, efforts to boost livestock production must be fully informed by a thorough analysis of livestock producers and their production and marketing strategies in order to know "who will gain and who will lose."

7.2 Changing patterns of livestock production and market supply during the conflict years—perceptions of market traders

As it was beyond the scope and resources of this study to access and interview livestock producers, the findings in this section are based on interviews with livestock traders. It presents their feedback on who is now supplying livestock to

21 See Aklilu and Catley (2009), quoting Aklilu (2006), which reports one of Darfur's big livestock exporters saying that they sourced 60% of sheep and cattle and 40% of camels from the settled population, from agro-pastoralists and investors.

22 Other constraints that affect the livestock market, identified by nomadic and pastoralist groups consulted in Nyala in South Darfur, include: scarcity of grass and fodder for animal feed; lack of processing and industry; lack of storage facilities; insecurity on the roads to access the markets due to banditry and cattle theft; lack of investment in the livestock sector; and the poor quality of the animals, which cannot compete in the markets (FAO and UNDP, 2010b).

23 According to a Coopi internal report of April 2011.

different markets in Darfur, as well as their perspective on how livestock ownership and production has been affected by the conflict.

The most consistent feedback from traders in all three states is a shift in supply of livestock during the conflict years from livestock producers engaged in more settled farming with livestock as part of their livelihood strategy who became displaced, to groups that still have access to rural areas. This trend applies to sheep and cattle supplied to El Fasher market, sheep supplied to El Geneina market, and sheep and cattle supplied to Nyala market. This implies that livestock ownership may be more concentrated now in groups that have greater freedom of access in rural areas. This was also explained by traders in terms of an ethnic concentration of livestock ownership during the conflict years. The case of Fora Boranga, one of Darfur's major livestock markets, illustrates this: pre-conflict, the market was supplied by producers from a range of different ethnic groups, including many Arab groups, Zaghawa, Fur, and Masaleet. Now the market is only supplied by Arab groups, such as the Jalul, Beni Halba, Beni Hussein, Missiriya, Salamaat, and Khozam; there is little or no evidence of Zaghawa, Fur, and Masaleet livestock producers in the market. This pattern was repeated in other markets, including Zalingei. Whether this means that certain ethnic groups have lost or reduced their livestock holdings, or whether it means that they are selling their livestock to producers and traders from other groups that may be able to move more securely between markets, requires further investigation.

Generally, there are fewer ethnic groups supplying any one market now compared with the pre-conflict era, often reflecting how political factions are organized on a tribal or ethnic basis, with privileged access to certain areas but access denied to others. In Malha in North Darfur, for example, livestock producers from the Meidob, Kababish, Zeyadia, and Berti tribes all used to bring livestock to the market; now only Meidob producers bring livestock to the market. In Ed Daien and Abu Matarig markets, livestock producers of certain ethnicities no longer have access because of the conflict, in particular the Habbaniya; for extended periods since the conflict began only Southern Rizeigat producers have supplied livestock. Umm Labasa market used to be supplied by livestock producers from the Beni Halba, Fur, Turjam, and Southern Rizeigat tribes. Now only the Beni Halba are supplying and accessing the market; many of the Fur producers have become displaced. Even in livestock markets in more secure locations such as Rahed el Birdi and Markundi, the number of ethnic groups supplying the market has fallen. In Rahed el Birdi, Ta'aisha, Salamat, Bergo, Sharafa, Fur, Missiriya, and Berno producers used to supply the market with cattle before the conflict; the Fur, Missiriya, and Berno producers are no longer present. Two trends are distinguishable here: first, there are some groups of livestock producers that have been particularly badly affected by displacement, that used to supply the market but who have now lost or sold their livestock and are no longer livestock producers; for example, many Fur and Masaleet households. Second, there are groups who still own livestock as a major component of their livelihood strategy, but who no longer have access to certain markets that they used to supply pre-conflict, because of the ethnic polarization of the conflict, for example the Habbaniya in South Darfur.

For camels, there appears to have been less of a shift in patterns of production and supply during the conflict years: most are still Arab *abbala* groups, Zayadia, Zaghawa, and Meidob, although some traders in Nyala reported more camels being supplied to the market since the conflict began as more *abbala* are now concentrated in the Nyala area. Meanwhile, traders in Geneina described the declining quality of camels brought to the market during the conflict years, at least partially a consequence of the fact that certain livelihood/ethnic groups who used to fatten and add value to the camels before they were sold are now living as IDPs.

Changes in the main suppliers of different types of livestock to different markets are also associated with changes in the geographical direction from which livestock are brought to the market. The case of Nyala market illustrates this well. Farmers north and east of Nyala used to be major suppliers of cattle, sheep, and goats. These are the areas and groups of people that have suffered violent conflict and displacement. Nyala market is now heavily dependent on cattle, sheep, and goats being supplied from the more secure areas south and southwest of the town, from Idd El Fursan, Markundi, and Tomat. As already mentioned, the extended presence of *abbala* in the

Nyala area has increased the supply of camels to the market.

This analysis of how livestock production and market supply has changed during the conflict years is partial, based on interviews with livestock traders across the three Darfur states. To fill this gap in knowledge about how livestock production and ownership has been impacted by the conflict and therefore to complete the analysis requires further research and interviews, with former and with current livestock producers. Such research could test the hypothesis emerging from this study that there has been a concentration of livestock ownership within certain groups, in turn impacting on which producers are now supplying livestock to the market.

8. Cross-border livestock trade and the growing domestic market for meat consumption

8.1 Introduction

As well as the formal export channels for livestock from Darfur, there has long been a thriving informal cross-border trade in livestock, mainly to Libya, Chad, and the Central African Republic (CAR). This is particularly attractive to the greater Darfur region, bordering as it does with each of these three countries. Informal cross-border trade may offer greater returns than sales within the domestic market. During the conflict years in Darfur, there has been some shift in market activity away from the long-distance trade of animals with all its associated risks, to the local slaughter of livestock to meet Darfur's growing demand for meat. This study has been unable to estimate the relative scale of informal and formal trading in livestock due to lack of data. Further research is needed to establish the relative (and absolute) scale of informal cross-border trade, as well as to more reliably quantify the formal trade in livestock. Such information and analysis is critical for future policy formulation.

This section briefly reviews both formal and informal cross-border trade flows from Darfur: formal with Egypt, and informal with Libya and Chad. Each has been negatively affected in recent years, both by the conflict within Darfur and also by unrest in Sudan's neighboring countries. It also looks at the impact of the growing domestic market for meat consumption.

8.2 Cross-border trade in camels with Egypt and Libya

According to official statistics Egypt is the most important market for the export of Sudanese camels (Idriss, 2003). But this may not be the case for Darfur. In Seraf Omra, Darfur's main camel market, in 2011 traders estimated that camel exports from that market were split equally between Egypt and Libya, although they have since shifted in favor of Libya, mainly because of the informality of the trade and lack of regulation. Younger camels of three to four years old are exported to Libya, while older camels of five years and above are exported to Egypt.

Since 1991, camels destined for Egypt must pass through Dongola for the processing of export documentation and for taxes to be paid. These measures formalized the export of camels to Egypt, although informal smuggling still occurs. Apart from the Darfur conflict, in the last decade there have been two major disruptions to the camel trade with Egypt. The first is due to the long-running border dispute between Sudan and Egypt over the Hala'ib Triangle. As a result, the Egyptian authorities have restricted the movement of Sudanese traders across the border: a camel trader in Nyala described having to hand over his camels to an Egyptian trader on the border and then fly into Egypt to meet the camels in their final market destination, increasing the transaction costs. Meanwhile, the Sudanese authorities have, at times, put quotas on the number of female camels that can be exported to Egypt in an attempt to put pressure on the Egyptian authorities. The second and more recent disruption to cross-border camel exports to Egypt was political unrest in Egypt in early 2011 resulting in the overthrow of the Mubarak regime in February 2011. For a short time, trade was suspended, although this had resumed again by March/April 2011.

Most of the cross-border camel trade to Libya is informal and particularly attractive to traders because, most of the time, it has not been subject to high levels of taxation or strict government regulations. Although the livestock quarantine authorities in El Fasher estimate that between 3,000 and 6,000 camels per year were exported from North Darfur to Libya before 2003, this probably represents only a small percentage of the total number of camels exported. Camel exports to Libya were officially stopped in 2004 after more than 3,000 camels en route to Kufra were confiscated by rebel movements. However, the unofficial trade in camels to Libya appears to have continued. Although it was temporarily suspended during the uprising in Libya between December 2010 and October 2011, by 2012 camel exports to Libya from Seraf Omra had resumed and were increasing.

An important distinction between the camel trade to Libya and to Egypt is the amount of capital each requires (Young et al., 2009). The older camels exported to Egypt cost more, and there are substantial costs associated with the formalization of the trade through Dongola (see Annex 2). In contrast, the younger camels exported to Libya cost less. Although there are fees to be paid to enable the herds to move securely, the informality of the trade means the formal taxation burden is less. Thus, less capital is required for trading with Libya compared with Egypt.

8.3 Cross-border trade with Chad

The cross-border trade in livestock with Chad has long been important to the economy of West Darfur. Fora Boranga and Geneina livestock markets in particular have been supplied with livestock from Chad and have exported to Chad.

During the conflict years, this trade has been badly disrupted by political hostilities between the governments of Chad and Sudan. Diplomatic relations between Chad and Sudan have been severed a number of times during the 2000s, severely impacting trade, as the border was officially closed. In April 2010, the border reopened as Sudanese-Chadian relationships improved following the visit of Chadian President Idriss Deby to Khartoum in February 2010. During the period of fieldwork for this study, there were many reports of livestock being traded between Chad and Sudan, especially cattle and camels being supplied from Chad to Darfur. Camels are brought from Chad to Seraf Omra in order to avoid more rigorous market controls imposed by the Chadian authorities. Through this study it has not been possible to establish the extent to which livestock from Chad have replaced Darfuri livestock in the market as local supplies have fallen. This is an important point to pursue, as there is evidence that the direction of trade flows between Geneina and Chad have been affected by Darfur's conflict: whereas many goods and commodities used to be exported from Geneina to Chad pre-conflict, disruption to Darfur's economy in terms of a collapse of agricultural processing and constraints to transportation during the conflict years, as well as rapid urbanization (see below), appears to have reversed this trade flow, and there are many Chadian traders bringing goods into Geneina market (Buchanan-Smith and Fadul, 2008).

8.4 Domestic meat consumption within Darfur

Darfur has undergone a rapid and distorted process of urbanization since the conflict began in 2003.[24] Many of Darfur's towns have doubled or trebled in size during this nine-year period. Nyala, for example, has grown approximately 2.5 times since 2003, to a population of around 1.3 million people. This process of urbanization has been triggered by massive displacement and by the unprecedented international presence of international aid agencies and peace-keeping troops, which in turn have fuelled the urban economy. Business interests have also relocated from insecure rural areas and villages to the greater security of Darfur's main towns.

One of the consequences of this burgeoning urban population has been growing demand for meat in all of Darfur's towns. Indeed, many of these newly urban households used to be livestock producers but have now been displaced or have chosen to move to the towns and have become urban consumers, purchasing most of their food needs.

In Tomat, for example, one of South Darfur's most thriving cattle markets during the conflict years, at least 80% of cattle sold used to be destined for Omdurman. That ratio has fallen to around 70%, as more cattle are now taken to Nyala to meet the growing local demand for meat. In other markets such as Zalingei, El Fasher, Kebkabiya, and Geneina, a much higher proportion of livestock traded are now slaughtered to meet local consumption needs.

The shift in Darfur from being a major supplier of meat to the rest of Sudan to becoming a major consumer of meat through the marketplace is reflected in the rapidly rising meat prices. Pre-conflict, meat prices in Darfur major towns were approximately half the price of meat in Khartoum, around SDG5 per kg for lamb in Nyala and El Fasher compared with SDG10 per kg in Khartoum. In Darfur's main areas of livestock production, the price of lamb was usually around SDG3 to 4 per kg. During the conflict, meat prices in Darfur have risen rapidly, four- or five-fold. In some of Darfur's major towns the price of meat has reached almost the same price as in Khartoum, especially in El Fasher.

[24] See Buchanan-Smith et al. (2011) and UN (2010).

See Table 6. The market chain for livestock sold for local slaughter is either from producer to small trader to butcher, or directly from producer to butcher; large-scale traders are rarely involved.

The evidence points to an emerging local meat industry in Darfur. Just as the rapid process of urbanization associated with the conflict years is unlikely to be reversed when peace and stability are restored, so the increased local demand for meat is unlikely to decline.[25] This implies market opportunities for the future.

8.5 A short history of Darfur's abattoirs

As one of Sudan's main livestock producing areas and as a major source of livestock to meet domestic meat consumption needs in Sudan, it seems extraordinary that the greater Darfur region has only one slaughterhouse, in Nyala. Constructed in 1999, it has had a chequered history and has suffered a series of closures during the 2000s. It first closed in 2004, when it could no longer honor an export contract to supply meat on a weekly basis to Jordan. It was rehabilitated in 2006, with the support of Shiryan Ashamal Company from Central Sudan and with a loan from the federal government and opened in 2007, winning a lucrative contract to supply meat to the African Union (AU) peace-keeping forces. But it closed again in 2008, apparently due to a failure to secure export contracts (Shumba, 2010). Since then, it has operated intermittently. When it is functioning to full capacity, the abattoir can handle 3,000 sheep and goats per day and 500 cattle (Ibid.). However, it generally suffers from poor infrastructure and has faced problems of quality control and management issues.

There is currently a plan to construct a new abattoir in Nyala, although progress has been very slow. An abattoir was also constructed in Geneina in 2006, but was not completed and has never been operational. Both of these experiences led some to question the commitment to improve this key facility that could play an important role in stimulating Darfur's livestock trade and in efficiency gains if so many livestock no longer have to be trekked on the hoof to Omdurman, especially during the dry season. The livestock trade in Sudan is currently controlled from Omdurman, and there may be concerns that improving facilities in Darfur would draw business away from Central Sudan.

Table 6. Meat prices in Darfur and in Khartoum

Market		Price per kg—2002 (dry season)	Price per kg—2011 (dry season)
El Fasher	Beef	4	16
	Lamb	5	18-20
Nyala	Beef	3	14
	Lamb	5	14-16
Zalingei	Beef	3	15
	Lamb	3	17
Fora Boranga	Beef	3	13
	Lamb	4	14
Seraf Omra	Beef	3	12
	Lamb	4	14
Khartoum	Beef	7	14
	Lamb	10	22

Source: field work in Darfur, March to May 2011

25 Meat consumption in Sudan overall is estimated to be growing by 3.5% per year (between 1994 and 2003), faster than the population growth rate (Idriss, 2008).

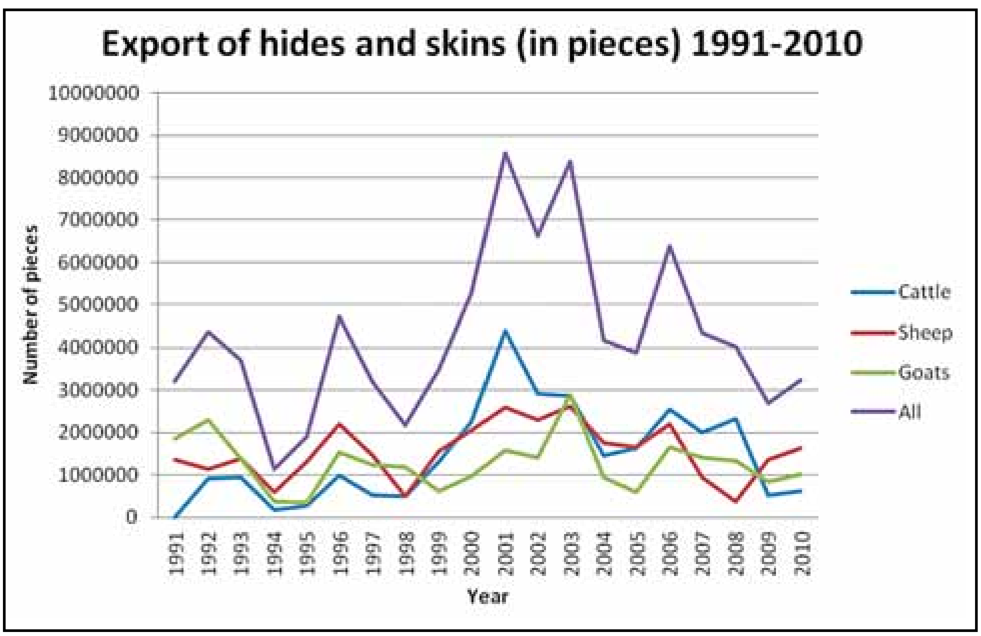
9. Trade in hides and skins

Trade in hides and skins is an important by-product of the livestock sector, mainly from cattle, sheep, and goats. Sudan has long been an exporter of hides and skins, but there has been little sustained growth in this business since the 1990s: 3.22 million pieces were exported in 1991 and in 2010 only 3.25 pieces were exported.[26] However, annual variability in the level of exports is high: in the peak years of 2000 and 2001, more than 8 million pieces were exported annually (Ijaimi, 2011). See Figure 9 below.

Aklilu (2002a) explains how the hides and skins trade in Sudan has long been dominated by the Raw Hides and Skins Exporters Association based in Khartoum, with agents all over the country. While the trade in Darfur is part of this nationally-controlled skins and hides business, there have been some interesting developments during the conflict years. A new trade in hides appears to have developed between Darfur and West Africa, in particular with Nigeria, Chad, and Cameroon. Most of the hides and skins are exported directly from Darfur, for example, through El Fasher and Geneina, and transported overland. The growing trade with Nigeria is an interesting story, apparently started by AMIS Nigerian troops stationed in Darfur who saw the potential. This trade is mainly in cattle hides and cattle heads, regarded as a delicacy in Nigeria. At the time of field work for this study, in 2011, Turkish and Syrian companies were also starting to buy direct from Darfur. The state borsa (taxation point) in Nyala estimates that the export of hides and skins from Nyala has doubled in the last two to three years. Hides and skins are still transported from Darfur to Central Sudan, are used locally; for example, for making shoes and leather bags for water, but perhaps most significantly, are now being exported out of the country directly from Darfur.

Rising demand for hides and skins in recent years can be seen in the rapidly rising prices. See Table 7. Growth in trade was consistently reported across most of the main livestock markets covered by this study, indicating the potential for the

Figure 9. Export of hides and skins



Source: unpublished data from the Ministry of Foreign Trade

[26] Source: unpublished data from the Ministry of Foreign Trade.

leather industry in Darfur. Unlike most of the rest of the livestock market, this industry employs women; thus, they too can benefit from this livelihood source. Indeed, in Kebkabiya, an NGO, the Kebkabiya Smallholders Charitable Society (KSCS), has been providing training in working with leather as a local income-generating activity.

Table 7. The price of hides and skins in selected Darfur markets

Market		**Price per piece (SDG) pre-conflict**	**Price per piece (SDG) 2008**	**Price per piece (SDG) 2011**
Nyala	cattle	15	20	50
	sheep	5	10	15
	goat	3	5	10
Markundi	cattle	2	8	20
	sheep	1	4	8
	goat	1	3	5
Seraf Omra	cattle	15-20		30–35
	sheep	n.a.		n.a.
	goat	2–3		4–5

Source: field work in Darfur, March to May 2011

10. Conclusions and recommendations

10.1 Conclusions

The importance of the livestock trade to the economy of Darfur and to the national economy of Sudan is clear. It is Darfur's major export and, in 2011, Sudan's most important export after petroleum and gold.[27] Yet at the national level it has not received commensurate attention in terms of policy and investment during the petroleum years. There has been inadequate investment in the physical market infrastructure, which has generally deteriorated; for example, water points along the main trekking routes from Nyala to Omdurman. The veterinary services and financial services needed to support livestock trading in Sudan so that it is internationally competitive have also fallen behind. The consequences of this can be seen in Sudan's falling share of some export markets, such as the Saudi meat market, during the 2000s. Sudan's exposure to a small number of export markets means that its export trade is highly vulnerable to changing trade regimes and/or demand within those markets. This has a direct knock-on effect on rural livelihoods. Livestock are a key component of most rural livelihoods, in Darfur and beyond, and those livelihoods are in turn dependent on trading livestock.

In Darfur, many of the constraints to efficient livestock trading have been exacerbated by nine years of conflict, which has disrupted and distorted the livestock sector. The main ways in which conflict has affected the livestock trade in Darfur are the following:

(1) the closure of many village markets and massive disruption to the wide network of primary markets in all three Darfur states;

(2) shifting market activity between secondary markets as trade moves to markets in more secure locations and away from markets that are less accessible because of insecurity;

(3) the high risks now involved in livestock trading, ranging from risks of looting and banditry while livestock herds are on the move, to the risk of buyers defaulting on credit-based purchases;

(4) livestock traders switching to long and circuitous routes for trekking livestock, to avoid areas of insecurity;

(5) escalating trading costs, mainly due to the costs of protecting a livestock herd being trekked on the hoof and substantial informal fees that must be paid at checkpoints;

(6) a much increased taxation burden as formal taxes have doubled or even trebled in some locations;

(7) large amounts of capital now being required to trade livestock, because of rapidly rising livestock prices as well as high transaction costs, yet the general lack of financial services and credit available to most traders;

(8) many livestock traders going out of business, either because of bankruptcy or because it has become too risky to trade livestock compared with alternative business opportunities;

(9) the withdrawal of large livestock traders and exporters from Omdurman, many of whom now depend upon Darfuri traders bringing the livestock to Central Sudan who must now carry the risks and costs of doing so;

(10) ethnic concentration of livestock traders as some ethnic groups have almost entirely left livestock trading and others

[27] Foreign Trade Statistical Digest, October to December 2011, Central Bank of Sudan, Statistics Directorate. Taking account of informal trade, the significance of livestock exports is probably even greater.

are substantially curtailed in their ability to move safely from one market to another, or to be accepted in certain markets;

(11) an overall decline in the numbers of livestock brought to the market, and deteriorating quality since the pre-conflict era.

Although it is impossible to quantify the contraction in the livestock trade in Darfur since 2003 because of the lack of data, the core researchers for this study were of the view that the livestock trade had probably fallen by about 40 to 50%. Omdurman traders interviewed for this study reported a fall in supply of livestock from Darfur of 20 to 50%.[28] This in turn has impacted on national exports of livestock and meat, although the gap appears to have been filled to some extent by livestock supplied from other states. This could also have long-term consequences for Darfur—having to re-establish its supremacy in the livestock trade after years of lower level market activity. The overall picture is of many inefficiencies in the way that livestock are currently traded in Sudan, exacerbated by the much-increased trading costs associated with the Darfur conflict. The combined effect is to reduce the competitiveness of Sudan's livestock exports in the face of increasing competition from countries such as Brazil, Australia, and New Zealand that are currently better able to meet ever-stricter international standards, including hygiene and disease control regulations.

While most of these trends are negative, there are some positive stories to be told from Darfur. First, there is evidence of pockets of recovery in the livestock trade. Most notable is the return of some of the large livestock traders from Omdurman into South Darfur in 2011, at least partially encouraged by some improvement in security. However, the constantly shifting conflict dynamics in Darfur in recent years warn against too much optimism or generalization from this development. Second, there is evidence of livestock traders from ethnic groups that have been hostile to one another during the conflict years now making agreements with each other in order to continue long-distance livestock trading. This indicates that there may be peace-building opportunities around trade, and the potential for rebuilding relationships between groups where they have mutual business/livelihood interests. Third, despite all the barriers to trade during the conflict years, there appears to have been substantial growth in the trade in skins and hides from Darfur, indicating a potential yet to be fully realized. Overall, many livestock traders have shown great ingenuity in responding to the constraints in the current conflict context, and in identifying and exploiting opportunities.

When peace and stability are eventually restored to Darfur, the livestock sector and livestock trade will be critical to the recovery of the economy and to the recovery of rural livelihoods; planning on how to support such a recovery can start now. And even in the current context there is much that can be done to support this important sector. This is consistent with federal government's priorities in 2011/12: renewed emphasis is being given to livestock and especially to boosting livestock exports as oil revenues decline. This follows a trend across many African countries, whereby the value and contribution of the livestock sector and of livestock trade are increasingly recognized (Scoones and Woolmer, 2006). But this is not just about boosting the livestock trade; livestock production and productivity must also be supported. The opportunities to do so in Darfur are immense. The livestock trade has continued despite the lack of investment and despite the many obstacles and constraints that producers and traders face day-to-day. But with efforts to raise livestock quality (in order to improve the quality of meat and milk production), to rebuild and develop physical market infrastructure, and to provide improved veterinary and financial services, the potential of livestock to Darfur's economy and to individual households can be fully realized. There is also a new local market developing for Darfur's livestock: meeting the consumption needs of a vastly increased urban population. However, to fulfil both the domestic and export potential requires planning and

[28] Some other sources have indicated that the supply of livestock from Darfur to Omdurman has not fallen during the conflict years. However, there are no reliable records of the geographical origin of livestock brought to Omdurman, and it has therefore not been possible to resolve these contradictions.

strategic management. While the conflict continues, and when it ends, sensitive analysis of "who is gaining and who is losing" is essential to ensure that development and growth are as inclusive as possible, of different livelihood groups, different ethnic groups, and different geographical areas.

10.2 Recommendations

The recommendations have been organized into two categories: first, recommendations for immediate action to support the livestock trade in Darfur in the current environment, and second, recommendations at a policy/strategic level—some specific to Darfur and some directed at the federal level. For each recommendation, the pertinent finding from the study is presented and then the recommendation that it generates.

Recommendations for immediate action in the current context in Darfur

Issue: First and foremost, continued insecurity is a major constraint to livestock trading in Darfur, and poses a day-to-day risk for livestock producers and traders alike.

(1) ***Improving security*** is the single most important way of supporting the livestock sector, and should include:

a. reducing trading costs by reducing the numerous checkpoints;

b. learning from the experience in parts of North Darfur where negotiations between traditional leaders appear to have improved mobility and reduced the number of checkpoints.

Issue: Lack of capital and access to affordable credit is a major constraint to livestock traders in Darfur, limiting the growth of trade and the scale on which many Darfuri traders can operate. This is exacerbated by the breakdown in trust and trading on a credit basis between traders, and by the closure of banks in some markets in Darfur during the conflict years.

(2) ***A pilot credit scheme*** for livestock traders should be designed and implemented, initially on a small-scale, in one of Darfur's major livestock markets:

a. exploring what it would mean to provide credit on preferential terms to traders in the current environment;

b. supporting traders from different ethnic groups, possibly in markets where informal trade agreements appear to have brought different groups together.

Depending on the learning and success of the pilot, such a scheme could then be scaled up.

Issue: Within Darfur market, activity in the livestock trade has shifted from secondary markets in insecure areas to secondary markets in more secure locations, yet without any additional investment in market infrastructure to cope with the increase in market activity in the latter.

(3) ***The physical market infrastructure*** in livestock markets in more secure locations which are thriving, such as Tomat and Seraf Omra, should be improved to cope with and encourage the increase in market activity in those locations.

Issue: The growing trade in hides and skins in Darfur represents a pocket of growth in an economy that is otherwise under great strain. This is potentially a valuable source of employment, for women as well as men.

(4) A feasibility study should be carried out to explore how ***the leather industry*** could be supported across Darfur's five states, including a thorough gender analysis.

Issue: It was beyond the scope of this study to explore and analyze trade in other livestock products such as milk and yoghurt, although these, too, are an important source of income and employment for women.

(5) Further analysis of the production and trade in ***livestock products such as milk and yoghurt*** should be carried out, including a gender analysis.

Issue: In some locations, for example Seraf Omra, trade agreements have been made between traders of otherwise hostile ethnic groups. These might be the foundation for future peace-building work to rebuild relationships between those groups with a longer-term perspective. For example, could they also be the foundation for exploring the peaceful and sustainable co-management of natural resources involving different livelihood groups?

(6) These ***trade agreements*** should be investigated further, yet with great sensitivity, to see if/how they could be supported and built upon as a peace-building opportunity.

Issue: Livestock ownership within Darfur appears to have shifted during the conflict years. The hypothesis presented by this study is that livestock ownership has become more concentrated within certain groups whilst others have divested of livestock, and that this, in turn, is impacting who is supplying livestock to the market.

(7) Research is needed to understand how ***livestock ownership*** has shifted in Darfur during the conflict years in order to inform future strategies for rebuilding the livestock sector and livestock production in ways that are both sustainable and inclusive of different groups.

Recommendations at a strategic/policy level

DARFUR LEVEL

Issue: Darfur has undergone a rapid process of urbanization during the conflict years that is unlikely to be reversed. This has created a new local market for livestock for meat, yet the physical infrastructure for a local meat industry and for exporting meat is poor and has received little investment. Darfur's abattoir capacity is extremely limited, with only one functioning abattoir in Nyala, which is frequently nonoperational. While transporting animals on the hoof during the wet season does not appear to reduce the health or value of the animal at the terminal market, covering hundreds of kilometers on the hoof in the dry season is inefficient and uneconomic, and also deprives Darfur of the value-added from slaughtering livestock and processing meat locally.

(8) A clear strategy for developing ***the meat industry*** in Darfur with a longer-term perspective should be developed, including:

a. developing Darfur's abattoir capacity by completing construction of the new abattoir being built in Nyala and ensuring that the Geneina abattoir becomes fully functional;
b. ensuring that improvement of the physical infrastructure extends to effective and reliable cold storage facilities, and improved air transportation facilities essential for developing the export trade in meat;
c. developing processing facilities for by-products such as offal, and linking this strategy for developing the meat industry to development of the leather industry using hides and skins (see recommendation 4 above);
d. ensuring that small-scale livestock producers benefit from a growing meat industry as well as larger-scale livestock producers;
e. collaboration between all five state governments in Darfur in developing and implementing this strategy, with the support of the Darfur Regional Authority.

FEDERAL LEVEL

Issue: Formal taxes on traded livestock are rising rapidly and are being applied indiscriminately at the state and especially locality levels as a way of raising income. There is little re-investment of this revenue back into the sector. It is crippling to both livestock producers and traders, distorts the livestock trade within Darfur as traders try to evade localities with the highest levels of taxation, and ultimately reduces the competitiveness of Sudanese livestock in the international market.

(9) ***Taxation policies*** should be reviewed and revised:

a. to facilitate the movement of livestock between localities and between states;
b. to reduce the taxation burden to improve competitiveness;
c. to ensure that revenues are reinvested in market infrastructure and in improving livestock production.

This will require a process of dialogue with state and locality authorities.

Issue: For many years there has been little investment in the physical market infrastructure that supports the livestock trade, especially at the Darfur level. It is deteriorating rapidly, creating market inefficiencies and reducing the competitiveness of Sudan's livestock internationally.

(10) There is an urgent and pressing need to improve the ***physical market infrastructure*** for livestock trading, including the following:

a. rehabilitating the water points along the main livestock trekking routes between Darfur and Central Sudan;
b. upgrading the railway from Nyala to Central Sudan so that it can once again be used regularly and efficiently for the transport of livestock from South Darfur;
c. the rehabilitation of Darfur's road infrastructure so that livestock can be transported by road swiftly and efficiently.

Issue: Sudan's veterinary services and inspection policies are inadequate to meet ever more demanding international hygiene and disease control regulations. Current policies of relying on inspection of livestock at the point of export increases market inefficiencies if animals are rejected at that late stage in the market chain. Combined, these weaken Sudan's ability to compete internationally.

(11) A clear strategy must be developed to improve ***veterinary services, vaccination centers, and inspection*** in areas of livestock production to reduce livestock losses late in the market chain, and to strengthen Sudan's ability to comply with international standards.

Issue: Lack of credit for livestock traders is a generic constraint to livestock marketing in Sudan, beyond the particular limitations experienced by livestock traders in Darfur—see issue 2 above. Innovative ways of providing credit and transferring money have been pioneered in other challenging and remote contexts where there is a limited presence of formal financial institutions, for example, the *m-pesa* system in northern Kenya.[29]

(12) A national strategy for improving livestock traders' ***access to credit*** in the longer-term must be developed, learning from innovative experiences and schemes that have been pioneered elsewhere.[30]

Issue: Responsibility for livestock marketing is currently scattered across a range of institutions at federal level. Since the abolition of the LMMC there has been no single government body with a strategic mandate for promoting the livestock trade, and consequently a lack of overall policy for promoting the livestock trade, including the export trade, despite the significance of this sector to the economy. This study highlights the urgent need to consolidate institutional responsibility at federal level.

(13) Ways of promoting the livestock trade, domestically and internationally, through a streamlined ***institutional framework at federal level*** should be explored, drawing on experiences elsewhere in Africa.

[29] M-pesa is an innovative mobile phone-based money transfer service for remote rural populations that do not have bank accounts. It enables them to: (i) deposit and withdraw money; (ii) transfer money to other users and non-users; and (iii) pay bills. See, for example, **http://africa.procasur.org/learning-route/our-routes/innovative-livestock-marketing-from-northern-to-eastern-africa/**.

[30] Mina and Van Holst Pelekaan (2010, 8) also recommend preparing "model credit contracts for various types of livestock trading."

ACRONYMS

ABS	Agricultural Bank of Sudan
AMIS	African Union Mission in Sudan
ARB	Animal Resources Bank
ARP	Agriculture Revival Programme
CAPE	Community-Based Animal Health and Participatory Epidemiology Unit
CAR	Central African Republic
CBO	Community-based Organization
CBS	Central Bureau of Statistics
DPA	Darfur Peace Agreement
DRA	Darfur Development and Reconstruction Agency
FIC	Feinstein International Center
GDP	Gross Domestic Product
ICDB	Islamic Cooperative Development Bank
IDP	Internally Displaced Person
IGAD	Intergovernmental Authority on Development
KSCS	Kebkabiya Smallholders Charitable Society
LMMC	Livestock and Meat Marketing Corporation
MDTF	Multi-Donor Trust Fund
MoFT	Ministry of Foreign Trade
MOARF&R	Ministry of Animal Resources, Fisheries and Range
NGO	Non-governmental Organization
SIEP	Sudan Integrated Environment Project
SLA	Sudan Liberation Army
SLM/JEM	Sudan Liberation Movement/Justice and Equality Movement
OAU–IBAR	Organization of African Unity–Interafrican Bureau for Animal Resources
UNAMID	United Nations–African Union Force
UNEP	United Nations Environment Programme
VHF	Viral Hemorrhagic Fever

REFERENCES

Aklilu, Y. 2002a. "An Audit of the Livestock Marketing Status in Kenya, Ethiopia and Sudan (vol.1)." Community-Based Animal Health and Participatory Epidemiology Unit (CAPE) PACE Programme, OAU–IBAR. April.

Aklilu, Y. 2002b. "An Audit of the Livestock Marketing Status in Kenya, Ethiopia and Sudan (vol. 2—Issues and Proposed Measures)." Community-Based Animal Health and Participatory Epidemiology Unit (CAPE) PACE Programme, OAU–IBAR. April.

Aklilu, Y. 2006. "Livestock, Migration and Trade – War Affected Communities, Darfur Early Recovery." UNDP Sudan, Khartoum.

Aklilu, Y., and A. Catley. 2009. "Livestock Exports from the Horn of Africa. An Analysis of Benefits by Pastoralist Wealth Group and Policy Implications." Tufts FIC, Medford, MA. October.

Aklilu, Y., and A. Catley. 2010. "Mind the Gap. Commercialization, Livelihoods and Wealth Disparity in Pastoralist Areas of Ethiopia." UKAid and Tufts FIC, Medford, MA. December.

Behnke, R. 2012. "The Economics of Pastoral Livestock Production and Its Contribution to the Wider Economy of Sudan." Working Paper. Tufts FIC, Medford, MA and UNEP. June.

Bromwich, B. 2008. "Environmental Degradation and Conflict in Darfur: Implications for Peace and Recovery." *Humanitarian Exchange* 39 (June): 22–28. **www.odihpn.org/report.asp?id=2927**.

Buchanan-Smith, M., and A. A. Fadul. 2008. "Adaptation and Devastation: The Impact of the Conflict on Trade and Markets in Darfur." Tufts FIC, Medford, MA.

Buchanan-Smith, M., and H. McElhinney, with H. Bagadi, M. Abdul Rahman, A. Dawalbeit, A. Dawalbeit, M. Khalil, and B. E. D. Abdulla. 2011. "City Limits: Urbanisation and Vulnerability in Sudan–Nyala Case Study." Overseas Development Institute, London.

Collinson, S., ed. 2003. "Power, Livelihoods and Conflict: Case Studies in Political Economy Analysis for Humanitarian Action." HPG Report 13. Overseas Development Institute, London. **http://www.odi.org.uk/HPG/papers/hpgreport13.pdf**.

de Waal, A. 2007. "Sudan: What Kind of State? What Kind of Crisis?" Occasional Paper No. 2. Crisis States Research Centre, London School of Economics, London.

Dirani, O., M. Jabbar, and B. Babiker. 2009. "Constraints in the Market Chains for Export of Sudanese Sheep and Sheep Meat to the Middle East." ILRI Research Report 16. Ministry of Animal Resources and Fisheries, Sudan and ILRI, Nairobi.

El-Dukheri, I., H. Dammous, and A. M. Khojali. 2004. "Rationale for a Possible Market Support Program in Darfur, Sudan. A Brief Look at Markets and Food Security." Commissioned by USAID and implemented by CARE.

Fahey, D. and D. K. Leonard. 2007. "The Political Economy of Livestock and Pastoralism in Sudan." IGAD LPI Working Paper No. 06-08. IGAD Livestock Policy Initiative and FAO Pro-Poor Livestock Policy Initiative.

FAO. 2005. "Livestock Sector Brief. Sudan." FAO Livestock Information, Sector Analysis and Policy Branch. March.

FAO and UNDP. 2010a. "Socioeconomic Mapping of Nomadic and Pastoral Livelihoods." Facilitated by FAO and CRMA, North Darfur.

FAO and UNDP. 2010b. "Socioeconomic Mapping of Nomadic and Pastoral Livelihoods." Facilitated by FAO and CRMA, South Darfur.

Giroux, J., D. Lanz, and D. Sguaitamatti. 2009. "The Tormented Triangle: The Regionalisation of Conflict in Sudan, Chad, and the Central African Republic." Crisis States Research Centre, London School of Economics, London.

ICRC. 2005a. "Regional Livestock Study in the Greater Horn of Africa." Authored by P. S. Simpkin. December. **http://www.icrc.org/eng/resources/documents/misc/regional-livestock-study-great-horn-africa.htm**.

ICRC. 2005b. "Sudan Country Profile: ICRC Regional Livestock Study in the Greater Horn of Africa." Authored by P. S. Simpkin. December.

Idriss, B. 2003. "Marketing of Camels in the Sudan." The Camel Applied Research & Development Network, CARDN/ACSAD/Camel/PIII/ 2003, The Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD). March.

Idriss, B. 2008. "Assessment of Livestock Trade between IGAD Member Countries and GCC States. A Study for FAO." December.

Ijaimi, A. A. 2011. "A Note on Market Chain, Marketing System and National Policies Impacted Livestock Trade in Darfur." Prepared as a background paper for the Tufts FIC livestock trade study. April.

Khojali, A., and L. M. P. Hansen. 2010. "Microfinance Assessment Consultancy to Darfur, Sudan. February to March 2010. Final Report." Commissioned by the Feinstein International Center of Tufts University, IOM, and UNDP Sudan. June.

Kratli, S. 2012. "Environment and Livelihoods: Pastoralism and Pastoralist Livelihoods Study project—Tufts University and SOS Sahel. Background document." Draft. February.

Lautze, S., and A. Raven-Roberts. 2006. "Violence and Complex Humanitarian Emergencies: Implications for Livelihoods Models." *Disasters* 30 (4): 383–401. **http://www.blackwell-synergy.com/doi/pdf/10.1111/j.0361-3666.2006.00328.x**.

Mina, A. A. M., and J. W. Van Holst Pellekaan. 2010. "Value Chains for Sheep, Cattle and Mutton Marketing from Western Sudan to Omdurman and Port Sudan/Sawakin." Background paper for the Sudan Country Economic Memorandum. World Bank, Khartoum and Washington DC. Draft.

Morton, J. 1985. "A Darfur Compendium. A Review of the Geographical, Historical and Economic Background to Development in the Region." HTSPE, reissued 2005.

Researchers at FIC. 2011. "Navigating Without A Compass: The Erosion of Humanitarianism in Darfur." Briefing Paper. Tufts FIC, Medford, MA. January.

Scoones, I., and W. Wolmer. 2006. "Livestock, Disease, Trade and Markets: Policy Choices for the Livestock Sector in Africa." Institute of Development Studies, University of Sussex, Brighton.

Shumba, C. 2010. "The Darfur Value Chain Analyses: Sheep, Cattle, Groundnuts and Oranges." UNDP. September.

SUPRAID, BYDA, and Concern Worldwide. 2004. "Trading for Peace. An Overview of Markets and Trading Practices, with Particular Reference to Peace Markets in Northern Bahr-el-Ghazal, Southern Sudan." Edited by Shannon Fraser, Caroline Gullick, Sebastian Ling, and Ka Vang. Funded by USAID and OFDA. September.

UN. 2010. "Beyond Emergency Relief. Longer-term Trends and Priorities for UN Agencies in Darfur." Office of the UN Resident and Humanitarian Coordinator, Khartoum. September.

UNEP. 2008. "Destitution, Distortion, and Deforestation: The Impact of the Conflict on the Timber and Wood Fuel Trade in Darfur." Authored by M. Buchanan-Smith, A. Abdalla Adam, B. Bromwich, M. El Hafiz Ibrahim, M. Dafalla, A. A. Fadul, A. R. Mohammed Tahir. Geneva.

World Bank. 2003. "Sudan Stabilization and Reconstruction: Country Economic Memorandum. Volume 1: Main Text, Report No. 24620-SU." The World Bank, Washington, DC.

World Bank. 2007. "Darfur. Dimensions of Challenge for Development. A Background Volume."

Young, H., A. M. Osman, et al. 2005. "Darfur—Livelihoods under Siege." Tufts FIC, Medford, MA. **http://fic.tufts.edu/downloads/darfur_livelihoods_under_seige.pdf**.

Young, H., A. M. Osman, A. M. Abusin, M. Asher, and O. Egemi. 2009. "Livelihoods, Power, and Choice: The Vulnerability of the Northern Rizaygat, Darfur, Sudan." Tufts FIC, Medford, MA.

Young, H., A. Rahim, A. Mohamed, and M. Fitzpatrick. (2012). "Pastoralism and Pastoralists in Sudan. A Stakeholder Mapping and Survey." Short Report. Tufts FIC, SOS Sahel Sudan, and UNEP. June.

Yusuf, M. 2009. "New Joint Chamber of Commerce Offers Chance to Promote Cross-LOC Trade in Kashmir." Special Report 230. United States Institute for Peace. August.

Annex 1. Research team carrying out the study

Margie Buchanan-Smith is a Visiting Fellow with the Feinstein International Center at Tufts University. She is an independent policy researcher with more than 25 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. She is Senior Research Associate with the Humanitarian Policy Group at the Overseas Development Institute in London.

Dr. Abduljabar Abdalla Fadul is an Assistant Professor at El Fashir University in North Darfur State. He has many years' experience 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. 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.

Yacob Aklilu is a senior researcher at the Feinstein International Center, Tufts University. He is a livelihoods specialist with in-depth knowledge of humanitarian and development programming and policies in Africa. An agricultural economist, he has more than 25 years of experience of policy analysis and reform at national and regional levels. He has a specialist knowledge of livestock marketing at domestic, regional, and international levels and was the instigator of the Pastoral Livestock Marketing Groups approach in Ethiopia and Kenya.

Dr. Abdul Rahman Mohammed Tahir is Professor of Range Management at Nyala Agricultural Research Centre within the Ministry of Agriculture in South Darfur. With many years of experience of range and pasture management, he has worked for the Agricultural Research Corporation for 15 years and for the Western Savanna Development Corporation for 14 years. He completed his Ph.D. in Agriculture at the University of Khartoum in 2003, and holds an M.Sc. in Agriculture from Cranfield Institute of Technology in the UK.

Dr. Abdelatif Ahmed Mohamed Ijaimi works as an expert in the General Secretariat of the Higher Council for Agriculture Revival of Sudan and is Chairperson of the Consultative Committee of the Common Fund for Commodities. He was previously Undersecretary of the Ministry of Agriculture in Sudan, and before that Director-General of the General Directorate for Agricultural Planning and Economics in the Ministry. He worked as an expert for the Arab Organization for Agricultural Development. He holds a Ph.D. in Agricultural Economics from the University of Hohenheim in Germany.

The following local team of local researchers also worked on the study across the greater Darfur Region:

Markets covered	Researcher
Fora Boranga and Umm Dukhn	Mohamed Yousif Bakour Mohamed
Ed Daien and Assalaya	Saeed Abbaker Saeed Arbab
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El Tomat and Rajaj	Babikir Teirab Mohamed Osman
Abu Matarig and Abujabra	Ahmed Mohamed Abukalam Juma
Seraf Omra	Shoeib Abdulraheem Ateem Ali
Rehaid Al Berdi, Markundi, and Abori	Ibrahim Mohamed Idris Adam
El Malha	Ahmed Ali Ahmed
Umlabbasa and Silgo	Adam Mohamed Dahab

Annex 2. Analysis of trading costs in Darfur's livestock trade

The following data were collected during interviews with livestock traders between March and May 2011. It should be noted that the data are recorded according to how they were recounted by the respective trader—hence the fact that the cost items mentioned are not always consistent.

1. Trading costs for sheep traded from El Fasher to El Khuwei: flock of 300 sheep

Item	Cost before the conflict (SDG)	Cost in 2011 (SDG)	% increase
1. Formal taxes and veterinary fees: eg., licence registration, zakat, grazing fee, tax, veterinary fees	3.5 per head	7.5 per head	
2. Informal taxes	2 per head	10 per head	
3. Cost of 2 herders per flock (and per head)	200 (0.67 per head)	1,200 (4 per head)	
4. 1 lead herder for 4 flocks	800 (0.66 per head)	1,500 (1.25 per head)	
5. 1 armed guard for 4 flocks	Not required	1,000 (0.83 per head)	
Total per head	**6.83**	**23.58**	**245%**

Source: Sheep trader, El Fasher, March 2011

2. Trading costs for cattle traded from El Fasher to Omdurman: herd of 60 cattle

Item	Cost before the conflict (SDG)	Cost in 2011 (SDG)	% increase
1. Formal taxes eg., zakat etc.	4–5 per head	15–8 per head	
2. Informal taxes per herd	–	2,000–2,500 (40 per head)	
3. 2 junior drovers per herd	300 (5 per head)	1,500 (25 per head)	
4. 1 lead drover for 4 herds	1,000 (4 per head)	2,500 (10.5 per head)	
5. Supplies per herd	150 (2.5 per head)	600 (10 per head)	
6. Armed guard	Not required	10 per head until Kordofan	
Total per head	**16**	**112**	**600%**

Source: Cattle trader, El Fasher, March 2011

3. Trading costs for cattle traded from Geneina to Omdurman: herd of 50 cattle

Item	Cost before the conflict (SDG)	Cost in 2011 (SDG)	% increase
1. Formal taxes eg., zakat etc.	5–7 per head	20 per head	
2. Informal taxes per herd (per head)	100 (2 per head)	3–4,000 (70 per head)	
3. 2 junior drovers per herd (per head)	600 (12 per head)	2,400 (48 per head)	
4. 1 lead drover for 4 herds (per head)	1,200 (6 per head)	4,000 (20 per head)	
5. Supplies per herd*	100 (2 per head)	3–4,000 (70 per head)	
6. Armed guards	Not required	3,500 (70 per head)	
Total per head	**28**	**298**	**964%**

* *Under the current conflict conditions, supplies include the provision of sorghum and concentrates for cattle, as they must be trekked at speed to avoid banditry. As a result, 2–3 cattle are said to die from exhaustion from each herd during trekking. Formerly, cattle were allowed to trek at leisure while grazing.*

Source: Cattle trader, Ardamata, Geneina, March 2011

4. Trading costs for cattle traded from Nyala to Omdurman

Item	Cost before the conflict (SDG)	Cost in 2011 (SDG)	% increase
1. Taxes	25 per head	25 per head	
2. Herding costs	50 per head	60 per head	
3. Additional costs associated with the conflict: checkpoints, guards for protection, locality fees, etc.		70 per head	
Total per head	**75**	**155**	**106%**

Source: Cattle trader, Nyala, March 2011

5. Trading costs for cattle traded from Tomat to Omdurman: herd of 50 cattle

Item	Cost before the conflict (SDG)—rainy season	Cost in 2011 (SDG)—rainy season	% increase
1. Formal taxes (incl. vet. inspection)	12.5 per head	30 per head	
2. Guide for herding	40 per head	150 per head	
3. Drover for herd (per head)	1,000 (20 per head)	2,000 (40 per head)	
4. Horse for herding (per head)	500 (10 per head)	1,000–1,500 (25 per head)	
5. Donkey	150 (3 per head)	200–250 (4.5 per head)	
6. Drugs	500 (10 per head)	1,000 (20 per head)	
Total per head	**95.50**	**269.50**	**182%**

Source: Local researcher interviews with cattle traders, Tomat, April to May 2011

6. Trading costs for cattle traded from Abu Matarig to Omdurman: herd of 50 cattle

Item	Cost before the conflict (SDG)	Cost in 2011 (SDG)	% increase
1. Formal taxes (incl. veterinary fees)	19.5 per head	30 per head	
2. Lead herder per herd	750 (15 per head)	1,500 (30 per head)	
3. 2 herders per herd	500 (10 per head)	2,000 (40 per head)	
4. Horse per herd	700 (14 per head)	1,000 (20 per head)	
5. Donkey per herd	300 (6 per head)	300 (6 per head)	
6. Guards per herd	0	700 (14 per head)	
Total	**64.50**	**140.00**	**117%**

Source: Local researcher interviews with cattle traders, Abu Matarig, April to May 2011

7. Trading costs for camels traded from Seraf Omra to Egypt: herd of 50 camels

Item	Cost before the conflict (SDG)	Cost in 2011 (SDG)	% increase
1. Formal taxes	14 per head	26 per head	
2. Moving to collection point	2 per head	6 per head	
3. Middlemen fees	3 per head	10 per head	
4. Costs while bulking the herd, per herd	300 (6 per head)	600 (12 per head)	
5. Vet. fees per herd	50 (1 per head)	200 (4 per head)	
6. Guide per herd	1,000 (20 per head)	2,000 (40 per head)	
7. 2 drovers per herd	1,000 (20 per head)	2,000 (40 per head)	
8. Guard (one pre-conflict, two in 2011)	500 (10 per head)	2,000 (40 per head)	
9. Fees in Kuma per herd	150–200 (3.5 per head)	500 (10 per head)	
10. Umm Sunnta fees per herd	400–500 (9 per head)	1,000–1,500 (25 per head)	
11. Um Gozein fees per herd	200–300 (5 per head)	700 (14 per head)	
12. Dongola fees per herd	1,000 (20 per head)	3,000–5,000 (80 per head)	
13. Checkpoints per herd	0	3,500 (70 per head)	
14. Water per herd	35 (0.7 per head)	135 (2.7 per head)	
Total	**114.20**	**379.70**	**232%**

Source: Local researcher interviews with camel traders, Seraf Omra, April to May 2011

Further technical information may be obtained from the UNEP Post-Conflict and Disaster Management Branch website at:
http://www.unep.org/disastersandconflicts/ or by email: **postconflict@unep.org**

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