Emergency Market Mapping and Analysis (EMMA):

Livestock Off-take and Sorghum Market Systems in Leer County, Unity, South Sudan

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This publication was produced for review by the United States Agency for International Development and prepared by Mercy Corps. The EMMA was led by Carol Ward, Independent Consultant and co-led by Mohamed Ali, Mercy Corps Market Systems and Livelihoods Advisor, South Sudan. Photo credit: Mercy Corps South Sudan.

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EXECUTIVE SUMMARY

In December 2013, conflict along tribal lines started in Juba, the capital of South Sudan, but soon spread to six of the ten states, resulting in the closure of the oil wells in the north of Unity State, the displacement of almost 1.5 million people within South Sudan and nearly 500,000 fleeing to neighboring countries. Food stocks and livelihood assets have been destroyed in the conflict, and trade and primary production continues to be severely disrupted.

Leer County in the State of Unity was badly affected by active conflict at the beginning of 2014. Many people lost their lives while livelihoods were devastated, as homes, businesses, public amenities such as hospitals, and NGO premises were completely stripped of assets, with many temporary buildings razed to the ground. The once thriving market town of Leer served as the center of trade for a population of approximately 105,000 (in Leer County) as well as various adjoining areas of neighboring states. It is now a shadow of its former self, with the large traders having fled and the main trade routes blocked by active conflict and localized flooding.

This Emergency Market Mapping and Analysis (EMMA) focuses on three critical markets and outlines opportunities and challenges for future programming in the area and the wider market network, of which Leer is a critical node.

The rationale for this EMMA is that a better understanding of the most critical market systems enables humanitarian agencies to consider a broad range of responses as well as conventional in-kind distributions and cash-based interventions. These response options can include local procurement and other innovative forms of market-system support that enable humanitarian programs to optimize existing market actor capabilities, work with recovering systems, and support market participants, while understanding the risks.

The aim of the EMMA was to improve the effectiveness and efficiency of humanitarian action so as to ensure people's survival, protect their food security and livelihoods, and to help agencies avoid doing harm by avoiding interventions potentially distorting markets and hindering recovery.

The sorghum, goat/sheep and cattle off-take market systems were chosen to be the subject of the EMMA as they are central to predominant livelihood strategies, critical to ensuring survival, and protecting the food security of the population of Leer County. Data collection and analysis procedures used in this assessment closely followed the standard EMMA 10-step process (see Annex 4), including a focus on key critical market systems and a combined household gap, market, and response analysis. For each critical market system, there is a comparison of the current market system to the reference period (one year ago), before the conflict when the markets functioned more healthily. This enabled the identification of major constraints on the market systems brought on by the most recent crisis.

The EMMA found that before the crisis, the majority of households in Leer met most of their needs for meat and cereals through market purchase. These market purchases were paid for, mostly using cash as a means of exchange, by income from livestock off-take, milk sales, and sale of natural materials, fishing, charcoal, brewing and tea making.

Current main issues for sorghum consumers

- The area is routinely cereal deficient and reliant on imports through markets to meet needs (both pre- and post-crisis). Crop yields are generally low for a variety of reasons - including poor seed stock (although over recent years there have been some seed & tool distributions), labor shortages, very limited mechanization or use of draft power, and heavy soils which limit the area of land that can be tilled.
- Production of sorghum and other crops was particularly poor this harvest season as the area planted was less than last year, a result of the conflict disrupting planting and weeding activities. Flooding damaged crops in many areas - thus increasing reliance on market purchases.

Simultaneously, market supply was severely restricted as a result of rain and conflict risks to traders.

- Due to the cultural status of cows, there has been great resistance in many communities to utilize them for pulling harrows or carts. This is in spite of that fact that animals in other areas of South Sudan, and even in Payak Payam in Leer, are used for pulling harrows and carts after prolonged exposure and demonstrations by the Comboni missionaries. This has decreased the area of land that could otherwise be cultivated.
- While sorghum distributions in the early part of the crisis played a critical role in supplying staple food and keeping food prices down, there is a risk that prolonged, extensive distribution may create disincentives, particularly for local sorghum producers.

Current main issues for traders that obstruct the efficient functioning of trade

- Many of the roads used for trade routes are closed due to active conflict and insecurity, as well as localized flooding due to late rains. This has limited the availability of goods in the market and depressed livestock prices since livestock cannot be moved to traditional distant end markets, and are over-supplying local markets where purchasing power is already reduced.
- River trade routes remain severely constricted for all goods, but particularly for livestock and commodities with low value per unit of bulk. Small craft are still able to use river routes informally - at some risk. This means they tend to carry goods with a high value per unit of bulk such as sugar, clothing, and sandals rather than livestock.
- Large wholesalers with their own transport and a large commercial network have withdrawn from Leer, driven out by conflict, risks of ethnically targeted reprisals, and a generally unconducive operating environment. This has left a vacuum, as the remaining smaller traders have also sustained losses and not have access to formal financial institutions for credit and wider trade linkages in order to expand their enterprises, should the operating environment become conducive to early recovery of trade.
- Permits to move livestock are not being issued and it is not clear whether authorizations issued by offices in opposition areas would be accepted outside the State.

The context is likely to change quite rapidly over the coming months. The main variables in the mix are:

- Whether a peace agreement will be signed and if it will achieve peace in reality.
- Dry season conditions, which will improve access both for trade and fighting forces.
- Whether food distributions will continue in 2015.
- The extent to which conflict/ insecurity will continue to prevent the Leer area from re-connecting to the markets.
- The activities and intentions of other humanitarian actors to meet the ongoing needs of the population.

All of these are likely to affect any response options and the organizational decision to intervene. The following matrix shows the most appropriate response options in the market systems analyzed. Options have also been marked according to their feasibility in the short-term **(January- December 2015)** and scenarios are outlined at the bottom of Table 1.

Table 1: Response Options

Response Options	Advantages	Disadvantages	Appropriate Scenario*
Small grants/access to financial services for emerging traders in sorghum and livestock particularly	Supports market to function and grow	Difficult to target. Support to livestock traders can also support gender biases.	3
Re-establish business networks between local emerging traders & with bigger traders up the chain	Improves network and acumen of emerging traders	Slow and success depends on routes re-opening.	1, 2, 3,4
Support access to food through the provision of food vouchers for cereals (and possibly meat for more vulnerable groups)	Increased purchasing power for food insecure HHs at the same time stimulating trade at reasonable prices	Need to be careful to ensure stocks are sufficient in the market so prices are stable.	3,4
Strengthen private input supply to strengthen animal health services	Improves access to vet services but could be slow	Vet services provided free after the conflict. Reverting to cost-share and pay-for-service could be slow.	3
Strengthen link of CAHWs with private suppliers	Likely sustainable	Infrastructure is lacking.	3
Train and equip new cadre of male and female CAHWs	Will be well received by community	Needs updating regularly.	1, 2, 3,4
Promote low-tech agricultural practices - such as harrowing, and soil silage making	Youth can break resistance to new ideas	Need to give youth way of making changes they have heard about.	1, 2, 3
Increase adoption of tillage using cattle & donkeys	Comboni have already piloted this	Slow and requires behavior change.	1, 2, 3
Vocational training - particularly metalworking for the production of farm tools	Diversify income generating options and reduce reliance on distributed tools	May not be interesting to males.	1, 2, 3
*** Refers to the appropriateness in the following scenarios over January-December 2015**			
1. Status quo - with general food distribution (most likely scenario, January-April 15)			
2. Status quo but no general food distribution after end of December 2014			
3. Mostly peaceful with permits to move. Good road access in dry season & river transport			
4. Return to active conflict (most likely scenario January –December 15)			

As indicated in the study, conflict remains the primary cause of market dysfunction. Therefore, to address the impacts and facilitate market recovery, there will be a need to identify and promote indigenous conflict management mechanisms and work with local governance systems.

A number of organizations are already present, and it seems to be clear that Mercy Corps could add value to the humanitarian response. Mercy Corps has a strong history of working with communities to nurture recovery in market systems. There are opportunities and challenges in the response options for Leer that match Mercy Corps' mandate and core experience if the wider security

situation improves. There are also likely to be synergies and possibilities for skills/ideas/personnel transference particularly with bases in Ganyiel and Bentiu.

ABBREVIATIONS AND ACRONYMS

CAHW	Community Animal Health Worker
EMMA	Emergency Market Mapping and Analysis
FAO	Food and Agriculture Organization of the United Nations
FEWS NET	Famine Early Warning System Network
GAM	Global Acute Malnutrition
GoSS	Government of South Sudan
HEA	Household Economy Approach
HH	Household
IDP	Internally Displaced Person
IGAD	Inter-Governmental Agency for Development
IOM	International Organization for Migration
IPC	Integrated Phase Classification
IRC	International Rescue Committee
KAQ	Key Analytical Question
MAM	Moderate Acute Malnutrition
M&E	Monitoring and Evaluation
NBS	National Bureau of Statistics
NBHS	the National Baseline Household Budget Survey
NGO	Non-Governmental Organization
NRC	Norwegian Refugee Council
SAM	Severe Acute Malnutrition
SPLA	Sudanese People's Liberation Army
SPLA/IO	Sudanese People's Liberation Army in Opposition
SSP	South Sudan Pound
SNV	Netherlands Development Organization
VSF	Veterinaries Sans Frontieres (Suisse)
VSLA	Village Saving and Lending Association
WFP	World Food Programme

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Carol Ward, EMMA lead

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EMERGENCY CONTEXT

Description of emergency – causes and impacts

Towards the end of 2013, the economic outlook for South Sudan was promising, following a compromise with Sudan that had allowed the reopening of oil wells in South Sudan. However, in December 2013, an open disagreement between political leaders representing different tribal groups (The President representing the Dinka and the Vice President (opposition) largely represented by Nuers) incited violence between those tribes in Juba. The conflict soon spread to six of South Sudan's ten states, resulting in the closure of oil wells in the north of Unity State, the displacement of almost 2 million people (internally and as refugees outside South Sudan-500,000 people fleeing to neighboring countries). The World Bank[1] estimated that the current conflict would cost up to 15% of the country's potential GDP in 2014.

Currently, the situation remains fluid and unclear; the peace process under the auspices of the Inter-Governmental Agency for Development (IGAD) is faltering and each of the warring groups accuse the other of violating the ceasefire. The prospect of re-igniting hostilities that were reduced during the rainy season is very high, with a risk of prolonged conflict with severe impact on the humanitarian situation.

The conflict has heralded a period of cereal shortages and trade disturbances in the conflict-affected states; this has been exacerbated by the seasonal constraints to trade during the rainy season, and by poor road transport infrastructure and services (Figure 1). Food stocks and livelihood assets have been destroyed in the conflict and trade and primary production continue to be severely disrupted.

November marks the beginning of the dry season and, with it, the end of the harvest, which is expected to be smaller than last years' due to an approximately 30% reduction in planted areas in comparison with pre-conflict years (FEWSNET)[2], and disruptions to planting and tending crops. The consumption of cereals before they have reached full maturity (green harvest) has increased as market sources have been disrupted by the conflict. Home produced food stocks are likely to last for a shorter period of time than normal, leaving people to rely more heavily on market purchases and food assistance.

Key findings of preliminary analysis

The humanitarian situation in Unity State is dire. Using the system for Integrated Food Security Phase Classification (IPC), the food Security Bulletin for August-September 2014 indicated that over 1,500,000 people would continue facing significant food gaps (Crisis and Emergency Food Insecurity

[1] (http://www.worldbank.org/en/country/southsudan/overview)

[2] Based on figures from the neighboring Koch County (FEWSNET Special Report South Sudan. August 29, 2014)

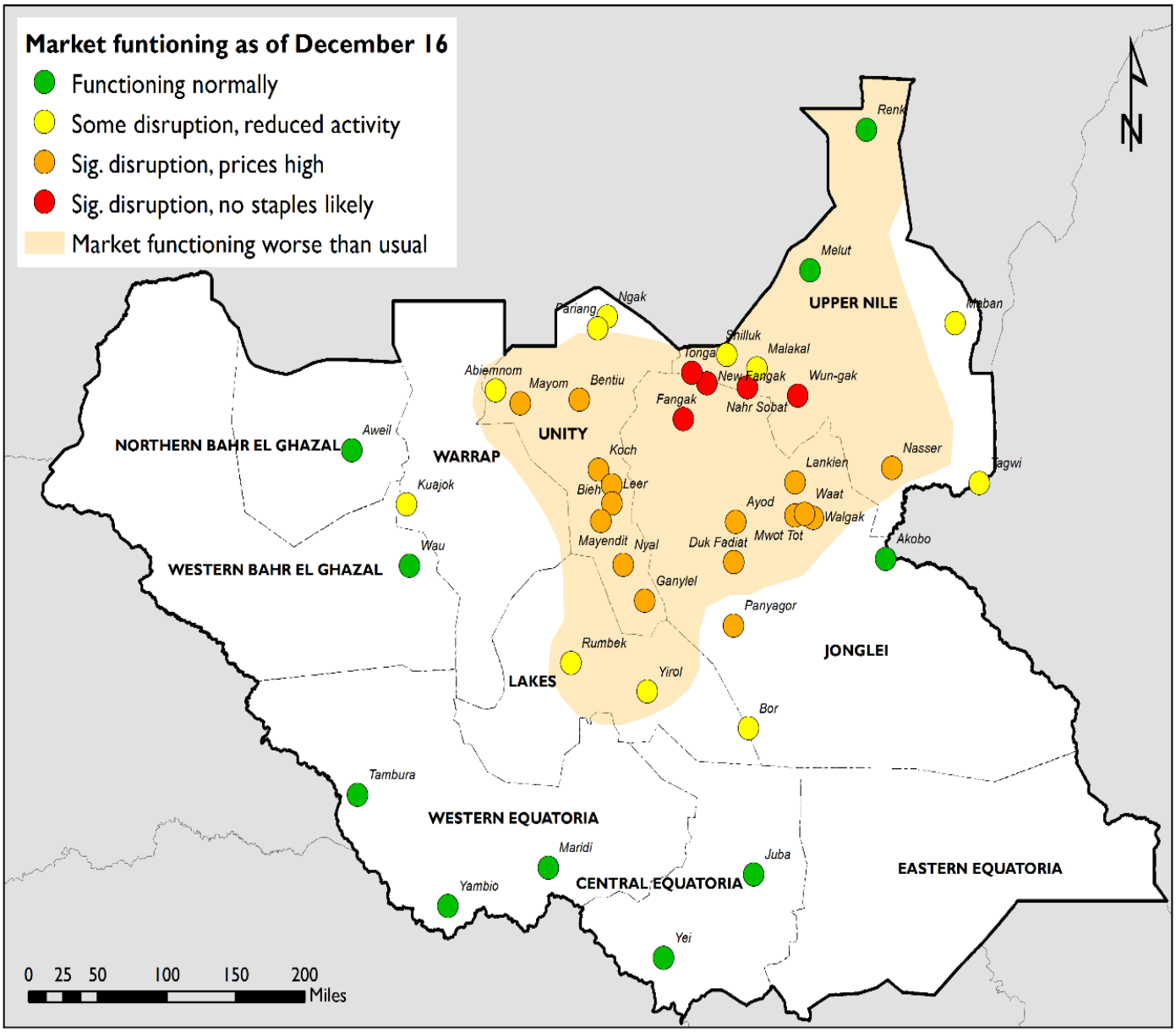

Figure 1: Market Functioning as of December 16

Situation) between October to December 2014 and that 2.5 million people will be in IPC phases of crisis and emergency by January to March 2015. Unity State is anticipated to have high food insecurity and likely to continue in crisis and emergency situations (IPC phase 3 & 4) or worse, without massive humanitarian assistance.[3]

Figure 2 shows the IPC map for South Sudan as of September 2014 with four areas in conflict-affected states in the red emergency phase. Two of those are in Unity State, where the situation is expected to deteriorate at the beginning of 2015 due to the depletion of household food stocks, disrupted markets, loss of livelihoods, and displacement.

[3] South Sudan Food Security Update, Volume 23 National Bureau of Statistics (NBS) October 2014

Since December 15, 2013, there are 1.5 million IDPs in South Sudan and nearly 500,000 people sheltering in neighboring countries.[4] The majority of these people have been unable to replenish household needs.[5] As a result, malnutrition remains critical in the country. Nutrition surveys conducted between April and July 2014 indicate a prevalence of Global Acute Malnutrition (GAM) above 30% while the prevalence of Severe Acute Malnutrition (SAM) was above 10%.[6]

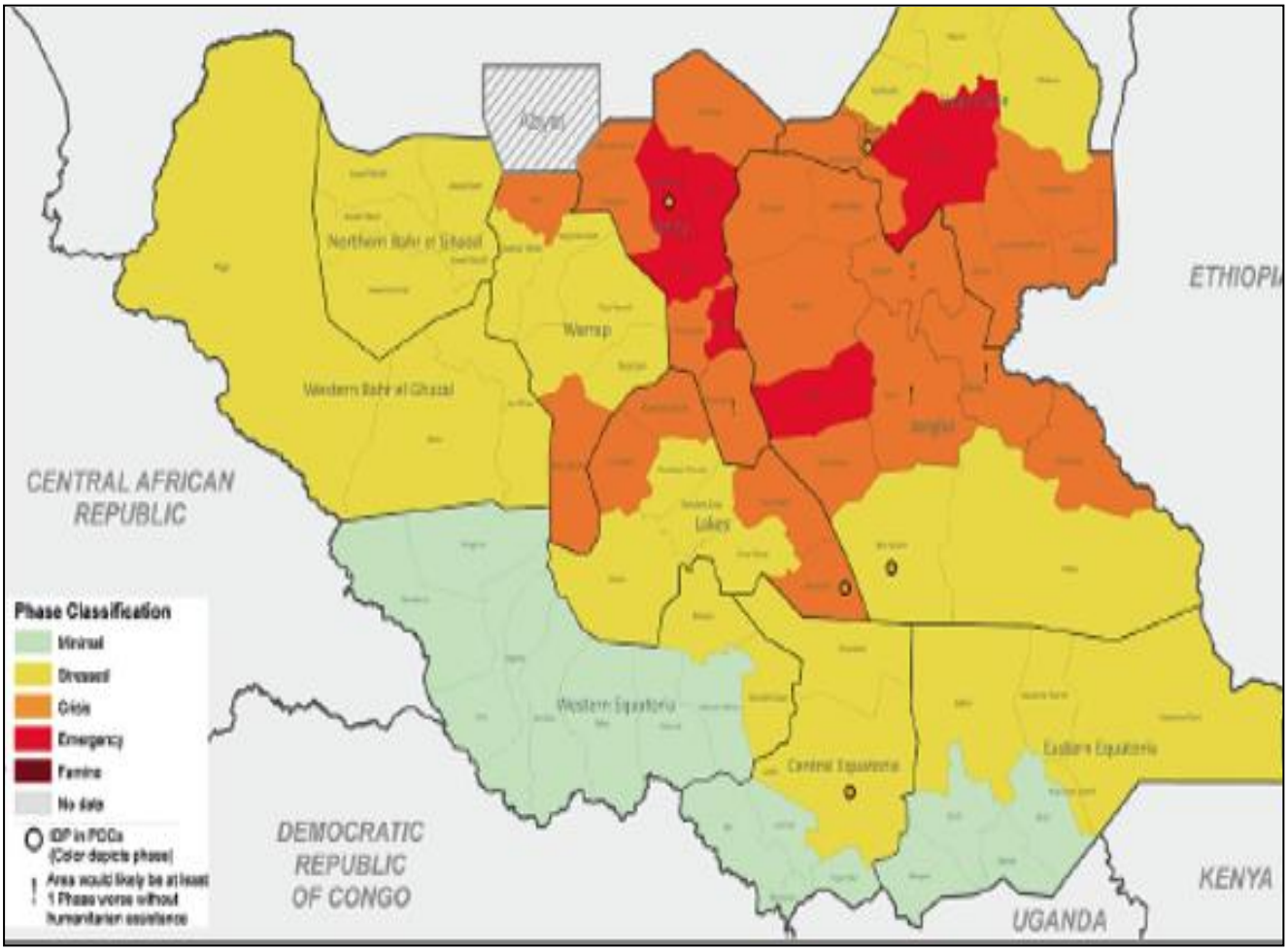

Figure 1: Integrated Phase Classification Map for South Sudan

The outlook for 2015 is of great concern. As the dry season sets in, tension is mounting in all parts of the country. As roads dry out and become passable for trade they also become passable for armed groups; hence the fighting is expected to begin again in some of the areas that had been relatively calm during the rainy season and the start of peace process in Ethiopia. Peace talks have yielded little progress, and there are fears that an escalation of conflict in early 2015 will cause new, large-scale displacement, prevent market recovery, and limit access to food and income sources. An early

[4] U.N. Office for the Coordination of Humanitarian Affairs (OCHA) – December 2014

[5] Shelter NFI Cluster South Sudan, Rapid Monitoring and Assessment Exercise in Leer County 7-11 July, 2014

[6] Integrated Food Security Phase Classification for Republic of South Sudan, July 2014

onset of the lean season, and significant reductions in food and income sources, will result in growing food gaps from January to July 2015.[7]

Location of Interest

Leer is one of nine counties in Unity State (Figure 3), a primary source of South Sudan's economic lifeblood. With 16 payams and 48 bomas, the county is the most densely populated (estimated population of 105,000 and an area of 1,612 km2) county in Unity State.[8] Generally, as part of Unity State, Leer County has had large sorghum deficits achieving self-sufficiency levels of less than 40%.[9] The county has a history of conflicts, which have led to occassional splits within the SPLA.

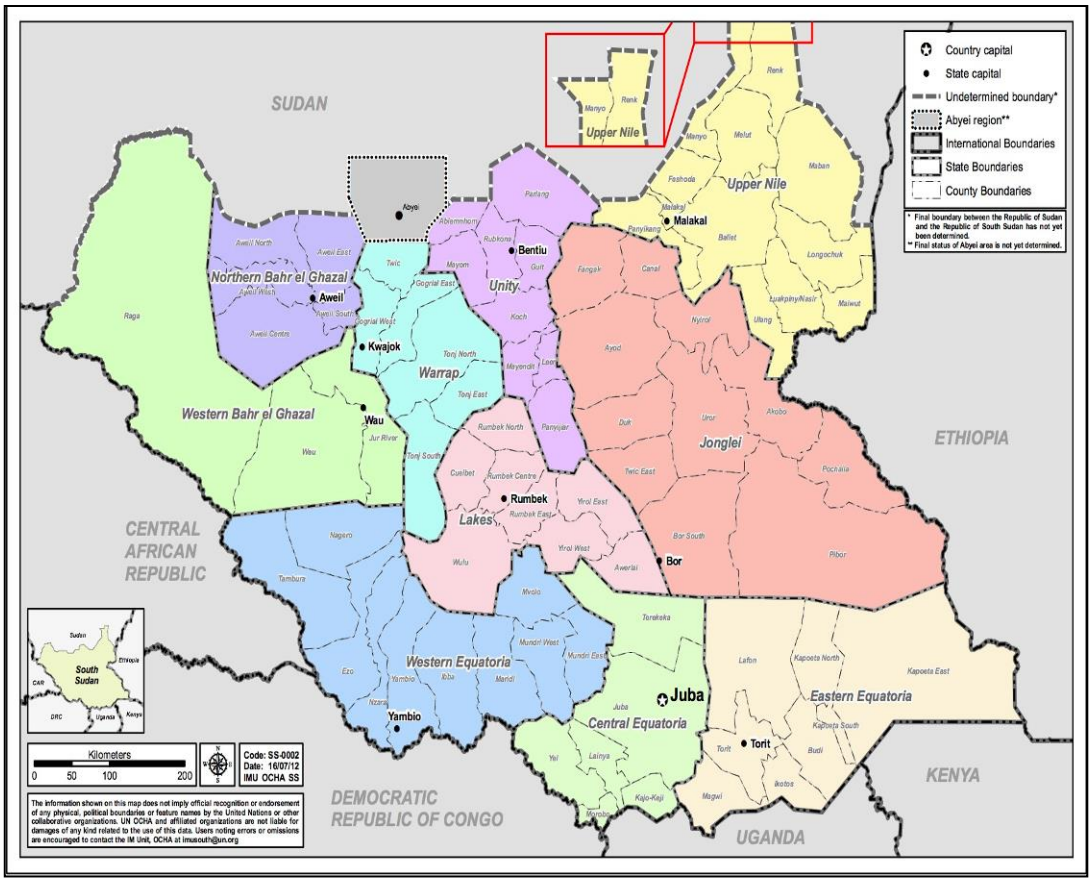

Figure 3, County Map of South Sudan

Additionally, Inter-communal conflicts and cattle raiding, especially in the dry period (when households experience depleted food stocks and have to rely on the market to meet their food needs), were common in counties in Unity State even before the current crisis. For example, according to UN OCHA reports, the counties in Unity State accounted for over 18% of all conflict incidents in 2012.

[7] http://www.fews.net/east-africa/south-sudan

[8] 5th Sudan Population and Housing Census 2008. In Statistical Yearbook for Southern Sudan 2010. Southern Sudan Center for Census, Statistics and Evaluation, p. 12.

[9] The FAO/WFP Crop and Food Security Assessment Mission indicates that of the required 5,365MT of sorghum required, the county was only able to produce 1,971 MT in 2013 (a deficit of 3,394 MT)

Leer County was among one of the severely affected counties. Earlier in 2014, the county was badly affected by active conflict, as it is the hometown of Vice President Riek Machar, the opposition leader, who is Nuer. Nearly all of the main town population has fled during confrontations between the Sudanese People Liberation Army (SPLA) and SPLA – in Opposition (SPLA-iO).

During this time, many people lost their lives and many livelihoods were devastated as assets were stripped and many temporary buildings were razed to the ground. The once thriving market town now has all but ceased activity, with the large traders having gone and trade routes largely blocked by conflict, compounded by adverse weather conditions.

Displacement, conflict, and seed shortages have negatively affected planting. As a result, harvest was significantly reduced. Furthermore, the impact of the conflict resulted in the disruption of trade flows and market activity. The largely agro-pastoral population is therefore expected to increase their dependence on livestock, their mobile livelihoods source, for food (milk) and sales to fund purchases of cereals and other foodstuffs. Household purchasing power has been low, as assets were either depleted or lost in the conflict and coping strategies weakened. With anticipated renewed fighting, the food security prospect looks tenuous.

Humanitarian Response in Leer County

A rapid assessment conducted by the Shelter NFI Cluster, South Sudan, in July 2014[10] identified food, non-food items (NFIs), education, and seeds and tools as priority needs in the county. Obstruction and violence against the assets, movement, and activities of humanitarian agency personnel have led to difficulties in providing aid and assistance to displaced communities. Blanket food distributions of sorghum, oil, salt and beans to 19,360 households, with an eventual target of 20,000 are currently underway (it is not clear what percentage of the population is covered as no population updates that cover the recent displacements due to the conflict have been reported). Through partners, FAO is also delivering some fishing kits and animal vaccines, and there are agencies providing health care and treatment for malnutrition.

Until the conflict broke out in February 2014, Mercy Corps was operational in Leer and had been providing **business training skills for traders**, technical assistance, and materials. Currently, Mercy Corps has plans to return to Leer early in 2015 to support and enable market recovery for existing livelihood strategies for food insecure households. Mercy Corps is currently working in three other sites in Unity – Bentiu, Nyal and Ganyiel - providing market-based approaches to provide humanitarian assistance and alleviate food insecurity. This includes piloting **unconditional** cash transfer and **fish** voucher project, seeds and tools distribution, farmer training, fishing net distribution, and cash for work projects to improve infrastructure and market access.

EMMA METHODOLOGY

Approach and Methodology

The methodology used for this study adapted the standard EMMA[11] approach to account for the complex context of South Sudan. Data collection and analysis procedures closely followed the EMMA 10-step process (Annex 4), including a focus on critical market systems and a combined household gap, market, and response analysis. For each critical market system there is a comparison of the current market system to the chosen reference period of a year ago, when the markets functioned more healthily; enabling the identification of key constraints on the market systems brought on by the most recent crisis. Additionally, to a limited extent, this EMMA looks forward to

[10] Ibid – Shelter NFI Cluster

[11] Mike Albu. Emergency Market Mapping and Analysis Toolkit. Oxfam GB. 2010

the next three to nine months to anticipate the future impact on the market systems of the on-going crisis; recommendations are made to support markets systems critical to the livelihoods and well-being of households in Leer County.

The rationale for this EMMA is that a better understanding of the most critical market systems enables humanitarian agencies to consider a broad range of responses as well as conventional in-kind distributions and cash-based interventions. These response options can include local procurement and other innovative forms of market-system support that enable humanitarian programs to make better use of existing market actor' capabilities, while understanding the risks.

The EMMA's aim is to improve the effectiveness and efficiency of humanitarian action to ensure people's survival; to protect their food security and their livelihoods; and to help agencies to avoid doing harm. The EMMA methodology remains, however, an emergency rough-and-ready, time-sensitive process: a pragmatic response to the typical human-resource limitations and shortages of information that constrains efforts to address market-related issues in emergency situations. By implication, it is less relevant for professional economists or market specialists who aim to conduct more thorough analyses of market systems, food security, or long-term economic rehabilitation needs.[12]

The EMMA triangulates information from target households, market system actors and secondary sources. In South Sudan, there are limited sources of up-to-date quality secondary data. Many agencies are still using data from the National Baseline Household Budget Survey (NBHS) from 2009, the Fifth Population and Housing Census of Sudan from 2008, Cost to Market Road Survey 2010, and the South Sudan Center for Census Statistics and Evaluation Annual Report (2010). These do not reflect the significant changes that have taken place since independence and since the most recent conflict. This EMMA has drawn heavily from Mercy Corps' own resources as well as reports and briefings from Oxfam, IOM, WFP, FAO, World Bank, FEWSNET, and the National Bureau of Statistics (NBS).

The EMMA for sorghum, cattle and goats/sheep off-take[13] in Leer County was initiated and led by a Mercy Corps consultant together with the MC Market and Livestock Program Advisor. Mercy Corps worked in conjunction with one senior international staff from Veterinaries Sans Frontieres Suisse (VSF) in Leer who provided technical expertise and logistics to the field team. VSF also identified two local field team leaders and eight data collectors for part of the time, including three government officials from agriculture and livestock and fisheries. The local authority for Leer also identified seven team members from the community.

A two-day preparatory workshop for team members was held in Leer from November 5th - 6th 2014, with a focus on introducing the EMMA methodology to all EMMA team members and to prepare and pilot data collection tools for the assessment fieldwork. The EMMA team members were divided into pairs that collected data from 38 poor and very poor households, in accessible villages in four (out of eight) of the payams of Leer, using questionnaires assisted by proportional piling and supervised by the team leaders from VSF. Other team members concentrated on supporting the collection of household data, interviewing market actors using a combination of observation, key informants, and focus group discussions. International staff and team leaders met with key informants and four focus group discussions. (Annex 2).

Data was collected between the 8th and 12th of November 2014. This was followed by an analysis workshop facilitated by the EMMA leader/co-leader with senior Mercy Corps and VSF program staff on the 15th of November and a peer review by technical experts drawn from key informants on the 17th of November.

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[12] Ibid.

[13] Off take is the percentage of the current year's herd that is removed through sales, deaths, gifts, home-slaughters or theft. However, in the current report, we will be concentrating on commercial off take of livestock.

Limitations

South Sudan is generally considered to be a challenging place to work. The EMMA methodology requires a strong multi-disciplined team of high-functioning individuals capable of independent thought and analysis. Information is normally collected using semi-structured interviews rather than questionnaires to get a "good enough" snapshot of the situation. Emphasis is on the analysis of information, and normally there is a high dependence on secondary sources - particularly for information about households and the needs of the population used for the household/gap analysis. However this was limited by a number of issues including logistical challenges and poor road conditions that limited travel within the county; weakness (level of literacy and commitment) of the locally recruited teams; 'assessment fatigue' of respondents, . Additionally, a number of market actors were not available for interview as survivors had relocated. In addition, recent data on households and on livestock markets in Unity State is limited. Furthermore, there was sensitivity around the sorghum stocks coming from humanitarian agencies. We were also cautioned not to take pictures of sorghum stores and Adok port due to the fluidity of the situation.

Mercy Corps was interested in implementing an EMMA in a state still affected by active conflict. Despite the multidimensional challenges, the team was able to make adaptations to the EMMA data collection process in order to provide valuable insights into the way the markets have been affected by the conflict, and how this has then impacted local livelihood strategies.

THE TARGET POPULATION

The target population was defined as 'poor and very poor households' in the Nile basin fishing and agro-pastoral livelihood zone of Leer in Unity State. There has been no population census since 2009, and large numbers of people have been displaced internally so there is general difficulty in estimating current numbers. The International Organization for Migration (IOM) County Profile estimates from 2013, based on figures from National Bureau of Statistics (NBS), plus an additional 78.6% returned people (at time of independence), a total population for the county of approximately 105,000 people, with an average household size of 8.[14] This would mean there were approximately 13,100 households in the county.

Livelihood Profiles

Leer County is in the Nile Basin fishing and agro-pastoral livelihood zone (home to 10% of South Sudanese population) in which the population relies on livestock, fishing and subsistence agriculture. The main crops grown in the area include sorghum, maize, groundnut and cow peas. Sesame and vegetable crops such as okra, tomatoes and pumpkins are grown on a smaller scale andharvested in August - October. The main livestock kept are cattle, goats and sheep. Livestock are moved towards the River Nile from February to April and return to homesteads from May- June. Fishing using nets, lines, spears and hooks takes place throughout the year and is a source of both food and cash income for all wealth groups.[15]

Team members and key informants participated in a wealth ranking exercise, based on the area of land available for cultivation and livestock ownership. Overall, it was found that the population could be grouped into four wealth categories (Table 1), with the poor and very poor wealth groups accounting for most of the population (45-65% of the total population) and having little access to land or livestock. Richer households with cattle are able to assure the continuance of their own genealogy through the exchange of cattle for wives for their sons as well as additional wives for fathers. Poorer households and their extended households aspire to accumulate cattle through a

[14] National Bureau of Statistics, South Sudan, Key Indicators for Unity State, October 2011

[15] FEWSNET, South Sudan Livelihood Zones

variety of means in order to further their lineage, which is often achieved over several years starting with the acquisition of small ruminants.

Table 1: Wealth classification in the County[16]

	Generalized household wealth characteristics per group				
Wealth Group	% Population	No. Feddan	No. Shoats	No. Cattle	Other
Very Poor	15-25	<1	<10	0	Labor constrained, may be female headed
Poor	30-40	<3	<15	<10	Higher dependence on wild foods & natural resources
Middle	25- 35	<10	<20	<50	More than 1 wife
Rich	5-10	5-20	>40	>150	Typically several wives. Employs others on land

Sorghum and Livestock before the crisis

South Sudan is a net food importer, having been self-sufficient in cereal production twice in the last decade.[17] Localized deficits are even worse in poorly integrated markets in counties in Unity State such as Leer, as inter-state trade is limited by poor road connections. Furthermore, these counties are more reliant on imports from Sudan, which were curtailed by cross border trade bans since 2012 (Figure 4).

[16] This is information directly reported from community perceptions so the numbers do not represent continuous ranges.

[17] WFP Annual Needs and Livelihood Analysis Report, March 2013

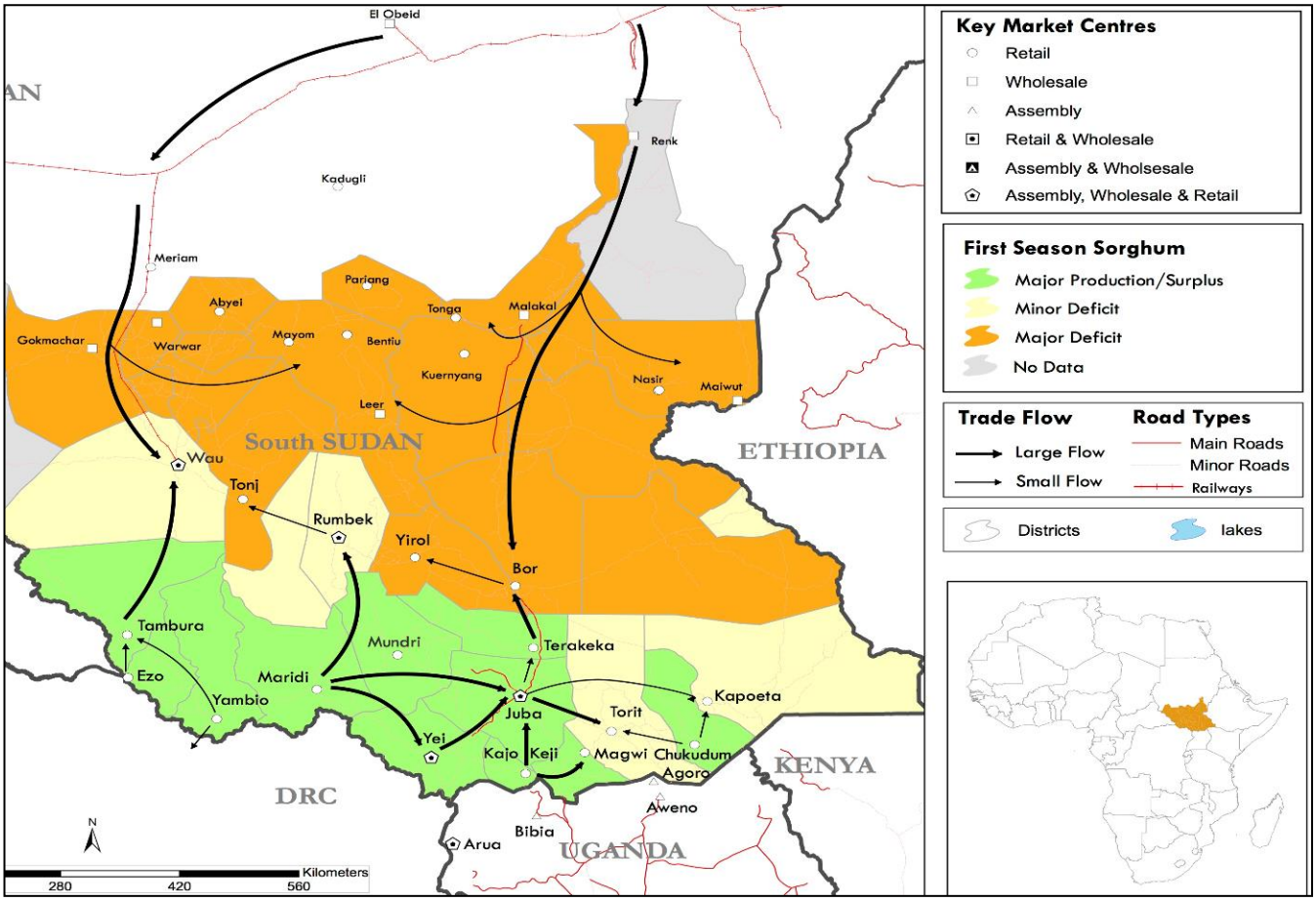
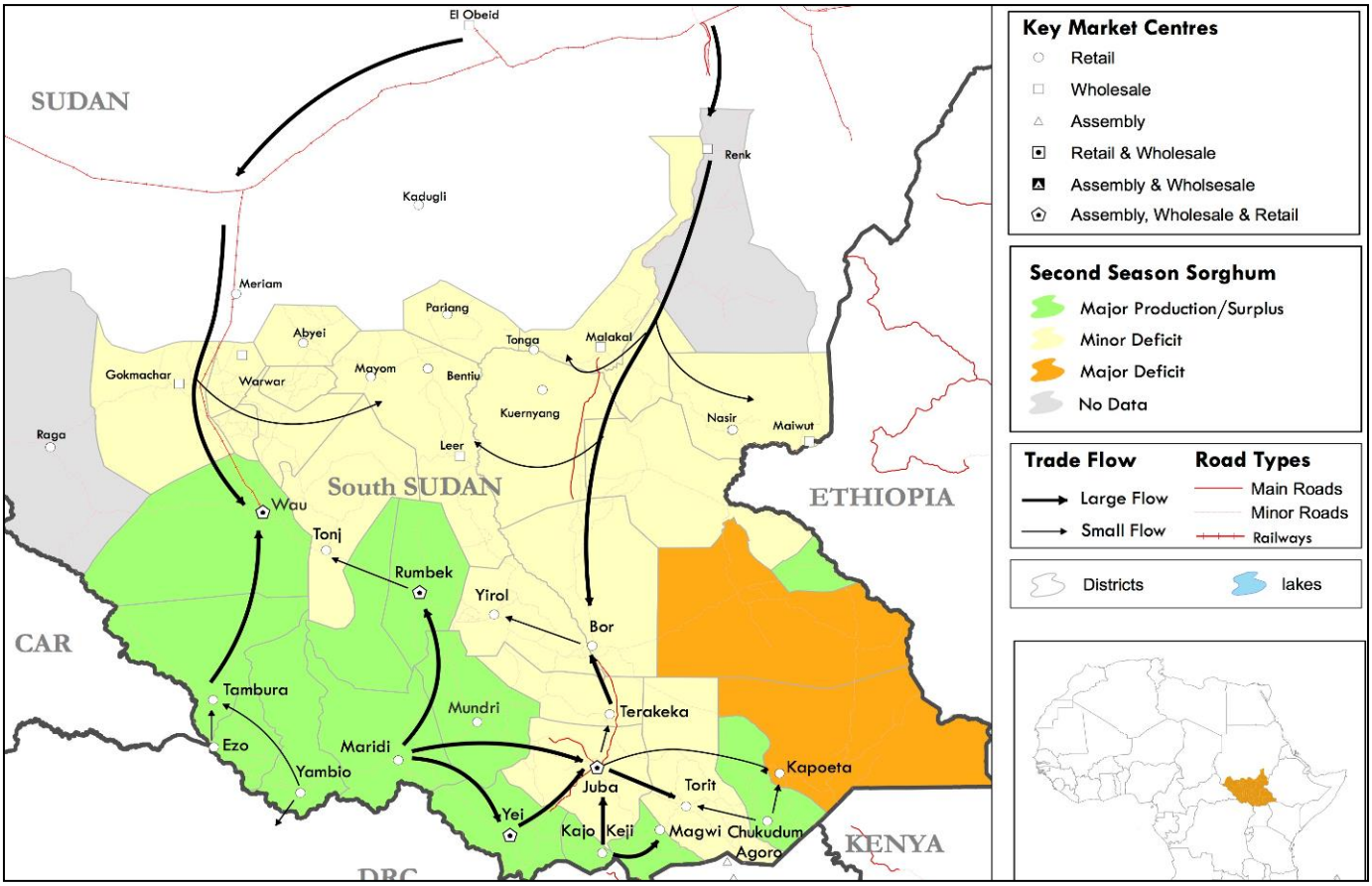


Figure 4: Sorghum production and market flow in South Sudan



Figure, Source: FEWSNET

According to the South Sudan Food Security Monitoring (FSMS) Report of March 2014, over half of households in South Sudan obtain their cereals from markets during the hunger season (June and August). Even in the post-harvest season, at least 40% of households still depend on markets to supply sorghum.[18] With over half of households in South Sudan obtaining cereals from the market, market dynamics are an important feature of food security in the county. The northern counties in Unity State used to depend on imports from Sudan. However, since 2012, all the trade routes between Sudan and South Sudan have been blocked for formal trade. This has constrained local supplies in a number of ways: the main wholesalers and transporters were from Sudan, and most of the financial institutions that provided loans to businesses before independence were from Khartoum.[19] Even with the closure, limited quantities of commodities were smuggled across the border through informal channels. As a consequence, northern markets have had to rely on imports from Juba and other East African countries. Because of the long transportation distances to Juba across poor road and insecure environments risks are high.

[18] World Food Program, South Sudan Food Security Monitoring (FSMS) Report, March 2014

[19] Regional Food Security and Nutrition Working Group, 2012

Other factors constraining transport include informal and formal taxes and checkpoints, and increases in fuel prices.[20] Severe cereal deficits occurred in Unity State due to the conflict that disrupted agricultural activities.

Livestock Production

South Sudan has one of the largest livestock populations in the world – conservative estimates indicate that the country has almost 12 million cattle, 14 million goats and 13 million sheep.[21] The sector generates an estimated income of 1.4 billion SSP annually. However this is equivalent to only 20% of the potential off-take when considering the size of the national herd.[22] The sector has underperformed due to a number of reasons, including inadequacy of infrastructure, insecurity and cattle rustling, poor management, inadequacy of marketing, and poor information and quality standards.

> *"The sector has underperformed due to a number of reasons, including inadequacy of infrastructure, insecurity and cattle rustling, poor management, inadequacy of marketing, and poor information and quality standards.*
>
> *- EMMA Report*

Cattle camps play a vital role in the management of herds over the course of a year. Camps start at the edge of town towards the start of the dry season. A few households will group together with their herds in search of favorable grazing for their livestock. As the dry season progresses, the group moves further afield, into the toiches, which are marshy low-lying areas, in search of water and good pasture, and to join with other cattle camps. By the time the cattle camp has progressed more than a couple of days walk from home, the old and very young members of the household would typically be left behind with milking animals in the home village.

Customary compensation and bride price

Statutory law, which promotes women's equality, is not currently practiced in Leer County, as it is currently under opposition control and forces of law and order have broken down. Traditional, or customary law, offers little justice to women, particularly when it comes to customary compensation. Compensation is a traditional remedy for a number of crimes, including homicide, rape, adultery and cattle rustling under customary law. It involves the payment of a certain number of cattle to the victim/s family in order to compensate them for their loss. In some homicide cases, women or girls may be provided to the family of the deceased in lieu of cattle. The underlying rationale **does** allow people to better manage fragile social relationships in the wake of a killing by providing the family of the deceased with a sense of restitution and remedy. However, compensation and the associated practice of 'girl child compensation' can also force girls into unwanted marriages and send them to live with households where they experience significant prejudice and hardship. This practice also fails to deter premeditated murders committed by people who are able and willing to pay compensation.

In most places, compensation mirrors the amount of cattle that is typically paid in bride wealth.[23] Currently, in Leer, the team reported a typical bride price to be between 25 and 80 cattle. This is

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[20] Andrew Muganga Kizito, A Comparative Assessment of the Structure of Staple Food Markets in South Sudan Before and After Independence, and Implications for Food Security, February 2014.

[21] FAO Estimates

[22] African Development Bank (AfDB) Group: Development of Agriculture in South Sudan: An Infrastructure Action Plan – A Program for Sustained Strong Economic Growth, 2013.

[23] Deng, D.K. Assessment of dispute resolution processes in Rural South Sudan. March 2013

paid, sometimes in instalments, by the male's extended family to the female's extended family. Compensation and bride price paid in cattle can be seen as off-take from the herd, however the animals frequently remain in the community, and are shown on the market maps as "social redistribution."

Livestock Trade

Livestock play a vital role in household livelihood strategies. Livestock are sold for cash only in exchange (or barter) for grain or when cash/barter is required to make essential purchases. The households usually sell older cows, bulls, and barren animals in order to purchase food, pay medical or school fees, and during marriages, preserving the reproductive animals which form the core of the herd. In addition, livestock represent household savings, assets and sources of income. A study by the Netherlands Development Organization (SNV) in 2007[24] estimates commercial off take rate for cattle and shoats (sheep and goats) to be 4% and 10%, respectively. While previously livestock from northern regions were exported to Sudan, since the trade ban, households have become more dependent on local markets – mainly increased meat demand in major centers such as Bentiu, Malakal, Wau and Juba due to population growth and urbanization.

Milk is used in the family or sold in the market. Goats' milk is normally only given to children, but everyone partakes of cow milk which plays a vital role in enhancing the nutritional value of the household diet. VSF reported the incidence of brucellosis among woman, transmitted to them from cattle during the traditional method of stimulating milk production by blowing air into the vagina. Milk yields are generally low due to poor nutrition and the health status of animals. Also, little emphasis is placed on the selection of milking animals with higher production for breeding. Production peaks during the rainy season when there is plenty of feed; cows generally produce less than one liter per day. At the time of the EMMA, a few women were present in the market selling very small quantities of milk from gourdes.

Gender and livelihoods in Leer County

Gender relations in South Sudan are complex: the roles and responsibilities of women, men, boys and girls are clearly delineated but can and do alter. Women and girls have responsibilities for farming, collecting water and firewood, cooking, milking and milk sales, petty trading, cleaning, childcare, and brewing beer. Men and boys have responsibilities as decision-makers for the communities and their households, cattle (boys in particular tend to be cattle-herders), hunting, fishing and charcoal making. In times of crisis, gender roles and responsibilities change to take account of the context, the needs, and the different coping strategies households and individuals can put into action. Gender and protection concerns for women, men, boys and girls are a crucial issue in South Sudan.[25]

"Even though 90% of the population of South Sudan live in rural areas, close to 80% of farm labor is provided by women who combine this activity with their other domestic chores."[26] According to the South Sudan Development Plan 2011-13 (Government of South Sudan (GoSS)), 57% of the population living in female-headed households are poor. Customary land rights and land management traditionally discriminate against women. While the Land Act stipulates that men and women have equal rights to land, under customary law, property is held by men as heads of the

[24] Muli Musinga, et al, (2010): Livestock Sector in Southern Sudan, Results of a Value Chain Study of the Livestock Sector in Five States of Southern Sudan covered by MDTF with a Focus on Red Meat, SNV, Netherlands Development Organization, November 2010.

[25] South Sudan. Gender Brief. CARE International

[26] African Development Bank Group. South Sudan Infrastructure Action Plan, A programme for sustained strong economic growth, 2013

household and usually women cannot own property in their own right unless there is no male relative. The same is true for ownership of all other types of assets, including all types of livestock.

Domestic/gender-based violence and rape against women and girls is commonplace. A 2011 survey on gender-based violence by the Ministry of Gender, Child and Social Welfare, found that more than 60 per cent of men "strongly agreed" with the statements, "women are subordinate and need to be directed and disciplined," and "it is a man's traditional right to punish and discipline women for wrong-doing." Women were largely in agreement with men. Customary practices related to marital disputes and sexual crimes include forced marriage and traditional remedies for rape, which require the girl to marry her rapist if he is prepared to extend the bride price to her family.

In Leer, the high number of armed actors in the area has increased the risk of violence against women and girls and this is exacerbated by the lack of basic services and structural protection facilities. Women and girls may walk for up to a seven days in search of food.[27]

Seasonal Calendar for Leer

Agricultural market systems have strong seasonal variations in the patterns of production, trade, and prices, and involve major seasonal shifts of consumption and activities. It is essential that we identify these in order to distinguish between 'normal' seasonal fluctuations in prices and trade volumes and the disruptions created by the conflict. Figure 5 shows the seasonal calendar[28] for the main trade and consumption patterns in Leer.

The onset of rains can start between May and July, which often results in floods. Livestock are kept closer to the camps during this period as pastures and water are available in close proximity. The main lactation period coincides with the rains and peaks immediately after the main calving period. Collection of bush products such as firewood, charcoal, poles and grass thatching generally decrease in the rainy season. Fishing activities usually increase following the typical flooding season (July-September). In some areas, the receding of floods enables some households to plant two or three times in a year. Dry season pastures are predominantly found along the rivers and swamps and are often shared by different community groups, leading to frequent conflicts. Diseases such as malaria (in the wet season) and diarrhea (in the dry season) impair productivity. Guinea worms (with transmission occurring before onset of rains) are also endemic. [29]

[27] Joint agency briefing note: From crisis to catastrophe, South Sudan's man-made crisis – and how the world must act now to prevent catastrophe in 2015, 6th October 2014

[28] Information sourced from mostly from primary data collection supplemented by and referenced to Household Economic Analysis (HEA) Livelihood Profiles Report. ACTED. September 2013

[29] South Sudan Livelihood Profiles

Leer seasonal calendar – normal year													
Activity	**Main HH member involved**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Livestock													
cattle camps	boys and girls mostly												
Peak cattle sales	Men												
Peak cattle prices													
Peak Milk yields/ sales	Women												
Animal disease													
Sorghum													
Land preparation	Mostly women												
Own cereal consumption (harvest)													
Peak cereal purchase													
Peak cereal prices													
Households													
Lean season													
Peak social expenditure													
marriage													
Seasonal Movement (non Cattle)													
fishing activity peak	Men & boys												
Fish price peak	Men												
wild food peak gathering	Mostly women & girls												
casual labour													
Peak collection of firewood & construction materials	Mostly women												
Peak Human disease (malaria)													
Floods/ rains													

Figure 5: Leer Seasonal Calendar

Emergency impact on target population incomes and expenditure

Better-off households rely more on their advantageous access to land and cattle while poorer households tend to obtain the largest proportion of their annual food requirements from wild foods and fishing. In terms of incomes, both poorer and better-off households rely almost equally on exchange: the source of income for the poor is labor, whereas it is livestock for richer households.[30]

The ability to purchase sorghum remains the most important determinant for poor households to get through the dry season. Last year the major HH expenditure was on sorghum, followed by cow meat. However, this year, the main source of sorghum is from food distributions and it is no longer the primary expense in the household (cow meat being the primary expense). Even in the normal season, the lack of markets, seasonal access problems due to flooding and insecurity, poor infrastructure, and limitations in household purchasing power are the main constraints to sorghum trade.

> *"Livestock, fish and fish oil, beer, and handicraft sales comprise the major income generating activities.*
>
> - EMMA Report

Potential income from livestock and milk has been significantly affected by the reduction in livestock holdings due to the conflict. VSF estimates overall cattle numbers in Leer to have decreased by about 10% from an average of 50 per household to about 45. The sample households were mostly poor and very poor and they appear to have been more severely affected - showing a loss of about 50%. It should be noted that household numbers reporting on cattle do tend to be difficult to obtain. Sheep and goat holdings were found to have decreased by about 73% - in line with the overall estimates from VSF of 75%.

CRITICAL MARKET SYSTEMS

The following market systems were selected to be the focus of the EMMA:

- Sorghum
- Cattle off-take
- Goat and Sheep off-take

These markets were chosen as they are critical to ensuring survival and protecting the food security and livelihood strategies of the population of Leer County.

Key analytical questions (KAQ) normally frame the expectations and operational value that the EMMA will add, and thus provide a readily accessible explanation of the objectives of the study and help the teams to keep them in mind throughout the EMMA process. The KAQs were simplified and refined in respect to the challenges and constraints listed earlier:

- How functional are the three critical markets and what issues exist for traders that obstruct the efficient functioning of trade?
- What issues exist for sorghum consumers and livestock keepers in terms of accessing their needs from the markets?

Sorghum – Pre-crisis

Sorghum is the preferred cereal in Leer County, although fast maturing maize is also grown and consumed. Leer County has traditionally been a net importer of cereal, as typical home production

[30] Ibid South Sudan Livelihood Profiles

only accounted for 2-3 months consumption and a set-aside for seed (approximately 15-25% of total need in the area). The production is limited mainly to subsistence, and production equipment is largely limited to wooden sticks for land preparation and weeding. Although some men are involved in cereal production, women undertake most of the work. Women-headed households are limited in their access to farming income as women cannot own land under customary law, and land is inherited through the male line. Hard soils limit the amount of land that can be prepared by hand, and cultural resistance to using bulls for draft has limited the area planted. Yields are reportedly low - possibly due to low input utilization (grain) is normally used and fertilizer is not applied). The harvest between August and September 2013had been above average due to favorable weather conditions and few pests.

Last year there were four to five sorghum wholesalers from Darfur present in Leer, as well as about ten main retailers (two of whom were women). Darfurians reportedly offered credit to known traders, otherwise social connections were tapped to raise capital as there are no banks in Leer - the nearest located in Bentiu, with only one trader reported using it. Occasionally, goods could be paid for after sales were realized.

Many details about last years' trade are unclear as the Darfurian traders left Leer during the recent conflict. Some are believed to be trading in Pariang while others retreated to towns bordering Sudan, and it is not clear whether they will return to Leer.[31]

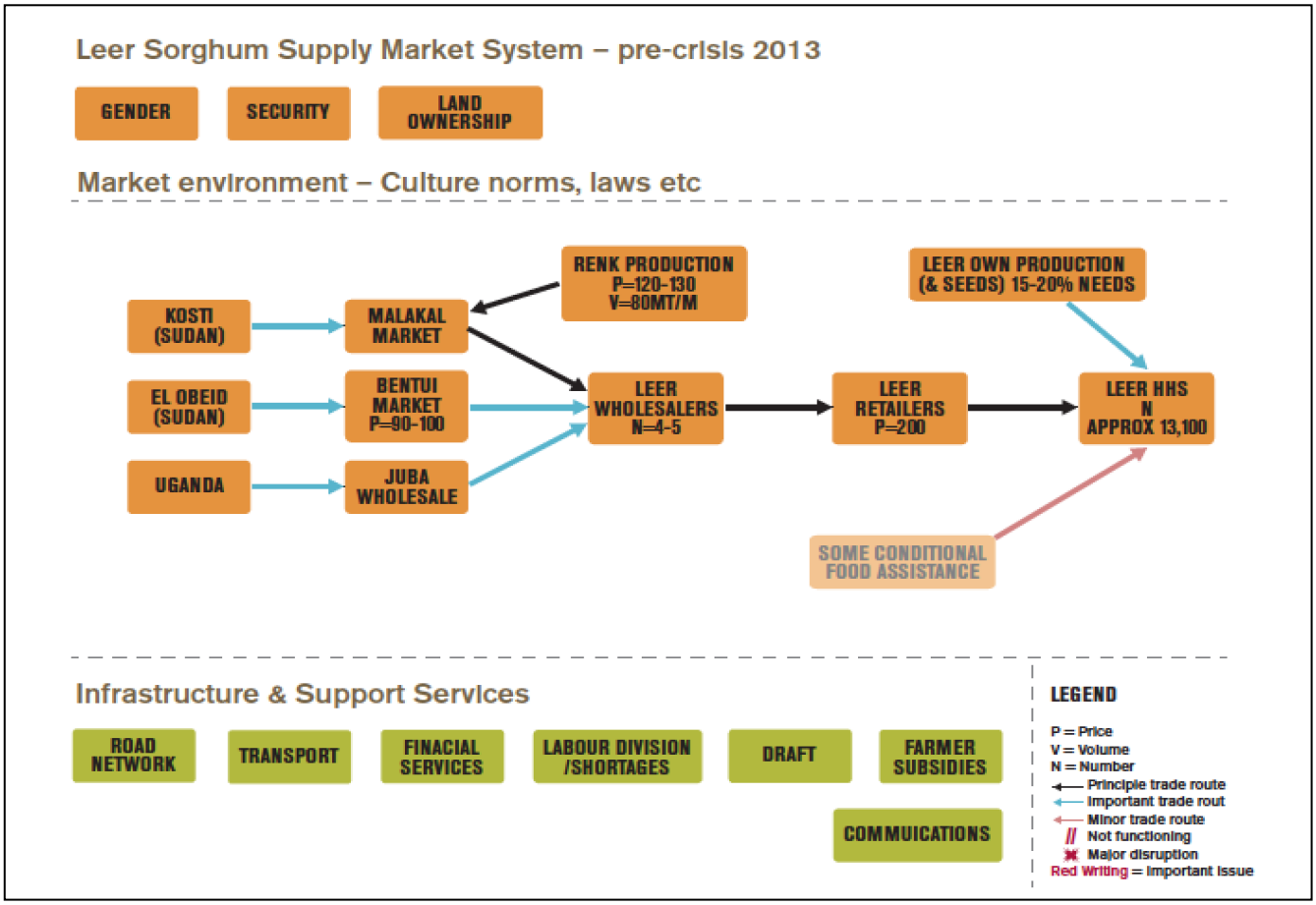

Figure 6: Sorghum Pre-Crisis Map

[31] The traders are unlikely to return in the current insecurity, the foreign traders fear for their lives and are also less likely to risk their assets such as vehicles.

Figure 6 is the pre-crisis sorghum market map. Last year small traders reported that most sorghum was brought by wholesalers from Renk, in Upper Nile, as they had particularly good production and reasonable prices (benefitting from government subsidies of fuel and seeds).[32] The traditional primary route for sorghum in Leer was via Bentiu, much of it produced by farmers in Sudan and coming via El Obeid, and still provided the secondary source of sorghum last year. Another important route for Sudanese sorghum production came via Kosti to Malakal via Renk (see Figure 4). Additionally, some sorghum was brought in along the River Nile from Juba into the port of Adok, where port officials reported a steady monthly trade of about 2,000 50Kg bags (100 tonnes) from Juba. Juba traders confirmed that most sorghum came by road from Uganda since the closure of the border with Sudan. The price locally in Leer was 200 SSP per 50 Kg bag - much higher than many other areas of the country due largely to the high cost of transport and taxation.

Taxation, both informal and formal, for sorghum was paid per load and NBS reported that the average payment per 100km exceeded $78.[33] Truck and river transport costs were high and added taxes - levied per vehicle (official and unofficial additions to the cost). A truck could cost between 4,000-5,000 SSP from Bentiu to Leer. The South Sudanese (SSP) pound has weakened 13% to 3.50 against the dollar in **December** 2014, as data compiled by Bloomberg shows. On the streets of Juba, a dollar costs between 4.7 and 5 pounds.[34] **The exchange rate is likely to continue weakening against the dollar and is expected to fuel further price increase.**

Some households reported receiving payment in food for work on community assets as well as food assistance for returnees (FFA and FFW).

[32] During the conflict season, government subsidies are limited and even when they start, they are less likely to reach Leer under the current conditions.

[33] South Sudan Costs to Market Report. NBS.

[34] http://www.bloomberg.com/news/2014-09-14/south-sudan-mulls-unifying-exchange-rates-once-security-improves.html

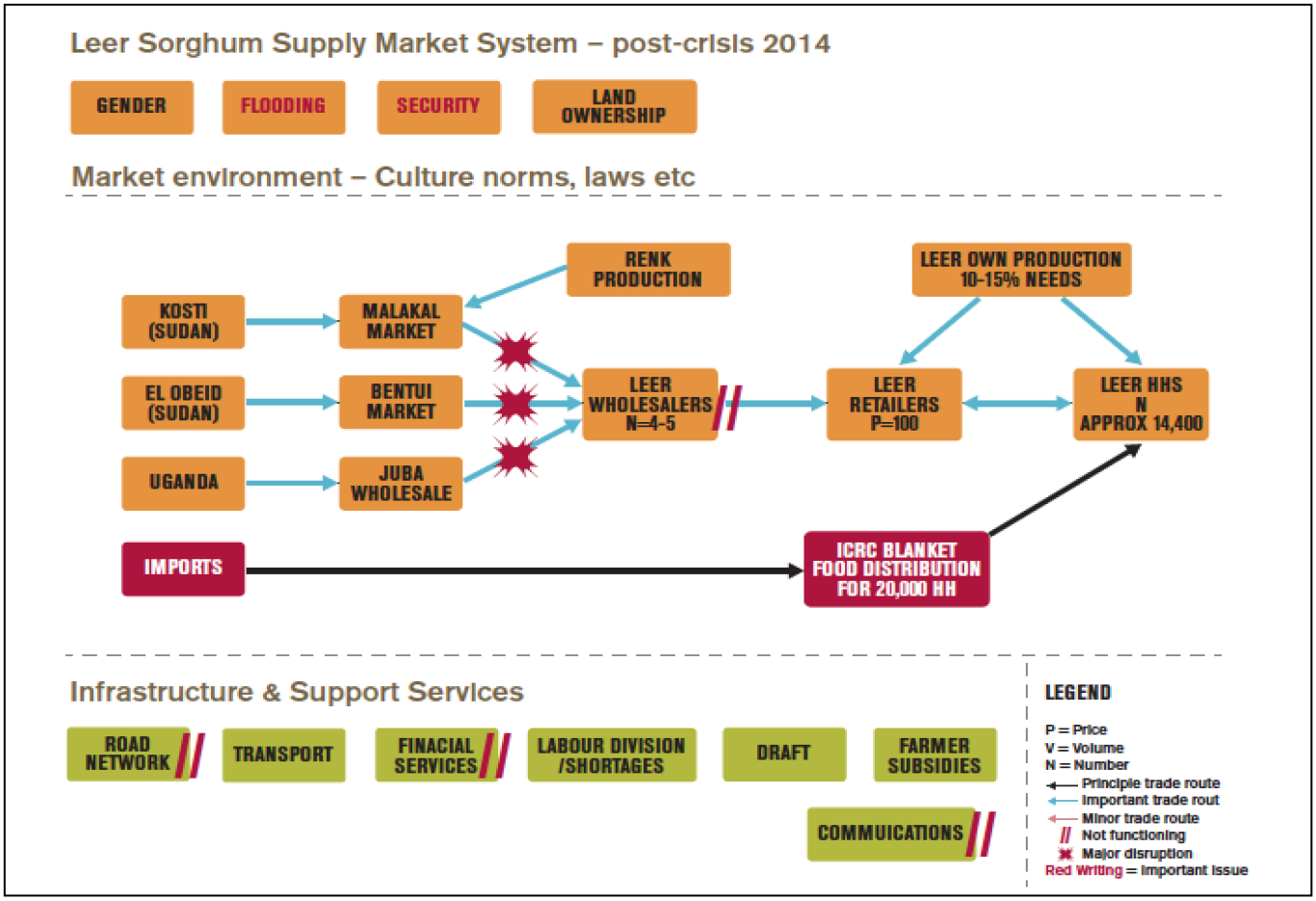

Figure 7: Sorghum supply system as of November 2014

Sorghum supply post-crisis

Figure 7 shows the sorghum supply system, as it was in November 2014. Households lost stocks of food and seeds during the conflict year and the fighting restricted planting and weeding activities. Heavy rain in October and November caused localized flooding which will reduce the availability of their own sorghum to 10-15% of needs. Late rains have also caused extensive flooding of fields in the county that will further impact harvests. During the crisis, supplies stopped coming up the river from Juba and prices of sorghum from stocks reached between 500-800 SSP per 50kg sack in April - May. There was also substitution of sorghum with maize, which came from northern Jonglei, however, that source and route is no longer viable.

No sorghum has been transported along the river or by land routes since March. Demand is now low, as sorghum was distributed to over 19,360 households (with a target of 20,000 since June). Supplies are also brought in by air. Some of the distributed sorghum is available in the local markets, with one 50Kg bag fetching approximately 100 SSP - about 50% of the price last year (due to over-supply in the market). During the EMMA, there was a hint of payments of food assistance and livestock to local officials (who are not being paid cash). Road routes are impassable due to flooding, but even when the road conditions are preferable, insecurity prevents local traders from considering the resumption of trade as the risks are too high and the demand is low due to food distribution. This is supported by the fact that many people seem to believe that there will be conflict in Leer County in the dry season of 2015.Source?

The distributions are meeting food needs that the market traders cannot, due to the closure of trade routes by weather and conflict. However, the funding for this support finished at the end of 2014. Many traders lost stock, shops, and other assets in the conflict. There continue to be at least ten retail traders in sorghum, some of whom are holding onto small stocks of that were purchased before the food distributions, and are waiting for prices to improve in order not to realize a loss. There are also stocks accumulated from the distributions themselves, about which there is a great deal of sensitivity to discussing current sorghum stocks in general.

Retailers reported not wanting to take risks, which would seem prudent given that prices and demand are very low at the moment. If trade routes open, traders would have increased their ability to supply Leer. Currently, a bag of sorghum in Juba costs between 110-120 SSP. The river route is the most likely option for trade as the conflict stands at the moment. Traders used to learn about prices in different areas using their network of contacts and mobile phones, but the mobile network has not resumed in Leer. Potential household income from livestock has been reduced as livestock holdings have been reduced by between 50 and 75%, although this is likely to be partly mitigated, as prices for livestock trade would likely pick up once they could be marketed elsewhere.

Cattle Off-take before the Crisis

"Currently, livestock in South Sudan are not viewed as an industry as much as it is a deeply rooted cultural phenomenon that represents the very fabric of South Sudanese society. The livestock ownership is not measured by the market value of the animals; instead, it represents a status symbol that commands respect of the community and provides the owner with a source of nutrition and the ability to settle marriage dowry. Occasionally, cattle owners sell some stock, usually from his/her very old (oxen) stock to generate supplementary income. Consequently, only a small fraction of the commercial value is currently being realized."

- South Sudan Infrastructure Action Plan. A programme for sustained strong economic growth. African Development Bank Group 2013)

There are three types of off-take for Leer livestock holders: local slaughter, local market/auction for the live animal trade (linking to secondary markets and livestock trade routes), and social redistribution with livestock transferred from one household to another (bride price & compensation). Last year (pre-crisis) in Leer, there was typically a total daily off-take for local slaughter of four young bulls. Young bulls are preferred for slaughter as the meat is tender and they are not required for increasing herd size. The Leer Abattoir was well used and hygienic butcher shops were close at hand. Due to the size of a carcass it is quite normal for cattle-owning households not to slaughter their own animals for meat, but to buy it in the market (see Figure 8). Butchers buy live animals at auction or through private sales to avoid auction tax.

Cattle are seen as the household's "savings account," which means that off-take is normally for larger purchases, and this type of off-take is highest during the lean season when prices for livestock are low as many households sell livestock to buy cereals. The volume of livestock sales typically increases in times of stress as a significant, but least preferred, coping strategy (since livestock sales erode the household's social and productive asset base). Traders would often come to the cattle camps to negotiate for large numbers of animals at one time.

According to local traders, last year, the price of an adult bull in Leer market was 2,500-3,000 SSP. Slaughter accounted for about 1,000-1,300 (between three and five per day) head of cattle per year in Leer. There were four to five larger traders from Darfur as well as smaller traders who grouped together in order to pay for transport and to provide security in numbers from raiding outside the county. Unfortunately, those traders were not available for interview so information on trade volumes was inconclusive.

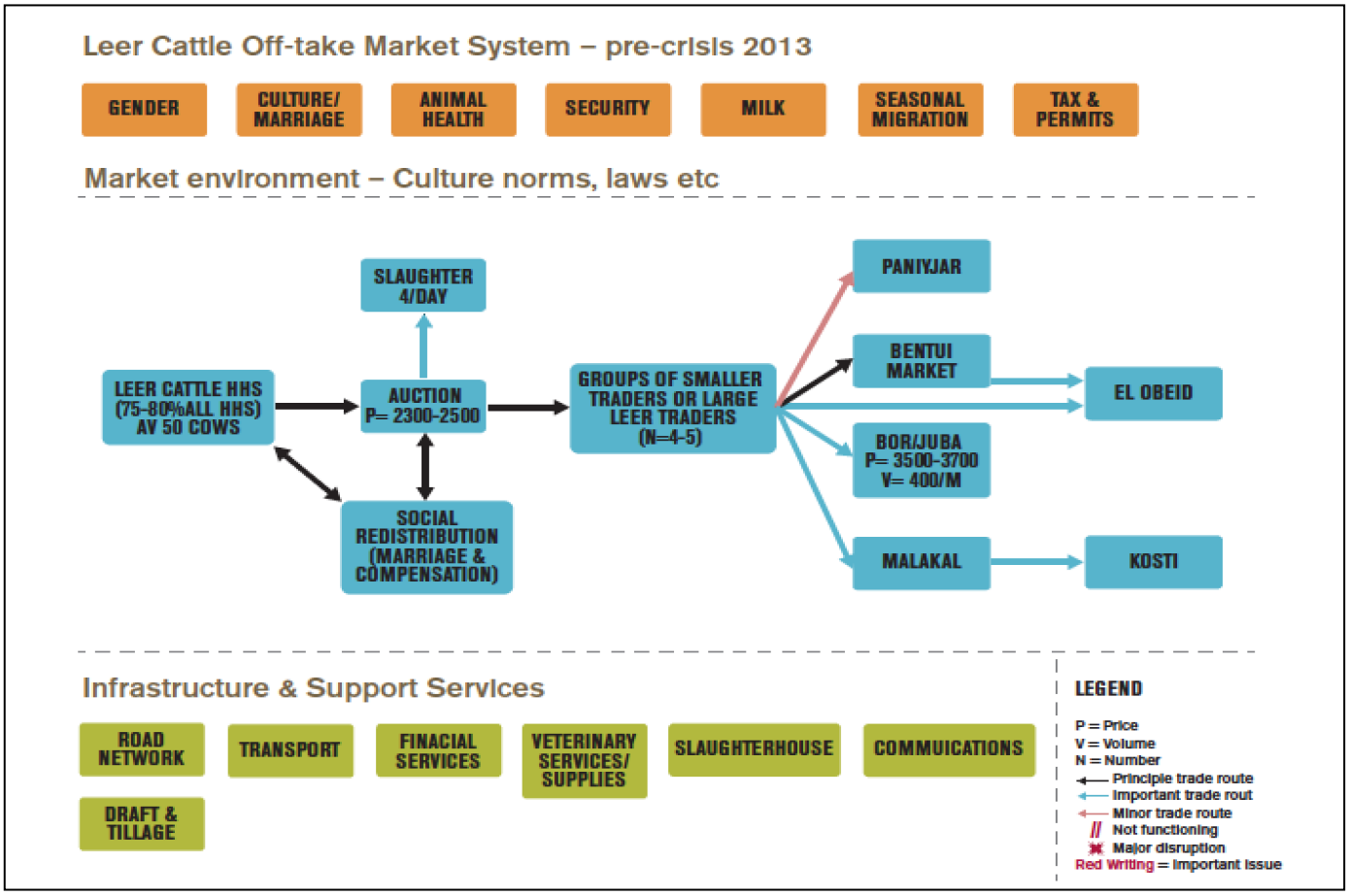

Figure 8: Pre-crisis Cattle Market System

The market map, Figure 8, shows that cattle were generally trucked in the dry season or herded to Bentiu, where demand was high due to the proximity to the oil fields and the presence of Darfurian traders. Other main routes for livestock off-take were down river to Bor/Juba, or up river to Malakal - offloading wherever prices and demand were favorable. Some small occasional trade to Paniyjar was also mentioned. In order to cross a county boundary, a permit from the Ministry of Agriculture and Fisheries was required; costing 25 SSP per beast, stating that an animal was in good health. Leaving or entering counties incurred a tax of 5 SSP per head and there were further levies of 20 SSP to be paid at auction/market that were split between buyers and sellers.

Animal Health

Cattle owners will customarily invest in the health of their livestock. Typically vaccines (protecting against the main epidemic diseases) were provided for free (by FAO through partners) but treatment needed to be paid for. A system of cost recovery and payment for community animal health workers (CAHWs) was in place, although there is a general shortage of CAHWs. Most were men,

although Leer does have two women CAHWs. Veterinary drug suppliers in Leer complained that they were unable to bring in supplies now due to the closure of trade routes.

Cattle Off-take after the crisis

In order to escape the conflict, the people fled with their cattle to marshy islands of the Nile basin that were inaccessible by road. Some cattle were lost en-route - some wandered off, many were slaughtered for meat, and some were lost to disease. People who did not have cattle survived on

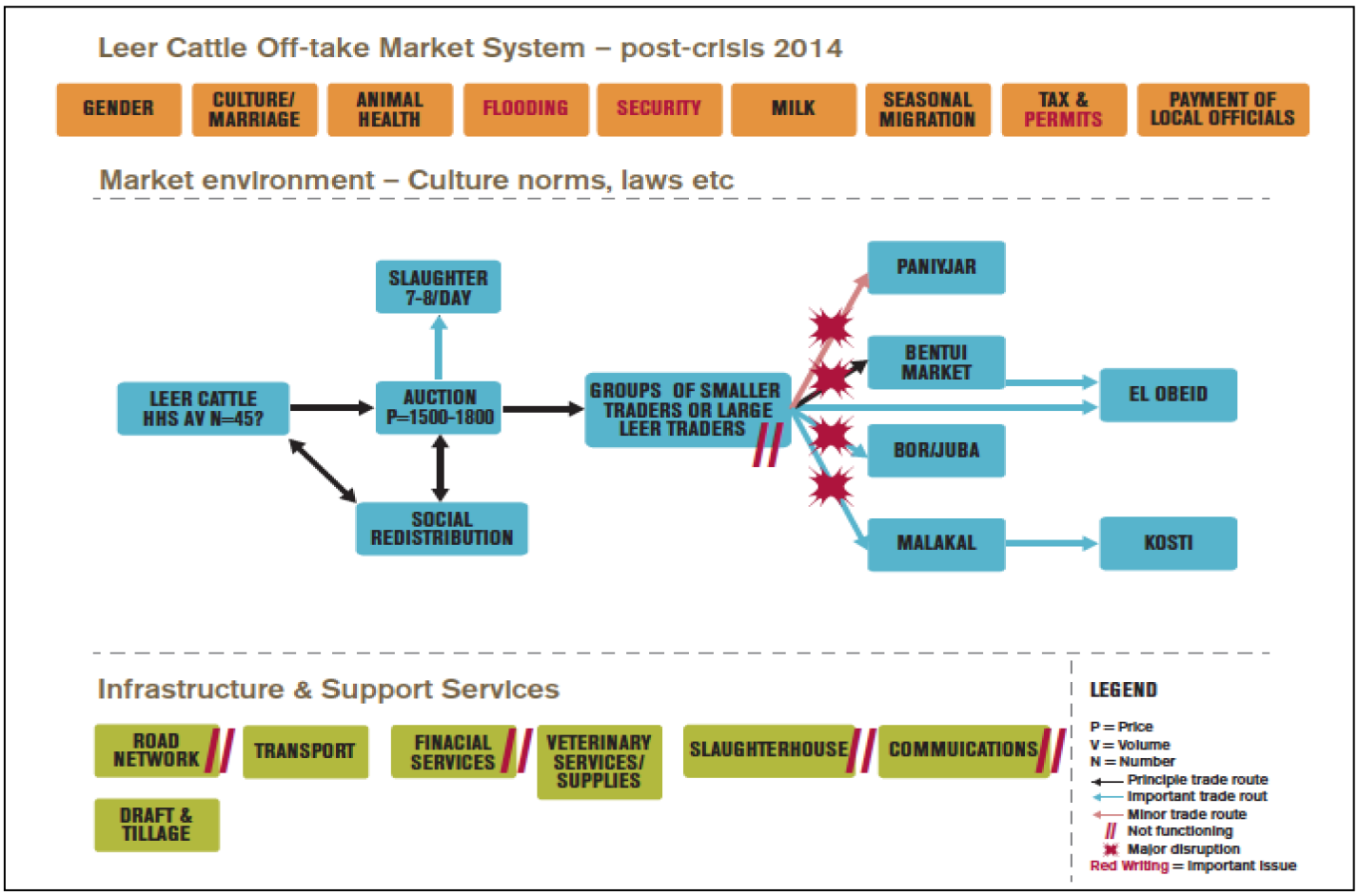

Figure 9: Cattle Off-take - November 2014

wild foods including fish and gifts, as they did not have their own milk or meat. Some reported taking chickens[35] with them as they fled.

Figure 9 shows the market system situation for cattle off-take in November 2014. The main feature is that trade to secondary markets has ceased due to a combination of conflict, waterlogged land routes, and lack of livestock movement permits. There is currently a brisk local trade in cattle for meat at the butchers, although the slaughterhouse was not functioning at the time of the EMMA (slaughter was happening out in the open and at homes) and numbers have increased to seven to eight per day (from approximately four animals pre-crisis). This may in part be explained by the on-going and increased need for cash and lost trade to external markets (i.e. this is a supply side rather than demand effect). This is reflected in low prices at auction of between 1,500-1,800 SSP, down from pre-crisis prices of 2300-2500 SSP, representing a drop in value of approximately one third.

[35] Chickens are largely kept for their eggs as the meat is not well respected

This effect is despite the fact that the marriage season has started, and that cattle are viewed as a good resilience strategy if the conflict should rekindle. Therefore they prefer to retain animals whenever that is possible.

Another change that has taken place since last year is that local “in-opposition” officials, whilst not receiving salaries, are receiving “contributions” of cattle from local traders.

The distribution of humanitarian assistance reduces the need to sell cattle in order to purchase food. In this sense assistance is protecting against asset depletion, particularly in distressed households, but is also likely distorting markets - producers are selling fewer animals and traders are buying fewer animals, as they are unable to move stock to other areas for the following reasons:

1. Movement permits for livestock are reportedly not being issued. Permits are required for moving livestock across State borders and these are supposed to be proof of both ownership, and that the animals are disease-free. It is not clear whether the issue relates to that permits issued by “in-opposition” authorities being denied in Government held areas.
2. Livestock overland routes are currently constrained by conflict in Bentiu, and Upper Nile.
3. Alleged government restrictions are restricting river trade routes. The team found no evidence of trade in livestock from Leer County to other areas within Unity or beyond by river to Shambek/ Bor/ Juba and Malakal.
4. Although some luxury goods are coming from Tayer, livestock are not traversing down the river in exchange. It is also physically difficult to transfer/exchange livestock via the river.
5. The main wholesalers in Leer have had to retreat north to areas where trading conditions remained viable and their safety is more assured. (Their testimony, particularly with regard to the volume of trade, would have been valuable to this EMMA).
6. Without peace and security, traders are unwilling to take risks.
7. In addition to the conflict, the rains have made overland movement temporarily impossible during the wet season.
8. Financial services for credit were not widely used prior to the crisis. There are no financial institutions in Leer and the ones that were in Bentiu are not accessible (and may not be operating) preventing a trader or livestock owner acquiring credit to increase stock.
9. Livestock keepers are retaining animals.

Sheep and Goat Off-take Pre-crisis

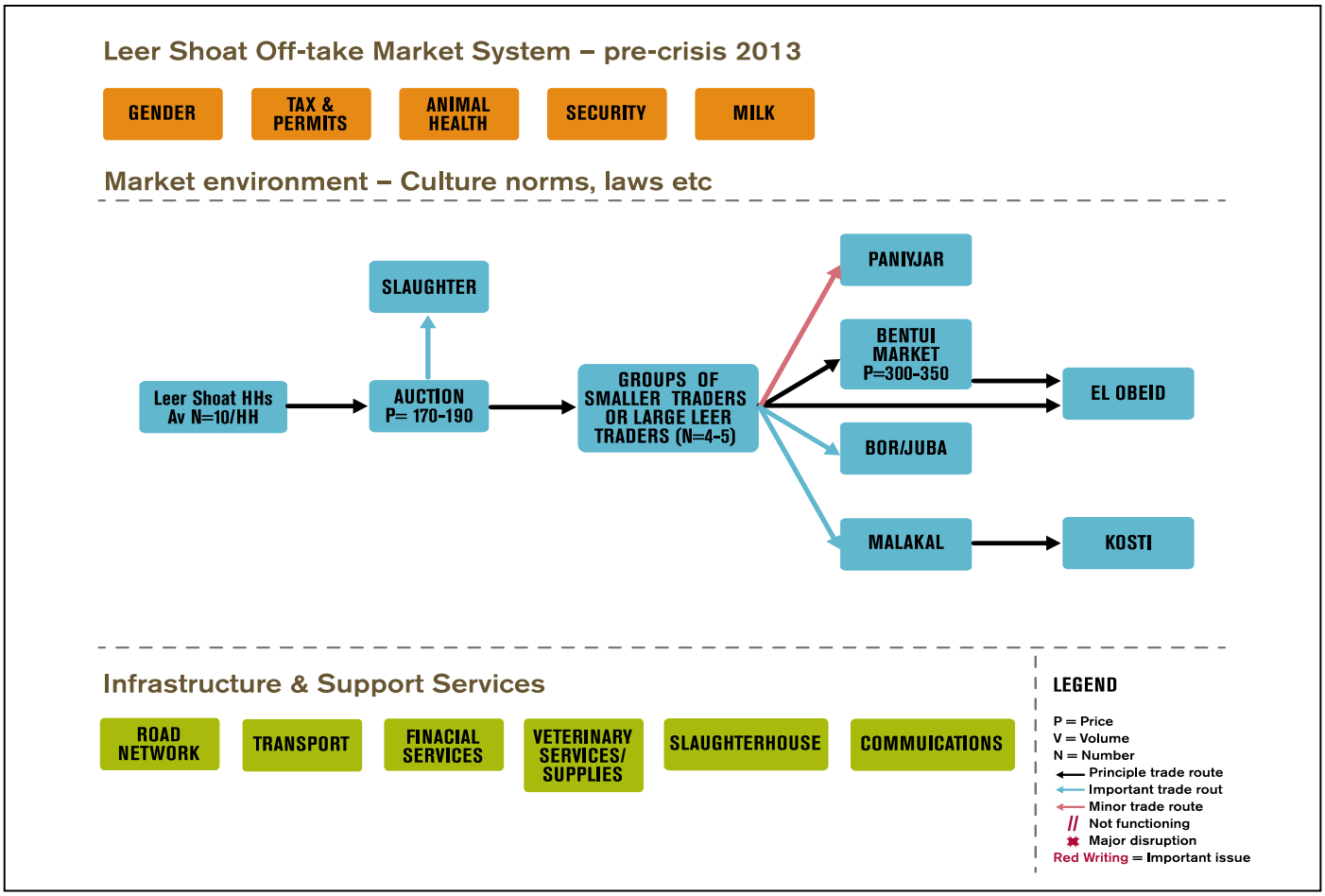

Figure 10: Shoat off take pre-crisis

Shoats, while not enjoying the cultural prestige of cattle, are seen as the household's "current account." Before the crisis, these animals were kept, sometimes in significant numbers, and sold to meet smaller household needs. Households typically had more goats than sheep. Owners rarely spent money on veterinary services, supplies for small ruminants, or even vaccinations. There were two flows of off-take, primarily for trade to secondary markets, the other being for local slaughter (see Figure 10).

Shoats were traded commercially for slaughter, using the same routes as cattle (seemingly as fillers to make full cargo loads), and required the same permit tax payments as cattle. They were often bought in bulk at cattle camps and in markets, and then trucked north, or taken by barge on the river to Bentiu and Malakal by Leer traders. There they were either slaughtered or taken further north by Sudanese traders for informal export to Sudan. Similarly, shoats were also moved south by river from Adok, and off-loaded at the first port where there was demand and a good price - Shambek, Bor or finally on to Juba.

Last year (2013), the restaurants in Leer generated considerable demand for slaughtered shoats; apparently Darfurian traders had a particular preference for goat meat and were prepared to pay

the premium over beef. Last year, the price of a mature male goat in Leer market would be between 170 and 190 SSP.

Sheep and Goat Off-take for slaughter – Post-crisis November 2014

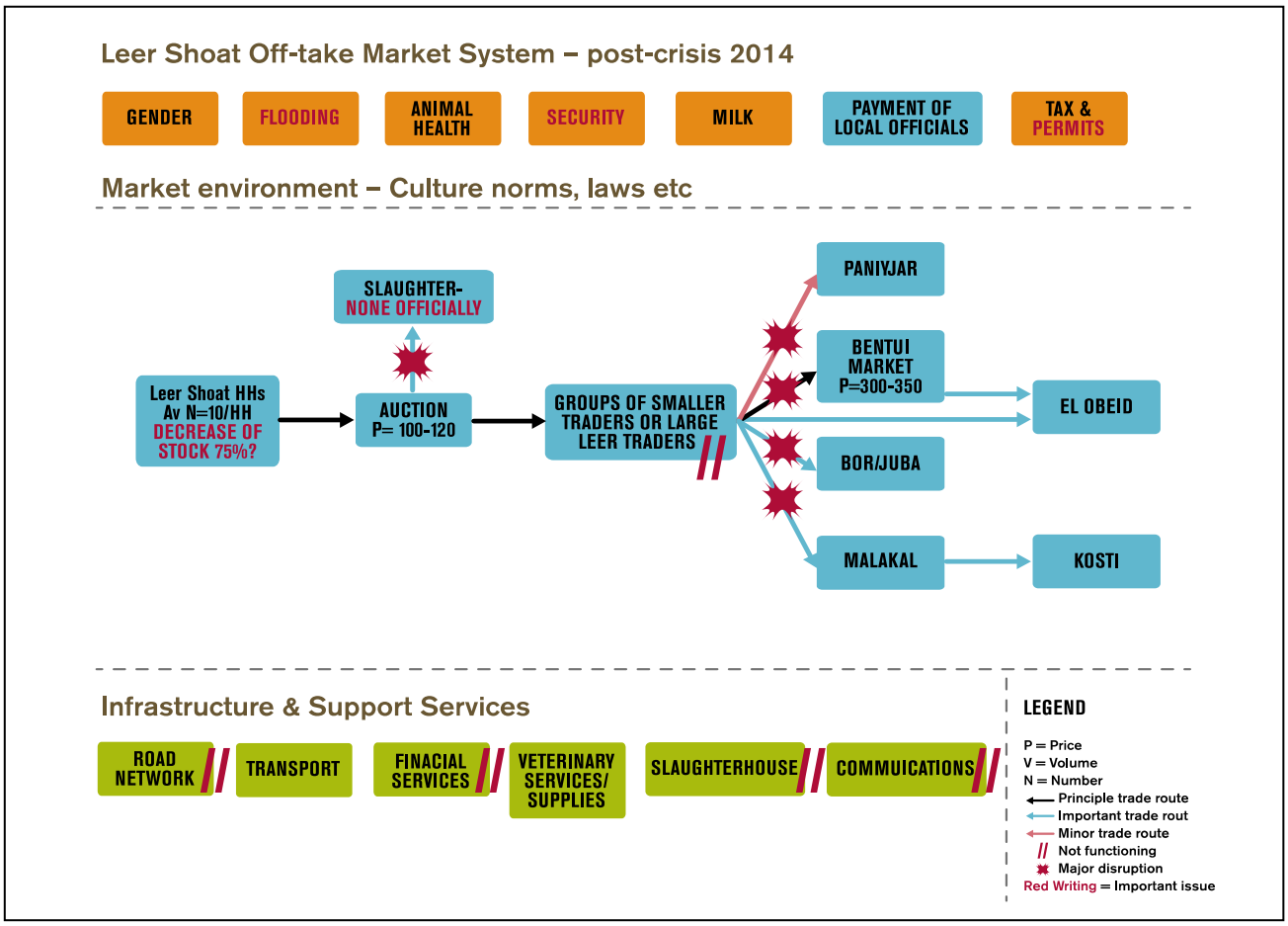

Figure 11: Shoat off-take market system post-crisis

When the population of Leer fled from the fighting to the swampy areas of the Nile basin with their cattle, the goats and sheep could not travel with them, as the water crossings were often too deep. Owners slaughtered many for meat during the conflict, while some livestock left behind were slaughtered or taken by people engaged in the fighting. Based on information from household interviews and triangulating with information provided by the key informants, it is generally believed that the population of shoats decreased by about 60-75% compared to this time last year. Figure 11 shows the market system for goats since the crisis.

Despite the limited supply, the price of a mature male goat would now fetch just SSP 100-120 due to low demand. This may also be due to the fact that goats are not seen as a viable risk reduction asset in the same way cattle are, as they cannot be herded across water/marshy areas in the event of having to flee for safety. Having said that, there were no goats seen at auction, and no goat meat for general sale from the butchers supported by the stated preference for cow meat, yet the price of goat meat at the time of the assessment was traditionally (or previously) high compared to beef- although none was actually available in the market when the team was present. However, small supplies of goat meat in the market may also be linked with a preference to conduct private sales (to avoid market fees) and butcher goats at home.

KEY FINDINGS AND HOUSEHOLD / MARKET ANALYSIS

Household findings from a non-representative, purposed sample of 38 poor/very poor households together with discussions with groups and observations are as follows:

Before the crisis:

- Households relied on market purchases for most of their sorghum and meat.
- Most households consumed their own production of sorghum and maize for less than three months per year, hence the reliance on markets.
- Leer is normally a cereal deficit area. Crop yields are generally low for a variety of reasons - including poor seed stock (although over recent years there have been some seed & tool distributions), labor shortages, and heavy soils limit the area of land that can be harrowed without draft or mechanization. Since the crisis, most household receive food distributions.
- The highest household expenditure reported was for sorghum.
- The highest ranked source of income (from household interviews), was from brewing alcohol, followed by sale of natural products (wild foods and traditional construction material – poles and grass).
- Some households reported receiving conditional food assistance - for work (FFW), and for attending education before the crisis.
- Returnees have little access to land or farming opportunities.
- The poorest households may have had few or no livestock even before the crisis.
- Wild foods, often gathered by women, play a significant role in providing dietary diversity especially in the lean season. They also provide a sustainable coping strategy in times of adversity for all except severely labor constrained households.
- Due to the cultural status of cattle, there has been great resistance in many communities to utilize them in pulling harrows or carts. However, they are in use in other areas of South Sudan as well as in Payak payam (in Leer) after prolonged exposure and demonstrations by Comboni missionaries.
- Legal rights and the status of women are issues particularly in relation to the ownership of assets and the customary exchange of women for cattle.

Sources of food / Interaction with markets

Most people in the area normally seemed, to differing extents, to rely on local markets for access to cereals and meat for most of the year. This was paid for, mostly using cash as a means of exchange, using income from livestock off-take, milk sales, the sale of natural materials, fishing, charcoal, brewing alcohol, and tea making. There is good access to a range of wild foods, according to the season, as well as fish all year (which is also dried) and reliance on different food sources as a normal coping strategy. People reported eating grass, but they were actually referring to green leaves that are edible. These findings were largely consistent with the detailed findings of the Household Economic Analysis (HEA) Livelihood Profiles, South Sudan Eastern Flood Plains & Nile and Sobat Rivers Report, ACTED, September 2013.

After the Crisis

- Most sorghum is now sourced from distributions, so sorghum prices and demand in the market area are low. Last year sorghum was the primary expenditure for the household. Distributions are currently providing food rations to 20,000 households through airlifts, but this will cease at the end of December 2014 unless further funding is secured.
- The highest household expenditure reported was for beef meat, while the highest ranked source of income was sale of cattle, natural materials, and income from tea stalls.
- Many households have fewer livestock than before the crisis - particularly goats, as many were lost during the conflict. This reduces the asset base of the household as well as access to income from sales and as an important contribution to nutrition in the form of milk. Goat milk was particularly important for its singular role in young child feeding. Goats are no longer being slaughtered commercially but there were reports that they are being home-butchered.
- Production of sorghum, and other crops, was particularly poor this harvest year as the area planted was less than last year as a result of the conflict which disrupted planting and cultivation activities. Flooding damaged crops in many areas - thus increasing reliance on aid and market purchases.
- Most of the trade routes via road are closed due to active conflict and insecurity as well as localized flooding due to late rains. This has limited the availability of goods in markets and has depressed the price of livestock. Permits to move livestock are not being issued.
- River trade routes remain severely constricted for all goods, but particularly for livestock and commodities with low value per unit of bulk. Small craft are still able to use river routes informally as far as Tayer- at some risk. This means they tend to carry goods with a high value per unit of bulk like sugar, clothing and sandals. Loading/unloading at Tayer takes place on the water as there is no proper dock - so this would not be suitable for livestock.
- Failure to use the purpose-built slaughterhouse and associated meat and milk marketing areas that were hardly damaged in the conflict suggests there may be other reasons it is not being used - possibly the fact that it is too far from the main market.
- Large wholesalers with their own transport and wide trade networks are no longer in Leer - this has left a vacuum as smaller traders have also sustained losses and are risk averse. In addition, they do not have access to credit to grow their business.
- Widespread belief that the conflict in the north of Unity State will extend down to Leer during the dry season has resulted in strategies to minimize losses and optimize assets that are mobile and are able to move easily and to swampy areas if necessary.
- There has been a significant loss of physical market structures.

MAIN RECOMMENDATIONS AND CONCLUSIONS

Sorghum and livestock off take were affected by a number of successive shocks: the border closure, conflict, and flooding. As the market systems were recovering and coping with the trade ban that restricted sorghum supplies in northern markets and movement of livestock into Sudan, they were hit by the conflict. While the trade ban led to price hikes and inflation, the conflict undermined access to markets and migration, limiting household capacity to mitigate the effects of seasonal food deficits that occurred in the lean season. The subsequent flooding destroyed crops; however it also provided opportunity to engage in the complementary livelihood activity of fishing.

The prospects for the market systems are dependent on how the security situation evolves. In the best-case scenario of complete cessation of the conflict, markets would be able to adequately respond to existing demand (though constrained by low purchasing power) as road conditions are improving. Poorer households will however be unable to access markets due to their weak purchasing power. Therefore interventions that facilitate access to incomes such as conditional and unconditional cash transfer or in-kind asset transfer would be important. Furthermore, to increase volumes of commodities coming to Leer from hub markets, there would be a need to improve the condition of local infrastructure (road improvements through cash for work), improve linkages and provide business support to small traders and to the return of larger traders, as well as undertaking deliberate advocacy to reduce the formal and informal taxes by government and other actors. As livestock come back from distant secure grazing areas and markets recover, it is anticipated that households will be able to access some milk and livestock to sell. This return would reduce disease and conflict pressures resulting from their currently displaced locations. However, such large in-migration increases the risk of disease outbreaks and conflict in the locality. It is therefore important to strengthen local capacity to deliver emergency care and health for animals, including restoring the supply of veterinary medicines, and also strengthening local mechanisms to mitigate the risks of conflict.

In the worst case scenario of heightened conflict, the prospects look tenuous. Household incomes will dwindle, decreasing their purchasing power even further, as access to income earning opportunities and productive assets will be limited. Access for humanitarian workers and to aid will be limited and markets will not be able to replenish in the up-coming dry season. Such a scenario poses a great risk to the population. Below is a discussion of the response options under the different scenarios.

Response Analysis

This response analysis seeks to identify appropriate programming options to address the constraints identified in the three market systems, taking into consideration how the conflict will evolve. These options are listed in the response options table (Figure 12 and Annex 3 in more detail) and the relative pros and cons of each option are analyzed. Based on this analysis, specific programming options or a combination of options are selected to be the most appropriate for the given context and level of market functioning, in order to support household income and food security.

The context is likely to change quite rapidly over the coming months. The main variables affecting market functions are:

- Whether a peace agreement will be signed and if it will achieve peace
- Dry season - improved access (for trade and fighting forces)
- Whether food distributions will continue in 2015
- The extent to which conflict/insecurity will continue to prevent the Leer area from connecting to external markets
- The activities and intentions of humanitarian actors

All of these are likely to affect any response options and the organizational capacity and the requirement to intervene in Leer.

Response options analyzed have been outlined below and marked according to their appropriateness in the following short-term (next 2-9 months) scenarios.

Scenario 1: Status Quo - including the continuation of food distributions (during the next two months)

Generally, depressed markets with both supply and demand issues.

Supply issues - The incentive for cereal traders to seek safe trade routes for basic foodstuffs is depressed as demand is being satisfied by food aid distribution. In most places, people receiving food assistance do not expect distributions to halt. This creates a disincentive for households to plan for additional agriculture production.

Demand issues - Household needs for income from livestock is diminished by access to free basic foods.

Responses

1. Progressively taper down the use of food aid distribution and replace with cash transfers or vouchers in order to stimulate markets while providing a safety net to those vulnerable. This should include monitoring food prices and trade volumes and adjusting food security strategy accordingly.
2. Support traders and transporters to meet future needs though capacity building in business skills.
3. Promote the development of fish trading, identifying opportunities to supply local markets, and ensure that required inputs are available.
4. Exploring appropriate options to dry and preserve the seasonal supply of fish.
5. Support the development of a market led seed supply system linked to agro-vet stores and delivery of animal health inputs.
6. Capacity building for young famers to learn about new methods and to be engaged in commercial agriculture (crop and livestock), thereby increasing local supply, stimulating the economy, and providing a more attractive livelihood rather than engaging in armed conflict.
7. Support to local traditional leaders for dialogue and to build inter-community trust. Maintain and strengthen conditions that support the bi-directional flows of trade and movement of animals.

Scenario 2: Status Quo - with the discontinuation of food distributions at the end of December 2014

Supply issues - Small stocks of food aid and other sources of sorghum are unlikely to last long. Prices are likely to skyrocket as soon as distributions finish.

End of the rainy season means that road routes become passable in theory, however conflict will most likely continue to disrupt trade. When food distributions end, traders might have profit incentives to take risks for delivering foodstuffs. However, the remaining traders are not linked into the networks of those who left (speculation) and claim that they would not be prepared to take the risk.

Demand issues - Households will need income to access basic foodstuffs. Possible herding by small trade foot routes though Mayom would require lifting restrictions on movement permits. Access to

carbohydrate-rich foods will be more problematic than high protein. Most people can meet subsistence requirements from various sources including wild foods and fish but malnutrition rates are likely to increase - with women and children generally the worst affected. Children under 2 will be most at risk as their mental and physical development could be irreparably impaired. Supply issues are likely to be severe enough to prohibit the responsible use of vouchers to support demand.

Responses - as in scenario 1

Additionally:

1. Communicate the changing response to food distribution to traders and develop a coordinated, seasonally logical plan amongst the stakeholders for a phased transition, considering the progressive reduction of food aid distribution with increased use of vouchers and cash transfers, whilst closely monitoring the markets (prices and volumes) and nutritional indicators. This will require good coordination and an adaptive management approach, informed by periodic market monitoring and analysis.
2. Facilitate meetings between local traders and the larger ones who have withdrawn to identify how past linkages can be restored.

Scenario 3: Peace Agreement Signed

Roads open up during the dry season. Permits for livestock movement are issued. Mobile networks become functional. Goods start to flow - probably sluggishly at first, and income from livestock pick up. Leer market has historically been poorly integrated with the rest of the country as a result of the high cost of transport and taxes. However, the possibility of high trader margins may lure new traders into the area. Market recovery is likely to be slow, as demand/ income will take time to recover.

Responses - increase market recovery activities, focusing on accelerating the supply of essential goods and off-take in livestock and potentially fish through interventions that strengthen and stabilize incentives for market participants, particularly traders.

Scenario 4: Return to active conflict (most likely scenario, January – December 2015[36])

Further conflict will bring new waves of population displacements and collateral damage. Market disruptions will hamper supply and physical and financial access will affect demand. Although the situation should be rapidly assessed in this eventuality, market based interventions will likely be difficult to implement and more fundamental humanitarian assistance through food distribution will most probably be required.

Gender sensitive responses

Any response should consider issues around the typical gender roles, the status and participation of women, as well as the role cattle play in the barter and subjugation of women.

[36] Likely scenario - based on advice from a number of sources including Mercy Corps' Regional Security Advisor

Response Options

Figure 12: Reponses Options Table[37]

Response Options	Advantages	Disadvantages	Appropriate Scenario*
Small grants/access to financial services for emerging traders in sorghum and livestock particularly	Supports market to function and grow	Difficult to target. Support to livestock traders can also support gender biases.	3,4
Re-establish business networks between local emerging traders & with bigger traders up the chain	Improves network and acumen of emerging traders	Slow and success depends on routes re-opening.	1, 2, 3,4
Support access to food through the provision of food vouchers for cereals (and possibly meat for more vulnerable groups)	Increased purchasing power for food insecure HHs at the same time stimulating trade at reasonable prices	Need to be careful to ensure stocks are sufficient in the market so prices are stable.	3, 4
Strengthen private input supply to strengthen animal health services	Improves access to vet services but could be slow	Vet services provided free after the conflict. Reverting to cost-share and pay-for-service could be slow.	3
Strengthen link of CAHWs with private suppliers	Likely sustainable	Infrastructure is lacking.	3
Train and equip new cadre of male and female CAHWs	Will be well received by community	Needs updating regularly.	1, 2, 3,4
Promote low-tech agricultural practices - such as harrowing and soil silage making	Youth can break resistance to new ideas	Need to give youth way of making changes they have heard about.	1, 2, 3
Increase adoption of tillage using cattle & donkeys	Comboni have already piloted this	Slow and requires behavior change.	1, 2, 3
Vocational training - particularly metalworking for the production of farm tools	Diversify income generating options and reduce reliance on distributed tools	May not be interesting to males.	1, 2, 3
* Refers to the appropriateness in the following scenarios over **January –December 2015**			
1. Status Quo - with general food distribution (most likely scenario for **January- April 2015**)			
2. Status quo but no food general food distribution after end of December 14			
3. Mostly peaceful with permits to move. Good road access in dry season & river transport			
4. Return to active conflict (most likely scenario **January- December 2015**)			

[37] Complete response options matrix is available in Annex 3

Recommendations for further investigation

- Follow up on traders and routes to the north (Bentiu and Renk/Malakal), Pariang, and the south (Tayer) to confirm trade routes and volumes.
- Household income and expenditure data generated by VAM team but not made available to the EMMA team.
- Activities, monitoring data, and intentions of humanitarian actors in Leer, as this information was not given to the EMMA team.
- Possible market approach to seeds and tools - considering trade fairs and local production.
- Solar input supply (through vouchers if possible) to increase access to education and increase mobile charging - also protection.
- Dynamo or solar lighting installed on busy water pumps to give light at night to provide protection to women.
- Market-based solutions for latrine provision using locally sourced natural materials.
- Market options for fish and increasing fish yields as many poorer households with little or no livestock could benefit from this.
- Options for increasing milk hygiene and sales.
- Possibilities for private traders to join humanitarian escorted river transport.

Recommendations for Monitoring

Key indicators for food security and markets that should be monitored over the coming months:

- Humanitarian actor activities and intentions.
- Admissions to nutrition programs.
- Prices and volumes of sorghum and livestock sold in Leer market and in the principle supply and end markets which are connected to Leer (for sorghum and livestock respectively).
- Number of new business start-ups.
- Issue of livestock permits.
- Use of road and river routes to Leer.
- Security incidents in Leer and along the major trade routes.

Annex 1 - Definitions/Glossary (Adapted from EMMA Guidance notes - Oxfam)

Term	Explanation
Agro-pastoralism	Agro-pastoralism is a set of practices that combine pastoral livelihoods with production of cereals, vegetables and legumes.
Demand	The amount (quantity) of a particular economic good, item, or service that a group of consumers will want to purchase at a given price. Consumers' needs and desires must be accompanied by purchasing power (money) to be considered effective in the analysis of demand. Where lack of money is a significant constraint for the target population, the immediate result of cash-based initiatives is usually to increase effective demand.
Market	Any formal or informal structure (not necessarily a physical place) in which buyers and sellers exchange goods, services, or labor for cash or other goods. In EMMA, forces of supply and demand rather than geographical location define markets.
Market Chain	General term for a supply chain or a value chain: a sequence of market actors who buy and sell a product or item as it moves from initial producer to final consumer.
Market integration	A market system is integrated when linkages between local, regional, and national market actors are working well. In an integrated market system, the relatively easy movement of goods from other nearby and regional markets compensates for any imbalance of supply and demand in one area.
Market System	A market system is a network of market participants or actors, many buyers and sellers – not only one chain – supported by infrastructure and services, interacting within a context of institutions or rules that shape the actors' trading environment. A market system involves a market or value chain, the market services (e.g. transport, finance, information, extension services) provided to support the chain, and the environment (e.g. infrastructure, natural or policy environment) that enables or disables the functioning of the chain.
Off-take	Animals sold or otherwise removed from the herd.
Pastoralism	A subsistence system for producing milk, meat and other animal products from domesticated animals such as goats, sheep, cattle and camels practiced in marginal areas.
Supply Chain	The sequence of market actors who buy and sell a commodity, product or item as it moves from the initial producer via processors and traders to final consumers. In EMMA the term is used when the final consumers are the target population for humanitarian assistance.

Annex 2 - Key Informants

Activity	Organisation	Names of participants
Leer stakeholders meeting		Peter Kai Dak
		Kong Gatkuoth
		John Nhial Chath
		Paul Buom Biel
		Bachuy biel
		Eliazabeth Nyawuat
		Martha Nyabiel
		Elizabeth Nyamuon
		Bol Puok
		Eliajah Puot Liah
Meeting with Sorghum Traders		Thudan Nhail Jail
		Khor Mead Malual
		Nin Kai Gaw
		Gatguol Riek muon
		Latjor Gatluak Deng
		Kuok Biel Ruach
		Chuol Leah khoah
		Mabany kier Joak
		Machueng Gatpan Chang
		Gatliah Keah Gatbany
		Mabany Gatluok Their
		James Riak Yang
		Yohanes Gatluak Majoak
		James Riak Yang
Livestock traders meeting		Tabitha Nyakuoth Kai
		Nyabiel Diew Gatkuoth
		Kier bol Chuong
		Bol Puok machar
		Kuony Khor Ruei
		James Dak Gatmai
		Matai Khan Riak
		Gatnor Liah Kam
		Stephen Machuong
		James Gatluak Banak
		James Chuol Thiech
		Peter Thiech Tap
		Mawuoy Rueh Wan
		Batoang Koang Riak

Activity	Organisation	Names of participants
Meeting in Adok	Customs officer	
	Fisheries officer	Gatkuoth Biel
	Port official	George Khan Wal
		James Bichok Mabor Gai
Sheep and goat traders		Mawuoy Rueh Wan
		Batoang Koang Riak
Meeting in Leer	Comboni Mission	Father Nichola
Meetings in Juba		
	FAO	Abdul Majid
	FAO	Nimaya Mogga
	WFP (VAM)	Bernard Dwadi
	WFP (VAM)	Simon Dradri
	Fewsnet	John Vuga
	VSF	Martin Barasa
	Oxfam	Lisa Biblo
	NBS	Richard Damboyo
	VISTA	Naomi Pendle

Annex 3 - Complete Response Options Matrix

Response Options	Advantages	Disadvantages	Appropriate Scenario*
Business skills training	Improve commercial acumen	Slow to achieve real impact.	1, 2, 3
Milk and meat hygiene, and quality improvement. (Education & marketing)	Links to food utilization activities	Other initiatives (e.g. provision of hygienic plastic milk containers) proved hard to change behavior.	3
Small grants/access to financial services for emerging traders in sorghum and livestock particularly	Supports market to function and grow	Difficult to target. Support to livestock traders can also support gender biases.	3
Re-establish business networks between local emerging traders & with bigger traders up the chain	Improves network and acumen of emerging traders	Slow and success depends on routes re-opening.	1, 2, 3
Support access to food through the provision of food vouchers for cereals (and possibly meat for more vulnerable groups)	Increased purchasing power for food insecure HHs at the same time stimulating trade at reasonable prices	Need to be careful to ensure stocks are sufficient in the market so prices are stable.	3
Strengthen private input supply to strengthen animal health services	Improves access to vet services but could be slow	Vet services provided free after the conflict. Reverting to cost-share and pay-for-service could be slow.	3
Strengthen link of CAHWs with private suppliers	Likely sustainable	Infrastructure is lacking.	3
Train and equip new cadre of male and female CAHWs	Will be well received by community	Needs updating regularly.	1, 2, 3
Promote low-tech agricultural practices - harrowing and silage	Youth can break resistance to new ideas	Need to give youth way of making changes they have heard about.	1, 2, 3
Increase adoption of draft using cattle & donkeys	Comboni have already piloted this	Slow and requires behavior change.	1, 2, 3
Promote low-tech agricultural practices - such as harrowing, and soil silage making	Piloted by Comboni brothers. Could improve milk production - milking animals stay at the homestead in dry season	Plastic bags breakdown in UV so storage…?	1, 2, 3
Vocational training -particularly metalworking for the production of farm tools	Diversify income options and reduce reliance on distributed tools	May not be interesting to males.	1, 2, 3
Work with mobile companies/ government to reinstate the phone network	Improves communication between traders	Difficult to measure impact.	1, 2, 3
Equality in law and practice for women	Must be achieved if real progress to be achieved		1, 2, 3
Zero tolerance for domestic and gender based violence	Improve the situation for women	Difficult to measure impact.	1, 2, 3
* Refers to the appropriateness in the following scenarios over the next 5-6 months:			
1. Status Quo - with general food distribution			
2. Status quo - no food general food distribution after end December			
3. Mostly peaceful with permits to move. Good road access in dry season & river transport			
4. Return to active conflict (most likely scenario in the next 2-9 months)			

Annex 4 - The Ten Steps of EMMA

The EMMA process can be divided into ten steps, covering the general sequence of activities. However, EMMA is also an iterative process. In practice, activities in different steps will overlap, and we may return to particular steps repeatedly, as our analysis of each market system is revised. This continues until a 'good-enough' final picture is achieved.[38] The assessment used this methodology from the EMMA Toolkit, comprising ten steps.

1. *Essential Preparation*	Background research; arrival; consultation with colleagues; agency mandate, target population needs & profiles.
2. *Select Markets*	Selection of critical market-systems; and identification of key analytical questions for each system.
3. *Preliminary Analysis*	Production of initial profiles, seasonal calendars, maps of the market-system; identification of key informants or leads.
4. *Fieldwork Preparation*	Setting the fieldwork agenda; devising interview structures & questionnaires; data-sheets and recording formats.
5. *Fieldwork Activities*	Conducting the fieldwork activities – who, where, when. Section includes guidance on interview methods and tips.
6. *Mapping the Market*	Finalizing baseline & emergency maps, seasonal calendars; description of key features, bottlenecks, and constraints.
7. *Gap Analysis*	Comparison of household economic profiles, analysis of priority needs, access and gaps.
8. *Market Analysis*	Analyzing impact on availability, conduct, performance, supply and demand, capacity of market-system to react.
9. *Response Analysis*	Exploration of response options, cash and other intervention feasibility; response recommendations and their logic.
10. *Communicate Results*	Consultation with colleagues; presenting conclusions to wider audiences (donors, agencies).

[38] Albu, M. Emergency Market Mapping and Analysis Toolkit. Oxfam GB 2010.