



Understanding the Livestock Economy in South Sudan

Field study findings

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March 2021

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Cover photograph: Cattle herding in the Nile Basin. PAC field team

ACRONYMS

CAHW	Community Animal Health Worker
CBPP	Contagious Bovine Pleuro-pneumonia
CPA	Comprehensive Peace Agreement
EARF	East Africa Research Fund
FAO	Food and Agriculture Organisation of the United Nations
FEWSNET	Famine Early Warning Systems Network
FCDO	Foreign, Commonwealth and Development Office
GoSS	Government of South Sudan
GDP	Gross Domestic Product
IDP	Internally Displaced Person
IPC	Integrated Food Security Phase Classification
KII	Key Informant Interviews
MAM	Moderately Acute Malnutrition
PRA	Participatory Rural Appraisal
PAC	Premium Agro-Consult
PVP	Private Veterinary Pharmacy
RED	Research and Evidence Division (at FCDO)
SAM	Severe Acute Malnutrition
SPLA	Sudan Peoples' Liberation Army
SPLA/M	Sudan Peoples' Liberation Army/Movement
SPLM-IO	Sudan Peoples' Liberation Movement in Opposition
VSF	Vétérinaires Sans Frontières
WFP	World Food Programme
WHO	World Health Organisation

Recommended citation: Cullis, A. (2021). Understanding the livestock economy of South Sudan: Field study findings. Tana Copenhagen Aps.

ACKNOWLEDGEMENTS

The Tana team of Grace Muchunu, Ole Stokholm Jepsen, Duku Ramson Kweji and the author carried out the study at a difficult time as a result of the COVID-19 pandemic. The author recognises and values the team spirit that ensured the study was carried through to completion.

The author wishes to express a special word of thanks to Duku Ramson Kweji and Premium Agro Consult Ltd (PAC), Tana's partner in South Sudan, who carried out the field work with much reduced support than had originally been planned. Thanks therefore to all the team members: Hellen Adeng, Mary Ajak, John Deng Akech, James Maring Alison, Lilian Maggie Arkenjelo, Nyajuba Bol, Nhial Lual Chan, Akon Chier, Ariath Deng Deng, Rose Nakiru Dominic, Abuk Edward, Mary Alue Garang, Nyamal, Khor Peter Khan, Tap Kulang, Anderson Lamunyok, Justin Lojio Longolio, Mathew Lony, Alier Mabior, Marol Mayom, Marial Meen, Robert Mugabi, Nicodemus Nameca, Alier Mawut Samuel, Alex Thong and James Wicgoal.

Thanks also to Longa Seme Isaiah and Gerald Kabuye for facilitating the PRA training in Juba and supporting the PAC field teams in the early days of the field study.

The author also wishes to thank Wilson Makuwaza and FAO field staff for their insights on the livestock economy of South Sudan and to Andy Catley, Silvester Okoth and Steve Staal for their review comments on early drafts of this report.

A particular word of appreciation to Malcolm Smart (Foreign, Commonwealth and Development Office) and Dr. Jordan Kyongo (East Africa Research Fund) for commissioning this study and their steady support through the pandemic that required a number of adjustments and quite considerable rescheduling. Thanks too for their review comments of the draft report.

Finally, the author recognises and wishes to thank the agro-pastoralists, pastoralists and key informants – including a number of FAO field staff – who offered their time, knowledge and perspectives on livestock keeping in South Sudan. The author apologises for those findings and explanations that do not accurately or fully reflect the detail and quality of the information that was provided, and takes full responsibility for any misrepresentation.

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EXECUTIVE SUMMARY

There are many more livestock than people in South Sudan and hence livestock play a central role in the lives and livelihoods of almost all households. Livestock not only provide food and income, but individual animals typically represent a 'bundle of rights' that form the basis of reciprocal social networks which underpin livelihoods and support households through difficult times.

The '*Understanding the Livestock Economy in South Sudan*' study was commissioned by the Foreign, Commonwealth and Development Office funded East Africa Research Fund (EARF) to help inform contemporary investment choices in the livestock sector. The study was structured around three themes:

- The importance of livestock to livelihoods and how this has changed over time
- The state of livestock markets and how they are changing/ evolving
- Future prospects for the livestock economy and how these are expected to change

As a result of the COVID-19 pandemic the field work was rescheduled and reassigned to Premium Agro Consult Ltd (PAC). The fieldwork was carried out between November 2020 and January 2021, and was based on qualitative Participatory Rural Appraisal (PRA) tools – wealth ranking, 'before' and 'after' scoring, proportional piling and scoring, and triangulation and verification. The period from Independence to the outbreak of Civil War in 2013 was used as the 'before' reference point and present day as the 'after' reference point. Four agro-pastoral zones and one pastoral livelihood zone were selected from the Famine Early Warning Systems Network (FEWSNET) livelihood zone classification for detailed study. In each zone, the relevant state and local authorities authorised field work in four purposively sampled sites, within 30kms radius of a market town. Ahead of field visits, PAC contacted community leaders to mobilise groups of women, elders and youth for the planned focus groups. Findings were triangulated by interviews with key informants.

For the first study theme, **the importance of livestock to livelihoods and how this has changed over time**, the historical timeline provides a sobering account of conflict in South Sudan that spans two centuries. Much of the violence has been perpetrated by and on livestock keeping communities as cattle are recognised as valuable assets. At the time of the 2018 peace agreement, the Civil War had resulted in the loss of an estimated 400,000 lives, the displacement of 4 million people - 1.8m internally displaced persons (IDPs) and 2.2m in refugee camps in Sudan, Ethiopia, Kenya and Uganda. Annual cattle production losses during the Civil War years were estimated to be more than US\$1 billion.

The study found huge numbers of poorer households, and significant wealth inequalities in livestock and land holdings, family size, and numbers of children at school and in employment. For example, 'wealthy' families own between one and two hundred times more livestock than the 'very poor'. Furthermore, a staggering 60 to 70 percent of agro-pastoral and 34 percent of pastoral households are classified as 'poor' and 'very poor' today. Poorer households are unable to meet their basic food needs from livestock, and such wealth disparities augur ill for peace and stability.

The result of extreme violence, social networks in South Sudan are weaker than at any previous time as livestock-based transactions on which they are based are minimal and the number of poorer households is beyond the capacity of the 'wealthy' to support in the form of milk and food gifts, livestock loans, and bride price payments. It will take a decade or more for herders to patiently rebuild their herds and flocks, and longer if the rebuilding process is further interrupted by conflict, livestock disease and other losses.

Efforts to rebuild herds include cattle raiding. According to scale and intensity, such thefts not only render victims' households destitute, but 'require' that affected youth engage in retaliatory raiding. This vicious cycle undermines household food security, reduces livestock production, and results in injury and loss. Since the 2013 Civil War, the proliferation of militias and militarised cattle raiding, and extreme violence against women and children, have eroded long held social mores and frameworks. Women and children are now routinely killed and abducted.

The Civil War also dislocated livelihoods, including arable cropping. In 2014-2017, the collapse of national food production resulted in famine in some areas. The herding of livestock in remote areas that were

separated from homesteads also resulted in reduced milk intake and hence considerably poorer diets. Milk has been replaced by the collection of wild rangeland products and with food assistance, when available. While livestock-cereals exchanges have again returned to near normal and people are again engaged in arable cropping, diets remain far more diverse than in the pre-Civil War era.

On the second study theme, **the state of markets and how they are changing/evolving**, the findings confirm that increasing numbers of women are engaged in the sale of milk and livestock products. With fewer livestock or immediate access to livestock, falling productivity and increased sale of milk, child malnutrition and poorer child health is on the increase. The study also found that milk sales have negatively affected the customary gifting of milk and milk products by wealthier to poorer households. The commercialisation of milk has therefore weakened social networks.

The study findings confirm that agro-pastoralists and pastoralists routinely exchange livestock for cereals with their more agrarian neighbours, to 'trade up' calories, in particular during the dry season or in times of crises. Over time and with the penetration of the cash economy, barter has been superseded by sales in South Sudan's network of livestock markets, and annual sales are now valued in US\$ millions. While engaged in sales, livestock keepers remain acutely aware that the more animals they sell, the more they potentially threaten herd growth and therefore ultimately one of their staple food sources.

The study confirms that South Sudan's bloody Civil War and cattle raiding, and the resultant persistent high inflation precipitated a collapse in standard livestock-cereals terms of trade and the haemorrhaging of livestock from family herds. Looted and distress asset livestock sales have resulted in millions of dollars' worth of livestock changing hands and being sold out of the country. At other times, insecurity has brought livestock marketing to a standstill and – the result of poor roads, conflict and flooding – livestock market integration in South Sudan remains a distant vision.

With regard to the third study theme, **the future prospects for the livestock economy**, the findings confirm that the main causal factors driving poverty in agro-pastoral and pastoral livelihood zones are, in order of importance: insecurity, livestock disease, floods, and the economy.

Many young men have no alternative but to live in cattle camps owned by relatives or others in which they are simply hired on a casual basis. Tasks are allocated to age and ability. For their work, the young men receive food, clothes, young animals and support with cattle at the time they want to marry. Life in remote cattle camps inculcates young men into the importance of safe herding and cattle raiding. All sectors of agro-pastoral and pastoral societies are however embroiled, as older and wealthy men supply weapons, women sing praise songs about their fearless sons, and young women prefer to marry brave and wealthy raiders.

The study found strong correlation between the causal factors driving poverty listed above and the participants' perceptions and key informant recommendations for priority livestock sector investments. These can be clustered under the following themes: peace and security, the livestock sector, and alternative livelihoods. Informed by the findings, the following recommendations are offered for future investment in South Sudan.

1. Civil society engagement with cattle camp/ militia leaders, cultural prophets, elders and women's and youth representatives to explore:

- *Customary codified frameworks* - a return to customary protection frameworks for women and children in different parts of the country to afford increased protection during cattle raiding and increased support to prophets to discontinue 'cleansing ceremonies' for perpetrators
- *Migration* - negotiated peaceful migrations (see rangeland management below)
- *Disarmament* - the phased, equitable and voluntary disarmament of heavy weapons as a first step to the wider control of small arms
- *Bride price payment amounts* - capping and progressive reduction in cattle bride price payment numbers, irrespective of cattle prices in markets
- *Youth initiatives* - provision of alternative livelihood opportunities for young men
- *Institution building* - long-term investment in strengthening state institutions responsible for law and order, justice, and ensuring respect for human rights and fundamental freedoms

2. **Livestock sector** informed by Livestock Emergency Guidelines and Standards (LEGS).¹ and local knowledge and experience and lessons learned in the delivery of livestock projects at individual state level, in particular those affected by high incidences of conflict:

- *Destocking* - informed by livestock market and livestock-cereals terms of trade monitoring and analysis, increased support for destocking (both commercial and slaughter destocking) during times of crisis, to mitigate distress livestock sales, stabilise livestock prices and protect agro-pastoral and pastoral livelihoods. In particular, expanded support for poorer households through targeted destocking of small ruminants and poultry
- *Veterinary support* - the detailed mapping of former and current decentralised animal health delivery services - community animal health workers (CAHWs) and private veterinary pharmacy networks (PVP) - to identify and address gaps and weaknesses. To improve the delivery of efficacious veterinary medicines and phase out and replace the distribution of free livestock medicines with voucher-schemes implemented through local service providers. Also deliver reliable, seasonal vaccination campaigns through local animal health service providers and strengthen indigenous technical knowledge (ITK) networks to research, document and promote the use of efficacious treatments in particular for poultry and small ruminants
- *Livestock feeding* - specifically rangeland management issues that threaten viable livestock production systems. Priorities may include work with cattle camp leaders, elders and administrators to develop local agreements that facilitate seasonal transhumance movements and eventually to develop a legal transhumance framework to protect routes and ensure the continued passage of livestock between wet and dry season rangelands. Agreements will need to resolve outstanding local conflicts and include mechanisms to resolve issues as they occur

Other priority investments may include community commitments to protect key rangelands from agricultural development and better management of seasonal grazing - resting rangelands for recovery. Where appropriate, the control of invasive species and re-seeding with locally important rangeland plant species

- *Livestock water* - the participatory mapping of livestock grazing and water points in wet and dry season grazing areas with the full and active representation of all groups with recognised customary rights. Priority investment for rainwater harvesting systems that prevent year-round grazing and the establishment of permanent settlements, protect key rangeland resources and can be maintained by the communities themselves
- *Livestock provision* - informed by a detailed review of the lessons learned in previous livestock provision or restocking projects. Priorities for investment should be on community-led initiatives that include community contributions, albeit modest in size. In this way, the provision of livestock can help strengthen social capital and reinvigorate personal networks, that have been progressively undermined by the conflict
- *Livestock product marketing* - targeted support to women in 'very poor' and 'poor' wealth categories to produce and market eggs and poultry meat
- *Skills training* - for employment of young men in ancillary livestock sub-sectors - health, marketing and conditioning of animals - that may also offer 'alternative' livelihood opportunities
- *Policy and advocacy* - The priority policy and advocacy challenge for the livestock sector in South Sudan is improved governance to address conflict, insecurity and cattle raiding. In this context, it is important to develop and use locally appropriate delivery strategies that ensure good practice and good returns on investment

¹ LEGS. (2014).

3. Alternative livelihoods

- *Non-livestock sector* - significantly increasing investment support for vocational training and non-livestock dependent livelihoods, including small-scale irrigated vegetable production and marketing
- *Fishing inputs supply* - the provision of inputs, training and management for locally sustainable fisheries

4. Nutrition informed by the United Nations work in South Sudan:

- *Nutrition appropriate emergency food assistance* - increased use of locally sourced animal proteins including milk and milk products, eggs and poultry meat, fish and meat using voucher-based schemes
- *Cash transfers* - unconditional and conditional cash transfer can be augmented by nutrition voucher schemes
- *Emergency seed distribution* - with a primary focus on seed fairs that promote the multiplication and sharing of locally important field crops, vegetables and fruit trees as opposed to imported hybrid seeds that require sophisticated market systems and cash
- *Agricultural input supply* - seeds and tools for displaced communities where emergency needs have been met. As recognised above, with a primary focus on seed fairs and locally appropriate tools
- *Processing and storage* - for locally important and perishable vegetables, crops and fruit, to extend availability in particular, where possible, into the 'lean season'
- *Vegetable gardens* - technical training and ongoing advisory support for agro-ecological/ perma-gardening methods for increased vegetable production in community and private managed gardens

1 INTRODUCTION

The Foreign, Commonwealth and Development Office funded East Africa Research Fund (EARF) commissioned the ‘*Understanding the Livestock Economy in South Sudan*’ study to generate evidence on the importance of livestock to livelihoods and the wider economy, that will help inform livestock sector investment choices. The study was structured around three themes:

- The importance of livestock to livelihoods and how this has changed over time
- The state of livestock markets and how they are changing/ evolving
- Future prospects for the livestock economy and how these are expected to change

Tana was contracted in February 2020 to lead the study, that was almost immediately overtaken by the COVID-19 pandemic. Unable to travel to South Sudan in April-May 2020 as planned, the team carried out a literature review, augmented by key informant interviews (KII).² Selected findings from the review are included in this study report. The field work was rescheduled for the autumn. With much of Europe entering a second COVID-19 lockdown, the field work was re-assigned to Premium Agro Consult Ltd (PAC), Tana’s South Sudan partner.

Methodology

The study was primarily qualitative in nature and drew heavily on Participatory Rural Appraisal (PRA) approaches and tools. The author prepared a 3-day PRA training course that was delivered by local, experienced trainers to PAC field staff. The field methodology was piloted on the outskirts of Juba and adapted to local conversational norms.

Following the training, field teams were deployed between 23rd November and 10th December 2020 and spent between 5 and 7 days in each study area. The field work was completed in four areas by mid-December 2020 and in the fifth area by mid-January 2021.

Sample sites were selected using the Famine Early Warning Systems Network (FEWSNET) livelihood zone classification, see Figure 1.³

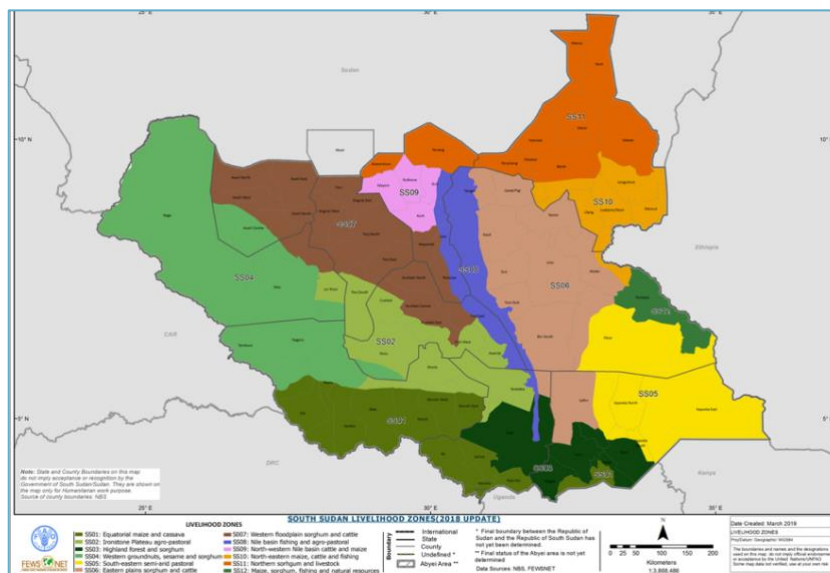


Figure 1: Livelihood zone map of South Sudan

² Cullis et. al. (2020).

³ Famine Early Warning System Network (2018).

While the classification identifies twelve zones, 90 percent of South Sudan’s livestock wealth is concentrated in eight zones among the million or more agro-pastoral and pastoral households,⁴ and a decision was taken to focus the study in the eight zones. Available resources, however, required that only five sites were sampled - four agro-pastoral and one pastoral zone. The agro-pastoral zones were divided between predominantly Dinka and Nuer speaking communities, with the Toposa pastoral zone making the fifth. Relevant state and local authorities gave authorisation for the fieldwork and the purposive sample of four sites within 30 km radius of key towns. The selected livelihood zones, towns and sample sites, together with the dominant ethnic group in the sample sites, are presented in Table 1. Field work in each area was carried out by PAC field staff operating in the local language as their mother tongue.

Table 1: Sample livelihood zones, towns and sites

Livelihood zone	Towns	Sites	Ethnic group	Study zone reference ⁵
SS02 - Ironstone plateau (agro-pastoral)	Rumbek Wulu	Deng-nhial and Maliath Malou-jeec and Abin Ajok	Dinka	Dinka ironstone plateau
SS05 - South-eastern semi-arid (pastoral)	Kapoeta Rwoto	Nanaknak and Locheler Chumakori and Najie	Toposa	Toposa pastoral
SS07 - North-western floodplain sorghum and cattle (agro-pastoral)	Aweil Malualkon	Nong Thok and Nyileul Majak and Tit-chuar	Dinka	Dinka NW floodplain
SS09 - North-western Nile basin cattle and maize (agro-pastoral)	Bentiu Ding-ding	Mankuai and Litde Delmat Pakur and Juai	Nuer	Nuer Nile NW
SS10 North-eastern maize, cattle and fishing (agro-pastoral)	Mandeng Jikmir	Mandeng and Loul Jikmir and Nornyariw	Nuer	Nuer NE

The PRA tools that were used to address each of the three study themes are presented in Table 2.

⁴ Food and Agriculture Organisation of the United Nations (2006).

⁵ The sample livelihood zones included four agro-pastoral zones - Dinka ironstone plateau, Dinka NW floodplain, Nuer Nile NW and Nuer NE and one pastoral zone - Toposa. Agro-pastoral zones are characterised by mixed livestock keeping, seasonal field crop and vegetable cultivation and fishing (in areas with rivers and swamps). In contrast, pastoral groups in South Sudan’s semi-arid south-east are entirely dependent on their livestock as rainfall is unable to support seasonal cropping at scale.

Table 2: Study themes and PRA tools

Study themes	PRA tools and subject areas for information collection
The importance of livestock to livelihoods and how this has changed over time	<ul style="list-style-type: none"> - <i>Wealth ranking</i> - <i>Proportional piling</i>⁶ - seasonal household food consumption - <i>'Before' and 'after' scoring</i> - ranking bride price payment amounts - <i>Resource mapping</i> - <i>Key informant interviews</i> - for triangulation and verification
The state of livestock markets and how they are changing/ evolving	<ul style="list-style-type: none"> - <i>Proportional piling</i> - sources of household income - <i>'Before' and 'after' scoring</i> - livestock products and livestock sales - <i>Key informant interviews</i> - for triangulation and verification
Future prospects for the livestock economy and how these are expected to change	<ul style="list-style-type: none"> - <i>'Before' and 'after' scoring and ranking</i> - drivers of wealth status change - <i>Proportional piling</i> - cattle value analysis - <i>Key informant interviews</i> - for triangulation and verification

In each of the livelihood zones, field teams interviewed four groups each of: a) around 20 women, b) 20 men, c) 8 elders and d) 8 youth, at each of four sites, resulting in a total of 16 focus group discussion per livelihood zone. At each site, PAC field teams contacted community leaders to mobilise willing participants (women, men, elders and youth) for the focus groups. The number of participants in each livelihood zone was roughly similar. While community leaders selected participants from across different wealth categories, the PAC field teams confirm that the 'very poor' wealth category was under-represented.⁷

Once assembled, the PAC team introduced themselves, the participants introduced themselves and the purpose of the study and the support of the UK Government funded EARF project were explained. The participants were also informed that the findings would be shared with Government and development organisations, with a view to informing future livestock sector investment. The participants were however reassured that all contributions would be treated in confidence and participants' names were not recorded.

The men and women focus groups started with a wealth-ranking exercise, which required the participants to translate four broad wealth ranks: 'wealthy,' 'average,' 'poor,' and 'very poor.' The translations of these terms are presented in Table 3.

⁶ Using 100 locally available small pebbles – seeds and beans can also be used – to assess the relationship between different variables or indicators. The biggest portion of the pebbles are assigned to the most important and the smallest portion to the least important. The scores can be interpreted as percentages.

⁷ It is notoriously difficult to engage 'very poor' households in community dialogue and further pro-poor research is required. to identify pro-poor livelihood interventions.

Table 3: Translation of generic wealth categories by different language groups

Wealth category	Dinka ironstone plateau	Toposa pastoral	Dinka NW floodplain	Nuer Nile NW	Nuer NE
'Wealthy'	Raan ci bany	Nyabarit	Ajak beer	Riang	Riang
'Average'	Raan ci rot leeu	Nyabarit lodochi	Ajak chiel	Riang mi par	Riang mi par
'Poor'	Angang	Nyekulokit	Abuur riel	Can and	Can and
'Very poor'	Angang parcurcel	Nyekulokit lodochi	Lang Aguar	Can mi diit	Can mi diit

Using these translations, participants provided characterisations of each wealth category,⁸ and apportioned households in the community to the different wealth categories, to better understand local wealth distribution.⁹ These same wealth categories were subsequently used for 'before' and 'after' exercises including trends in bride price payment amounts, household seasonal food consumption and household income. Still fresh in the minds of the majority of participants, the period prior to the start of the Civil War was used as the 'before' reference point, with present time used as the 'after' reference point.

Significant use was made of the PRA proportional piling and scoring tool to assess the relationship between different variables. For proportional piling, the focus group participants were invited to distribute 100 stones across different variables, with the highest number of stones reflecting its significance and the smallest number of stones the least important variable. Routine use was also made of resource maps to facilitate discussions on changes in migrations. Examples are presented in Annex 1.



Figure 2: A women's focus group discussion using PRA tools

⁸ It is recognised that the information collected through such qualitative exercises does not equate with information collected through more formal and quantitative surveys. However, wealth ranking is a tried and tested participatory exercise that produces valuable information and insights into local perceptions of wealth and, perhaps more importantly, wealth distribution.

⁹ With more time, field teams would have apportioned each household to a different wealth category over a period of days by walking house-to-house with informants through the community. Instead, the participants were asked to estimate the number of households in each wealth category.

Ahead of the field work, the author had shared recording templates for the different PRA exercises (see Annex 2 and 3). These templates were completed in English by the PAC transcribers. The transcribers also documented individual participant comments made during the PRA exercises that it was felt offered additional useful insights into the issue being discussed. These comments are presented in text boxes throughout the report.

The PAC field teams also used standard prepared semi-structured questionnaires (see Annex 3) to interview Key Informants (KI) with the purpose of triangulating and verifying the focus group findings. KIs included a random cross-section of available local administration, Ministry of Agriculture and Forestry, and private sector – livestock traders and butchers – representatives. Again, the PAC field teams confirmed that the interviews were confidential and hence names were not recorded.

Completed templates were transported to Juba by the PAC team leaders and the data transposed to electronic copies. Completed livelihood zone-based electronic files were shared with the author for analysis. The report's recommendations draw heavily on participant and KI comments and observations.

The PAC field teams interviewed 450 women, 410 men, 85 elders, 130 youth, and 45 KIs (mostly male), in total more than 1,100 people.

2 FIELD STUDY FINDINGS

The field study findings are presented below according to the study themes:

- The importance of livestock to livelihoods and how this has changed over time
- The state of livestock markets and how they are changing/ evolving
- Future prospects for the livestock economy and how these are expected to change

2.1 THE IMPORTANCE OF LIVESTOCK TO LIVELIHOODS AND HOW THIS HAS CHANGED OVER TIME

A short history of South Sudan

The literature review and KIs provided contextual information on the impact of the Civil War, inter and intra-ethnic conflict and community level conflicts and cattle raiding on lives and livelihoods and the national economy. Key dates and information are provided in the historical timeline here:

Historical timeline

1820	The Ottoman-Egyptian conquest of Sudan and the start of the slave trade. 2 million southerners taken as slaves during the 19 th century
1895-1955	Disproportional under-development in the South under the Anglo-Egyptian Condominium period
1956	Independence for Sudan and launch of the South's independence movement following the 1955 southern army's 'Anyanya' or 'snake venom' mutiny. The struggle continued to the 1972 signing of the Addis Ababa Peace Agreement
1958	The Khartoum government reneged on a federal policy for increased autonomy to the South ¹⁰
1983	Colonel John Garang de-Mabior mutiny. Launch of Sudan People's Liberation Army (SPLA/M). The country's infrastructure completely destroyed
1989	Omar al-Bashir coup results in increased repression in the South
2003	Ceasefire
2005	Comprehensive Peace Agreement (CPA) signed. ¹¹ Ended 50 years of war that claimed 2.5 million lives – most from hunger and disease – and resulted in the displacement of an estimated 4.5 million ¹² Significant international investment followed ¹³ and oil revenues were divided between the Sudan and South Sudan. By the end of the year, South Sudan received an estimated US\$1 billion
2011	Independence for South Sudan. South Sudan was welcomed as the 193 rd Member State to the United Nations on 14 th July 2011 ¹⁴
2013	Post-Independence grievances spilled over into a bloody civil war.
2011-2014	There were an estimated 1,600 reported conflicts, with 60 percent in Greater Upper Nile.

¹⁰ Government of South Sudan (2011).

¹¹ Ibid.

¹² Ministry of Humanitarian Affairs and Disaster Management. (2010) Cited in Maxwell et. al. (2012).

¹³ United Nations Development Programme (2012).

¹⁴ World Bank (2013).

- Jonglei State reported the highest number with more than 20 percent of the total.¹⁵ Some 2.5 million people in extreme food insecurity
- 2015 Opposing forces entered a peace agreement in August. Estimated cost of the war more than US\$25billion in lost Gross Domestic Product (GDP)¹⁶
- 2016 Cattle raiding including by Government and opposition-controlled militias affected wealthier households. Some previously 'wealthy' and 'average' wealth category households fell into poorer wealth category.¹⁷ The peace agreement collapsed in July.
- 2017 Inflation. The parallel market exchange rate depreciated from US\$1 = 4.4 South Sudanese Pounds (SSP) before the conflict in late 2013, to US\$ 1 = 160 SSP in 2017, the result of the Civil War, decline in oil production and exports and over-printing of SSP¹⁸
- Fighting in cropping areas resulted in a food production collapse and famine was declared in some areas.¹⁹ At times, breakaway Dinka groups fought the Dinka-dominated SPLA, while Nuer breakaway groups fought the Nuer-dominated SPLA-IO²⁰
- Cessation of conflict agreement signed in December with support from IGAD.²¹ Livestock valued at US\$2.7 billion were raided and either redistributed within or sold out from South Sudan during the Civil War. Looting and the destruction of infrastructure, and associated corruption and capital flight undermined and reversed the previous development gains²²
- Progress towards a negotiated peace agreement, compounded by the complexity of interests of South Sudan's more than 100 armed militias²³
- 2018 In September, opposing forces entered a second peace agreement. The Civil War claimed and estimated 400,000 lives and displaced 4 million people: 1.8m IDPs and 2.2m in refugee camps in Sudan, Ethiopia, Kenya and Uganda²⁴
- 2019 Opposing forces met in Juba to address unification of security forces, political consensus on the number of states and boundaries, and finalizing leadership arrangements for the transitional government.²⁵ Inflation continued to drive black market foreign exchange rates to US\$1 = 290 SSP (Central Bank official rate US\$ 1 = 158 SSP)
- 2020: A transitional Unity Government formed in February which agreed a return to 10 states and 3 administrative areas. Despite progress, militarised cattle raiding claimed the lives of an estimated 2,500 during the year²⁶
- 2021 Market exchange rate US\$ 1 = 600 SSP vs official rate of 178 SSP

¹⁵ Gebreyes et.al. (2016).

¹⁶ Frontier Economics (2015)

¹⁷ Catley (2018).

¹⁸ Community Empowerment for Progress Organisation. (2020)

¹⁹ Government of South Sudan (2017).

²⁰ Vinograd (2017).

²¹ African Development Bank Group (2018).

²² Babikir et. al. (2019).

²³ Gebreyes et. al. (2016)

²⁴ The civil war started with fighting between Dinka and Nuer members of the Presidential guard

²⁵ United Nations (2019).

²⁶ Community Empowerment for Progress Organisation. (2020)

Wealth categories

Information on wealth categories was collated and median typologies for the four different wealth categories are presented for each of the livelihood zones in Table 4. While there are minor differences, all focus groups made reference to livestock holdings, family composition and, in the four agro-pastoral zones, land holdings. Understandably, land holdings were not referenced in the Toposa pastoral community.

Table 4: Median household wealth typologies (n=40 groups)

Wealth category	Dinka ironstone plateau	Toposa pastoral ²⁷	Dinka NW floodplain	Nuer NW Nile	Nuer NE
'Wealthy'	Cattle: 500 <i>Luak</i> (traditional cow barn) Sheep/ goats: 1,000 Farmland: 18 feddan Wives: 20 Children: many	Cattle: many Sheep/goats: many Wives: many Children: plenty High income Food secure Tukul: plenty Dogs/ cats: plenty	Cattle: 800 Sheep/ goats: 450 Equines: 30 Farmland: 150 feddan Tractor: 1 Workers: 10 Wives: 20 Children: 40 Children in school: 25 Tukul: 7	Cattle: 300 Sheep/goats: 300 Farmland: 10 feddan Wives: 10 Children: 40 Children in school: 5 Adequate cash	Cattle: 240 Sheep and goats: 240 Chickens: 80 Farmland: 5 feddan Food secure: 8 months Income: 100k SSP/m Wives: 6 Children: 23 Children schooled: 5 Tukul: 10 Tin roofed house: 3
'Average'	Cattle: 400 Sheep/ goats: 700 Chickens: many Farmland: 8 feddan Wives: 15 Tukul: 3	Cattle: many Sheep/goats: many Wives: many Children: reasonable number Food secure Dogs/cats: a few each	Cattle: 200 Sheep/ goats: 150 Equines: 10 Chickens: 20 Farmland: 30 feddan Wives: 5 Children: 12 Children in school: 15 Tukul: 4 Dog: 2	Cattle: 120 Sheep/goats: 120 Farmland: 4 feddan Wives: 5 Children: 16 Children in school: 2 Some cash	Cattle: 125 Sheep and goats: 150 Chickens: 80 Farmland: 3 feddan Food secure: 4 months Income 50,000 SSP/m Wives: 3 Children: 10 Children in school: 3 Tukul: 5
'Poor'	Cattle: 2 Sheep/ goats: 8 Chickens: many Farmland: 2 feddan Wives: 1 Children: 2	Sheep/goats: some Chickens: some Wives: 2 Children: a few Tukuls/huts: 2 Dogs/cats: 2 each	Cattle: 5 Sheep and goats: 8 Equines: 1 Chickens: 10 Farmland: 3.5 feddan Wives: 2 Children: 6 Children in school: 2 Tukul: 2	Cattle: 20 Sheep/ goats: 20 Farmland: 2 feddan Wives: 1 Children: 5 Many chickens	Cattle: 40 Sheep and goats: 50 Chickens: 100 Farmland: 2 feddan Food secure: 2 months Income: 5,000 SSP/m Wives: 2 Children: 6 Children in school: 1 Tukul: 2
'Very poor'	Virtually nothing	Cattle: 5 Sheep/ goats: 10 Chickens: some Farmland: little Wife: 1 Children: 5 Tukul: 2 Dog/cat: 1 each	Sheep/goats: 3 Wives: 1 Children: 3 Children in school: 0 Tukul: 1	Cattle: 4 Sheep/goats: 8 Wives: 1 (some no wife) Children: 2 Chickens	Cattle: 6 Sheep and goats: 35 Chickens: 75 Farmland: 1 feddan Food secure: 2 months Income: no regular Wives: 1 Children: 3 Tukul: 1

²⁷ The Toposa pastoralists interviewed were reluctant to provide livestock numbers and chose to speak instead in general terms.

The wealth descriptions provide insights into local perceptions of wealth inequality, with median cattle numbers varying from the 'wealthy' category – from 240 to 800 – to the 'very poor' households – 'virtually nothing' to six. Comments collected during the exercise provide additional insights into perceptions on wealth and wealth inequality and are presented separately for Toposa pastoralists (see Text box 1) and Dinka and Nuer agro-pastoralists (see Text box 2). Comments that relate to any form of insecurity are *italicised* for effect as the report will return to this topic again.

Text Box 1: Selected pastoralist participant comments made during wealth ranking

Toposa pastoral

- Historically, poor people did not speak in meetings. Women did not show their teeth in public. Women now speak in meetings
- Poor households are supported by wealthy relatives through livestock loans/ gifts. People without livestock migrate or take their own lives
- Some poor people who left here years ago are now businessmen and are returned to buy cattle as traders
- The number of cattle is the only real measure of wealth
- You will only find dogs and cats where there is plenty of food

Text Box 2: Selected agro-pastoral participant comments made during wealth ranking

Dinka ironstone plateau

- Poor households can't feed their children. This is why they seek loans from relatives and friends, but they don't pay them back
- A man from a very poor household may be assisted by a relative to marry, but his wife will leave him as he has nothing to keep her

Dinka NW floodplain

- *The war between Sudan and the SPLA caused great poverty.* Arabs came and raided our animals – cows, goats and sheep. Rich people became poor people
- A wealthy person living in the community is like a piece of salt. He will help the very poor people when the time of food shortages comes
- Wealthy people send their children to school and they have to pay school fees. If they lose some of their animals to disease or raiding, it becomes hard for them. They can become poorer very quickly
- A man should not marry too many wives, or he will become poor
- Poor people have too many children and they can't feed them properly and many die

Nuer NW Nile

- A wealthy person used always to slaughter a goat when having visitors at home. Now not even this is always true
- Many people have become poor since the *Civil War*. Some have not a single cow. The *war* put a lot of weapons in people's hands. There are many widows
- Those who were rich in 2010 are now supported by the children who have work
- A wealthy person can have a village named after him
- We will only be wealthy again when the *government protects* our migrations

Nuer NE

- All wealth categories are getting poorer – as they have lost their cattle to flood, *cattle raiding* and continuous displacement and disease. The loss of livestock has resulted in a reduction in available milk
- We used to cultivate but we haven't because of the floods in recent years – we are getting poorer very quickly and wealthy families are becoming like other people
- Some wealthy people who had thousands of cattle and have lost so many to disease and the floods and to *raids*, that they have committed suicide
- The people have lost harvests and livestock to the floods in recent years
- The very poor have become beggars in the marketplaces and restaurants to support themselves because they have lost most of their livestock
- Women from once wealthy families now are opening restaurants/ business and baking bread, even making tea to sell
- Some households sell chickens to buy goats and then sell goats to buy cattle – if you look after chickens well, you can do very well

Women's focus groups also categorised livestock holdings as 'adequate' or 'inadequate' to meet household food needs. For each zone, only livestock holdings in the 'wealthy' and 'average' categories were ranked as 'adequate'. These findings confirm research in Karamoja, Uganda that estimates agro-pastoralists and pastoralists require around three and four tropical livelihood units (TLU)/adult equivalent, respectively. These TLU numbers equate with four and five cattle or thirty and forty sheep/ goats respectively.²⁸ Households with fewer than 2 TLU/adult equivalent are unable to meet their food needs and hence are required to sell core breeding animals to meet recurrent household needs. Such households are unable therefore to grow their herds and become caught in poverty spiral. To compensate, these households employ other strategies – reducing household size by sending members to live and work for wealthier relatives or IDP camps – increasing efforts on agricultural cropping, registering for food assistance, engaging in casual labour and other income generating and livelihood diversification activities, and marrying their daughters for cattle.

The women participants also made reference to the importance of social networks for: milk, food, cash and livestock gifts and loans; for labour – seasonal farm work and livestock herding; and livestock gifts for bride price payments. Social networks include relatives by both blood and marriage and 'stock-friends' – individuals who have exchanged livestock gifts. While social networks play a central and strategic role in agro-pastoral and pastoral livelihoods,²⁹ many participants expressed the view that social networks are weaker than they were in the pre-Civil War period. Importantly, previous expansive networks that transcended ethnic boundaries have been truncated and replaced by intra-ethnic and diaspora-based networks.

The men's focus groups in each zone estimated numbers of households in each of the different wealth categories and the scorings are presented in Table 5. For the 'wealthy' households, estimates ranged from 3 percent to 11 percent in the agro-pastoral areas but increased to 40 percent in the pastoral zone. In contrast, estimates for 'very poor' and 'poor' households ranged from 60 percent to 70 percent in the agro-pastoral areas ranged from 60 to 70 percent, but fell to 34 percent in the pastoral zone. These findings appear to confirm the Integrated Food Security Phase Classification (IPC) update from January 2021 that indicates around 7 million people or slightly more than 60 percent of the population of South Sudan are expected to face severe acute food insecurity in 2021.³⁰

²⁸ Catley et. al. (2018).

²⁹ Catley (2018).

³⁰ United Nations Children's Fund. (2021).

The significantly smaller number of poorer households and higher number of ‘wealthy’ households in the pastoral zone reflects pastoralists’ dependence on livestock and also higher levels of vulnerability to smaller livestock numbers. Households in South Sudan’s pastoral areas with very small numbers of livestock typically ‘crash out’ from the production system and move to towns or mining centres.^{31 32} In contrast, agro-pastoral households with small numbers of livestock are able to continue to live in their home areas by complement household diets and income with agricultural produce – field crops, vegetables – and wild foods collected from the rangeland, food aid and the support of their social networks.

Table 5: Average proportions of household in different wealth categories (n=20 men's groups)

Wealth category	Dinka ironstone plateau	Toposa pastoral	Dinka NW floodplain	Nuer NW Nile	Nuer NE
‘Wealthy’	11	40	15	3	4
‘Average’	28	26	18	37	26
‘Poor’	44	21	31	28	30
‘Very poor’	17	13	36	32	40
Total	100	100	100	100	100

Bride price

The men’s focus groups also provided information on trends in bride price payment amounts,³³ and associated cattle numbers³⁴ are presented in Table 8. Highlighted cells denote increasing cattle payment numbers, notably Dinka NW floodplain, Nuer NW Nile livelihood zones and the ‘poor’ and ‘very poor’ wealth categories in the Dinka ironstone plateau zone. The absence of highlights denotes stable or falling cattle numbers, including the Toposa pastoral and Nuer NE zones. Of interest, a similar exercise carried out during the Civil War reported universal declining bride price payments.³⁵

Table 6: Trends in median bride price cattle numbers from the pre-Civil War era to the present day (n=20 men's groups)

Wealth category	Dinka ironstone plateau	Toposa pastoral	Dinka NW floodplain	Nuer NW Nile	Nuer NE
‘Wealthy’	200 to 50	90 to 70	45 to 150	30 to 130	40 to 30
‘Average’	70 to 25	70 to 48	20 to 40	25 to 60	25 to 20
‘Poor’	15 to 55	45 to 30	6 to 25	12 to 20	15 to 10
‘Very poor’	2 to 15	10 to 5	0 to 0	12 to 20	10 to 6

³¹ Ibid.

³² There are an estimated 600,000 people are involved in artisanal gold mining at some level in Equatoria. Cordaid. (2016).

³³ As referenced in the methodology section, trends in this study refer to changes from the pre-Civil War to the current time.

³⁴ While sheep and goats are also included in bride price payments, cattle are the most significant animal type for such payments in South Sudan.

³⁵ Gebreyes et. al. (2016)

Comments and observations made during the discussions on bride price payment amounts are presented in text boxes below: Text box 3 related to increasing payments and Text Box 4 related to falling payments. Comments relating to insecurity and raiding are again *italicised*.

Text Box 3: Selected participant comments - increasing bride price cattle payments

Dinka ironstone plateau

- The poor are now required to pay higher cattle payments as many are the active *raiders*. Some have even become rich in one night when a big *raid* is successful

Dinka NW floodplain

- Girls from rich families marry only men from wealthy families. Girls from poor families marry poor men
- Many marriages make a man poor if he has bad fortune - *raiding* or livestock disease
- Rich households get even wealthier when their daughters marry. Their sons only marry from rich households as they don't want poor households being a burden on them

Nuer NW Nile

- A poor person needs help to marry, but he will only marry a girl from a poor family
- When a family is *raided* and becomes very poor, it is very difficult for everyone. Very young girls are forced to marry so the family can restock
- When girls go to school it is good but if the school closes (COVID-19) and she stays in town and becomes pregnant, the family gets a poor bride price
- Young men *raid* all the time for cattle for dowries. The price is going up in many areas – so young men *raid* more
- Some rich men should be stopped from marrying as they are supporting *raiding* to get cattle for dowries

Text Box 4: Selected participant comments - decreasing bride price cattle payments

Toposa pastoral

- The wealthy can be identified through the use of spear/ ivory bangles on their arms and legs. When they speak, they make sure everyone listens – they wave their bangles! The poor are forced to sit silently. Girls want to marry those rich men or their sons

Nuer NE

- There has been a very serious reduction in cattle bride prices across all wealth categories as everyone is getting poorer
- The elders have agreed to reduce bride price payments in the local courts
- Before the Civil War we could afford to pay for our wives, as we had many cattle. But now marriage is very expensive as we have fewer cattle
- Due to the floods that have killed many cattle, a poor man can be given a girl with 5 cows and the remainder can be paid when the *peace* come.

Increasing bride price cattle payment numbers might be expected to reflect stable and expanding herds, with the corollary that falling payment amounts reflects smaller and declining herd size. However, as referenced, payment amounts are increasing in the poorer two wealth categories of the Dinka ironstone plateau zone, from 15 to 55 in the 'poor' and 2 to 15 in the 'very poor' wealth category. Reasons offered by the participants included that 'wealthy' households had lost large numbers of livestock during the Civil War and could therefore no longer afford historical high bride price payment amounts. Also, as indicated in Text box 3, participants recognised that young men in the poorer wealth categories are heavily engaged in raiding and,

with increasing cattle numbers at their disposal, are able and required to pay increasing numbers of cattle in particular when marrying girls from wealthier households.

If, as suggested, insecurity and livestock raiding are fuelling bride price cattle payments, increasing numbers of poorer young men will recognise the need to raid if they want to marry, as natural herd growth alone cannot provide them with adequate cattle numbers. As also noted by young men, the sons of 'wealthy' households wear elephant tusk ornaments and carry highly decorated ebony sticks, to distinguish themselves from hired herdsmen and therefore attracting the attention of young women and making it yet more difficult for poorer young men to marry. Raiding however allows poorer young men a route to cattle wealth and to marriage.

Food sources

The impact of shifting wealth and its implications were underlined by discussion with women and seasonal food scores for households of 'average' wealth.³⁶ The findings are presented in Table 7. Cumulative scores for crops scored the highest, followed by fruit and vegetables and subsequently milk, ghee³⁷ and blood. Fish scored highly in the Nuer NE zone.³⁸ Women across all livelihood zones confirmed that diets were more diverse than in the pre-Civil war era, when households owned larger herds and milk was more widely available. Reduced access to milk impacts child nutrition,³⁹ and the seasonal scores for the Dinka NW floodplain and Nuer NE livelihood zones are of particular concern in this regard. These findings appear to confirm the IPC January 2021 update that indicates a further deterioration of child nutrition in 2021 with an estimated 1.4 million children expected to suffer from moderately acute malnutrition (MAM), the highest since 2013, while the number from severe acute malnutrition (SAM) is expected to increase from 290,000 in 2020 to 310,000 children or more.⁴⁰

³⁶ Time constraints prevented separate focus group discussion with women from different wealth category. The findings therefore point only to seasonal dietary differences for 'average' wealth group households.

³⁷ In some communities women are restricted from the sale of ghee as it is saved for consumption by elders.

³⁸ Fish are a particular good source of protein and can be often be accessed relatively safely even in during times of heightened insecurity.

³⁹ Animal milk contributes protein, fat, vitamins, Type I nutrients: vitamin C, B vitamins - riboflavin and B6 and Type II nutrients, including all 8 essential amino acids, and minerals: calcium, zinc, potassium, sulphur and phosphorous. Milk is also a source of fatty acids that facilitate absorption of fat-soluble vitamins and enhance dietary energy density. To meet energy requirements, however, milk requires the addition of carbohydrate-based food. Sadler, et. al. (2009).

⁴⁰ United Nations Children's Fund (2021).

Table 7: Average scores for seasonal food consumption for 'average' wealth households (n-20 women's groups)

Food sources	Dinka ironstone plateau		Toposa pastoral		Dinka NW floodplain		Nuer NW Nile		Nuer NE		Totals	Rank
	Wet season	Dry Season	Wet season	Dry Season	Wet season	Dry season	Wet season	Dry season	Wet season	Dry season		
	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100		
Milk, ghee and blood	26	12	21	19	9	6	32	35	8	12	180	3
Meat and bush meat	8	-	4	6	5	7	21	10	11	11	83	6
Chicken/ eggs	2	9	8	14	-	3	5	25	3	6	75	7
Crops - maize/ sorghum/ groundnuts	34	21	8	12	31	19	16	12	21	20	194	1
Fruit/ vegetables - greens/ tomato/ okra/ egg plant	18	16	14	3	55	34	17	3	21	8	189	2
Wild products - fruits/ vegetables/ honey	8	27	44	46	-	-	-	2	3	4	134	5
Fish/dried fish	4	15	1	-	-	31	9	13	33	39	145	4
Total	100	100	100	100	100	100	100	100	100	100	100	

Table 8: Average seasonal income scores for 'average' wealth category households (n=20 women's groups)

Income sources – sale of ...	Dinka ironstone plateau		Toposa pastoral		Dinka NW floodplain		Nuer NW Nile		Nuer NE		Totals	Rank
	Wet season	Dry Season	Wet season	Dry Season	Wet season	Dry season	Wet season	Dry season	Wet season	Dry season		
	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100	Scores out of 100		
Milk and ghee	10	1	2	3	4	4	36	45	11	5	121	4
Livestock/ meat/ hides and skins/ dung	4	-	25	21	2	4	15	18	8	11	108	6
Chicken/ eggs	4	4	4	12	-	1	7	15	3	14	64	
Crops - maize/ sorghum/ ground nuts/ simsim	24	30	10	8	48	35	20	10	4		189	2
Fruit/ vegetables - greens/ tomato/ okra/ egg plant	32	16	15	10	36	23	13	2	17	1	165	3
Wild products - poles/ firewood/ charcoal/ reeds/ wild fruits-veg/ thatching grass/ honey	20	35	38	40	6	7	4	4	15	28	197	1
Fish/dried fish	2	6	-	-	4	26	5	6	34	33	116	5
Small enterprise	4	8	-	-	-	-	-	-	8	8	28	7
Mining	-	-	6	6	-	-	-	-	-	-	12	8
Total	100	100	100	100	100	100	100	100	100	100	100	

Income sources

Women’s focus groups also scored seasonal income from household sales and the findings are presented in Table 8. The cumulative scores for wild products – poles, firewood, charcoal, reeds, wild fruits and vegetables, thatching grass and honey – scored the highest, followed by crops, fruit and vegetables, and milk and ghee. Again, the sale of fish was important in Nuer NE. Scores also indicated strong seasonal differences in the sale of milk in the Dinka ironstone plateau zone and fruits and vegetables in all livelihood zones. These household income scores from sales offer a useful reminder of the subsistence nature of South Sudan’s rural economy and women’s dependence on wild products for meeting household income needs.

Livestock management

Finally, in this section, contributions and analyses provided by KIs on the main changes in local livestock management practices are presented in Table 9. As above, comments that make reference to insecurity, war and raiding are *italicised* for emphasis.

Table 9: KI observations on changing livestock production systems in South Sudan

Questions	Responses
What are the main changes in livestock management practices?	<p>Dinka ironstone plateau</p> <ul style="list-style-type: none"> - <i>Raiding</i> is forcing increasing numbers of agro-pastoralists into sedentary lifestyles as they can no longer migrate safely. They now keep their cattle near town. The animals and the people are suffering. Pastoralists no longer have access to the dry season wetlands as they used to - Cattle <i>raiding</i> and high bride prices are making former wealthy families poorer, and they are no longer able to herd as they once did - Livestock are lost to disease, drought/floods that limit access to adequate pasture - Households that were poor but have energetic young men are now accumulating wealth through <i>raiding</i>. If you have many <i>well-armed young men</i> in your household, you can become rich and herd as you want
	<p>Toposa pastoral</p> <ul style="list-style-type: none"> - The rains are not consistent, so pastoralists need to migrate even more. Anything that hinders their migration will be regarded as a threat - Changing weather patterns are causing difficulties for livestock keepers and farmers. The rains and the floods cause livestock and crop diseases - There is not enough milk for the children that used to look after the livestock. They now go to schools. As a result, the animals are not as well cared for they used to be - Strong families including poor families, <i>raid</i> and get richer. They can afford <i>guns and ammunition</i> - Some rich people send their children to school. They get jobs including abroad. Their children now send money for the family to buy livestock and <i>guns</i>. The families can then herd well again - There are new toxic weeds that kill animals - <i>obwang-ngilogir</i> or <i>longolekou</i> - The <i>Civil War</i> was a real problem. Climate change will be the next big problem especially if there is too much rain and too much disease
	<p>Dinka NW floodplain</p> <ul style="list-style-type: none"> - The local people have lost access to good grazing and water as more and more people are turning to farming and some are now fencing water points - Livestock disease is a big problem. The Government doesn’t vaccinate as routinely as it should as there are too many NGOs involved in doing the Government’s work. When animals are not vaccinated, they spread disease, and other herders will avoid those areas even if there is good pasture - The vaccination of cattle has transformed cattle keeping as there are fewer losses than in our fathers’ time. However, people now lose livestock to <i>raiding</i>. So, animals cannot be herded just anywhere - In the dry season, herders are still migrating in search of pasture and water as they ever did. But they have to be more <i>careful</i> than they used to be - If aid organisations continue to pour in too much food aid, no one will be farming or keeping livestock as they will be completely dependent on food aid

	<p>Nuer NW Nile</p> <ul style="list-style-type: none"> - Cattle keepers have been migrating for generations. This year they have not as <i>inter-ethnic conflict</i> has cut off their migration routes - In 2019-2020, floods have affected many areas of South Sudan and livestock health has deteriorated and many livestock have been lost, the result of flood related diseases and pests - In 2020, the rain started late, and livestock were emaciated because of the lack of forage as they were confined in a small area because of <i>raiding</i>
	<p>Nuer NE</p> <ul style="list-style-type: none"> - In the last 3 years, livestock grazing land has been badly affected by the flood. Now cows can't see the grasses for grazing and the flood causes very bad livestock diseases - Previously livestock grazed fresh and dry pasture and livestock satisfied one's eyes. Now with floods and conflict the livestock do not satisfy anyone - Things are very different in just 10 years – flooding, insecurity and migrations. Because the animals are not herded as before, many are sick and weak and many die - People fear going to the grazing lands because of the Murle, who abduct children - In the wet season the cows are in water all the time if they can't be moved to safe grazing areas (<i>lalob</i>) or highland areas

The KI interviews confirm the findings of the literature review that livestock production systems in South Sudan are undergoing profound change due to: Civil War, inter and intra-ethnic conflict, customary and 'militarised' cattle raiding and communal violence; extended rains and increased flooding; and market shocks. Projected Gross Domestic Product (GDP) livestock production losses from these combined shocks between 2014 and 2018, ranged from US\$ 1.2 and US\$ 2 billion annually.⁴¹ Such losses continue to the present, although perhaps not at the same scale, as livestock continue to be raided, lost to livestock disease and flooding, sold in distress asset sales, and are herded for their protection and hence denied access to the best available grazing and water. These shocks have immediate knock-on effects to household food consumption and mother and child nutrition.

⁴¹ Gebreyes et. al. (2016).

2.2 THE STATE OF LIVESTOCK MARKETS AND HOW THEY ARE CHANGING/ EVOLVING

A short history of livestock market

The literature review and KIs provided useful background information on the state of livestock markets in South Sudan. The information is presented in a simple historical timeline format here:

Livestock marketing timeline

Traditional	Pastoralists and agro-pastoralists exchanged livestock for cereals with more agrarian neighbours, as a means of ‘trading up’ calories in particular during the dry season when the supply of milk is reduced. Such exchanges typically result in calorific gains for livestock keepers, if the calorific value of equivalent weights of meat and cereals is compared ⁴²
After 1980	Steadily increasing numbers of livestock were presented in South Sudan’s more than 160 livestock markets, ⁴³ primarily in response to meeting household needs – food, other household goods and services – and the progressive integration of rural households into the cash economy In the mid-1980s, South Sudan was a net exporter of agricultural commodities including livestock ⁴⁴
2005-2011	The result of the pre-Independence War, South Sudan’s poor and collapsing infrastructure, and increasing competition from its more commercial neighbours, livestock exports were gradually replaced by imports to meet the increased demand for meat fuelled by increased oil wealth and higher levels of government employment ⁴⁵ Smaller numbers of livestock however continued to be traded into Sudan ⁴⁶
2011	A study of five regional states estimated that livestock keepers sold almost half a million cattle and 2.5 million sheep/goats annually: 175,000 cattle and 1.60 million sheep/goats for slaughter and the balance sold for breeding, social exchange or live animal export ⁴⁷
2013	Agricultural production and livestock marketing were disrupted by the 2013 civil war, escalation of livestock raiding and militarised livestock raiding that severely disrupted seasonal migratory livestock movements and adversely affected livestock nutrition, health and production. Raiding expanded to the theft of livestock en-route to markets. Markets were also looted, and market infrastructure destroyed. Livestock exports collapsed ⁴⁸
2013-2017	As a result of the Civil War, goat-sorghum exchange rates collapsed, where one goat was previously sufficient, after the War, 8-10 goats were required to purchase the same amount ⁴⁹

Livestock products marketing

The women’s focus groups scored sales of livestock products across different wealth categories and the results are presented in Table 10. The scores confirm that sales of milk and ghee are stronger in the two wealth categories while eggs dominate sales in the poorer two wealth categories. Of interest too are the differences in sales

⁴² Swift (1986).

⁴³ Livestock from local markets are trekked and re-sold in regional markets: Kapoeta, Nanga, Napotpot, Narus, Rumbek, Tonj and Yambio and further aggregated and trekked/ transported to the main markets: Wau, Malakal, Yambio, Yei and Juba. Some of the animals are then routed to Sudan (and on to Saudi Arabia), Ethiopia, Kenya and Uganda (and on to Congo). Guevle et. al. (2012)

⁴⁴ African Development Bank Group (2013).

⁴⁵ Despite, paradoxically, South Sudan having the largest number of livestock per capita in Africa.

⁴⁶ Musinga et. al. (2010).

⁴⁷ Ibid.

⁴⁸ Gebreyes et. al. (2016)

⁴⁹ VSF Suisse and VSF Germany. (2017). Cited in Catley, A. (2018).

between agro-pastoral and pastoral women, with the pastoral women itemising a more detailed range of livestock products. This reflects their increased dependence on the livestock.

Table 10: Average scores for annual livestock product sale scores by wealth category (n=20 women's groups)

Wealth category	Dinka ironstone plateau	Toposa pastoral	Dinka NW floodplain	Nuer NW Nile	Nuer NE
'Wealthy'	Milk: 57 Ghee: 30 Eggs: - Meat ⁵⁰ : 5 Hides/skins: 8	Milk: 40 Ghee: 25 Eggs: 9 Meat: 16 Hides/skins: 7 Horns: 3	Milk: 30 Ghee: 20 Meat: 16 Hides/ skins: 2 Cow dung: 32	Milk: 64 Ghee: 6 Eggs: 8 Meat: 13 Hides/ skins: 8 Cow dung: 1	Milk: 27 Ghee: 7 Eggs: 31 Meat: 26 Hides/skins: 9
'Average'	Milk: 61 Ghee: 18 Eggs: - Meat: 8 Hides/skins: 7 Horns: 6	Milk: 47 Ghee: 10 Eggs: 10 Meat: 9 Hides/skins: 15 Horns: 9	Milk: 35 Ghee: 27 Eggs: 5 Meat: 3 Hides/skins: 2 Cow dung: 28	Milk: 64 Ghee: 6 Eggs: 4 Meat: 20 Hides/skins: 4 Cow dung: 2	Milk: 29 Ghee: 8 Eggs: 40 Meat: 23
'Poor'	Milk: 38 Ghee: 2 Eggs: 60	Milk: 23 Ghee: 6 Eggs: 52 Meat: 6 Hides/skins: 2 Horns: 1 Ostrich feather: 10	Milk: 50 Ghee: - Eggs: 50	Milk: 59 Ghee: 3 Eggs: 23 Meat: 14 Hides/skins: 1	Milk: 18 Ghee: 6 Eggs: 60 Meat: 12 Hides/skins: 4
'Very poor'	Nothing	Milk: 0-38 Meat: 0-33 Ghee: 0-19 Horns: 0-6 Eggs: 0-4	Nothing	Milk: 0-2 Eggs: 0-96 Meat: 0-2	Milk: 0-3 Ghee: 0-4 Eggs: 0-72 Meat: 0-12 Hides/ skins: 0-9

The women scores confirm limited activity by women from 'very poor' households, including 'no sales at all'. This is disturbing as the 'very poor' wealth category in South Sudan comprises between 13 and 40 percent of households across the sampled livelihood zones. Traditionally this 'very poor' group could expect to receive milk from wealthier relatives and social networks. Today such gifts are much less common, the result of the geographical separation of cattle camps and homesteads, the decline in milk production and the increased pressure on women to sell any available surplus milk. As a result, 'very poor' households face increased nutritional threats, even in normal years.

A selection of women participant views and comments is presented in Text box 5.

⁵⁰ Sales of meat included bush meat and the sale of meat from the household slaughter of all animal types – cattle, sheep and goats.

Text Box 5: Selected women participant comments - livestock product marketing

Dinka ironstone plateau

- Wealthy women and women of average wealth used to sell milk in the market but now due to *raiding*, the cattle don't supply enough milk for them to sell
- More and more women are selling milk and butter these days, if they have milk to sell

Toposa semi-arid

- A lot of us women now sell milk, ghee and eggs in the market
- Women influence other women to sell more, even when their husband does not agree
- Women look after chickens as they can sell poultry without discussion with their husbands

Dinka NW flood plain

- We also sell cow dung as people use it in their fields, for smearing their houses and for fuel and to burn for smoke that keeps biting flies away
- There was much more milk in local markets in 2010 than there is now. There is little milk anywhere

Nuer NW Nile

- If the government stopped the *raiding*, we would have more animals and milk to sell. Milk would then be cheaper
 - we need better security, roads and markets. Fighting is useless
- Milk is the best food. When there is no grain you can live on milk. You can't live well without milk
- The very poor don't even have milk to sell. They depend on WFP for food handouts
- During the wet season we used to cut pumpkin, okra, and fish then dry them in the sun so that we can use them as food and also sell in the market as income in the dry season, when there is no milk to sell

Nuer NE

- The sale of livestock products has fallen as a result of floods and raiding. There are fewer animals and therefore fewer women are therefore able to sell milk
- Before the war we sold milk in Nasir town which is now deserted
- Before the war the poor sold eggs and skins, but now even the wealthy do. The wealthy also sell milk and meat.
- Before the war hides and skins were given to the poor after slaughter. In this way the poor could get bits of meat that had not been flayed and also hides and skins for sleeping on. Now they are sold by the wealthy for income
- Because there is such scarcity of milk, women work in groups to collect and sell milk on a rota

The women confirmed their preference for the sale of livestock products that can be sourced within their own homesteads. Other comments underlined attitudinal changes, as women confirmed a strong preference for increased future sales, while recognising that continued insecurity imposes real constraints in realisation of such sales.

The KIs provided useful additional insights and analyses on trends in the sale of livestock products and associated prices and a selection is presented in Table 11.

Table 11: Selected KI observations on the sale of livestock products

Questions	Responses
What are the main trends in the sale of livestock products?	<p>Dinka ironstone plateau</p> <ul style="list-style-type: none"> - Only women who live near markets can sell safely as many women have been <i>robbed</i> travelling to markets - There are no women selling livestock products as it is too <i>insecure</i>, and markets have failed - Traditionally women would give surplus milk to neighbours. Even there was then still too much, it was poured on the dung heap. Now women sell milk in markets as they have to secure more money for food
	<p>Toposa pastoral</p> <ul style="list-style-type: none"> - Women are increasingly active in selling livestock products. Rich men will even go with their wives to market. The change came after the <i>Civil War</i>, inflation and collapse in livestock product-cereals terms of trade. This forced women to sell more milk (and men to sell more livestock) to secure the equivalent - Many more women are selling eggs and poultry than they did before the Civil War
	<p>Dinka NW floodplain</p> <ul style="list-style-type: none"> - Many women started selling after 2015 when prices rocketed. Before, they were not permitted by their families. Some NGOs have been training communities on gender roles - People say there was a big change after the <i>Civil War</i>, and it is true. But in 2020 there has been another big change – women are selling far more milk, eggs and even dry meat. They want to be able to buy food to feed their children
	<p>Nuer NW Nile</p> <ul style="list-style-type: none"> - There are many widows following the <i>Civil War</i>. They have little to sell, but are forced to sell what they have - The economic crisis of 2019-2020 has forced people to sell their milk and eggs and anything else that they can sell - The <i>raiding in 2020</i> has forced many to sell milk – which is in short supply – to buy grain to feed families
	<p>Nuer NE</p> <ul style="list-style-type: none"> - It was before the <i>Civil War</i> that women started to sell eggs and milk. Just a few at a time - There was much more milk sold just before and during the early <i>Civil War</i> than there is now
What are the main trends in livestock product prices?	<p>Dinka ironstone plateau</p> <ul style="list-style-type: none"> - Women started to sell livestock products after Independence but more so around 2017 because of soaring prices - Milk prices have tripled since 2015 due to inflation. Despite this there is sometimes little milk in the markets - Prices have increased because of demand. Everyone knows that giving milk to children is good for their health - Women are now selling more milk as they are <i>forced to live in the towns</i>. They don't have access to their fields or to the rangelands and therefore have only small amounts of milk to sell
	<p>Toposa pastoral</p> <ul style="list-style-type: none"> - Milk prices have really increased since 2017. This is because there is less milk. Not all women feel safe taking their goods to market so there isn't enough in the market and prices increase - Some women water their milk to make more money – so not everyone will buy now - Prices of milk have to be high, or women will not be able to buy other things when they have income from milk sales
	<p>Dinka NW floodplain</p> <ul style="list-style-type: none"> - In 2010 prices were reasonable. The Civil War and inflation caused huge increases. 2020 is the worst year of all for high prices. Prices are beyond the local community. For example, 1 big bottle of milk cost 20-30 SSP in 2011 but increased to 100 SSP in 2015 and is 250 SSP now. This is because there is no milk locally as the animals are far away - The price of eggs increased from 2 SSP in 2010 to more than 100 SSP in 2020 - The price of a plate of meat has increased from 10 SSP to more than 350 SSP since 2010
	<p>Nuer NW Nile</p> <ul style="list-style-type: none"> - Milk prices really increased in 2019-2020 and so women are selling in order to be able to buy food for their children - 1 big bottle of milk was 100 SSP in 2011 and now it can be sold for 800 SSP
	<p>Nuer NE</p> <ul style="list-style-type: none"> - Prices have increased hugely in recent years - Before the Civil War 1 cup of milk was sold at 10 SSP. Now the price is 200 SSP - 1 litre used to sell for around 5 SSP. The price has now reached even 300 SSP

The KI interviews confirm profound changes in livestock product sales since the pre-Civil War period. For example, the Civil War and resultant collapse in agricultural production and standard livestock-cereal terms of trade forced distress sales of livestock products (and livestock) and a progressive breakdown in customary milk sale taboos. As a consequence, women are more willing to engage in sales. The KIs also spoke of persistent high inflation over more than a decade and the impact on prices: a seven-fold increase in milk, a 50-fold increase in the price of an egg, and a 35-fold increase in the price of a plate of cooked meat. Reference was also made to on-going insecurity, including in the Dinka ironstone plateau, where insecurity makes it almost impossible for women to take their produce to market safely and where, as a result, the sale of livestock products has fallen.

Livestock sales

The men’s focus groups provided disaggregated information on income from livestock sales by livestock type - cattle, small ruminants and poultry (mainly chickens but also small numbers of duck) - and by wealth category. The scorings are presented in Table 12.

Table 12: Contribution to annual income from sale of different livestock types, by wealth category (n=20 men's groups)

Wealth category	Dinka ironstone plateau	Toposa SE semi-arid pastoral	Dinka NW floodplain	Nuer NW Nile	Nuer NE
‘Wealthy’	Cattle: 33 Sheep/goats: 53 Poultry: 14	Cattle: 39 Sheep/goats: 41 Poultry: 20	Cattle: 77 Sheep/goats: 23	Cattle: 38 Sheep/goats: 60 Poultry: 2	Cattle: 30 Sheep/goats: 70
‘Average’	Cattle: 7 Sheep/ goats: 87 Poultry: 6	Cattle: 33 Sheep/ goats: 50 Poultry: 18	Cattle: 50 Sheep/ goats: 40 Poultry: 10	Cattle: 57 Sheep/ goats: 41 Poultry: 2	Cattle: 22 Sheep/ goats: 72 Poultry: 6
‘Poor’	Cattle: 2 Sheep/goats: 28 Poultry: 70	Cattle: 14 Sheep/goats: 67 Poultry: 19	Cattle: 6 Sheep/goats: 70 Poultry: 24	Cattle: 15 Sheep/goats: 58 Poultry: 27	Cattle: 1 Sheep/goats: 55 Poultry: 44
‘Very poor’	Sheep/goats: 18 Poultry: 62	Cattle: 6 Sheep/goats: 45 Donkeys: 5 Poultry: 44	Nothing	Sheep/goats: 20 Poultry: 80	Cattle: 1 Sheep/goats: 34 Poultry: 65

These scores confirm the routine sale of cattle, sheep/goats and chickens. As with the women’s groups, ‘very poor’ households are not typically involved in livestock sales as ‘they have no livestock to sell’. While Table 12 suggests ‘no sales’ is restricted to households in the Dinka NW floodplain zone, other focus groups confirmed the majority of the sales in the ‘very poor’ wealth category are, with the exception of poultry, gifts from wealthier relatives and others in their social networks. As indicated, poultry dominate household sales in the two poorer wealth categories,⁵¹ giving way to small ruminants and cattle in the wealthier groups.

Participant comments during the group discussions are presented in Text Box 6. They confirm the customary practice that poultry, small ruminants and as required cattle are bartered for grain and other essential household items with their more agricultural neighbours, in times of need. In this way, households are able to secure high calorie cereals and better meet household food needs in lean times. The men were however clear that where possible, households prefer to barter small ruminants as they recognise cattle herds grow more slowly. Thus, the

⁵¹ Poultry sales reflect wealth status. Men in the ‘wealthy’ and ‘average’ wealth category typically sell cattle and sheep and goats, while women control the sale of poultry. In contrast, men in the ‘poor’ and ‘very poor’ wealth category are often involved in the sale of poultry.

routine offtake of productive cattle more quickly compromises herd growth and continued milk production. In addition, cattle ownership in pastoral and agro-pastoral communities is complex, as different household and wider family members have different rights of access and disposal over individual animals. This bundle of rights and obligations therefore requires complex negotiations before cattle can be sold.

It is however again evident from the comments that the Civil War has transformed livestock sales. For agro-pastoralists unable to cultivate their fields and produce their own crops and food, distress livestock sales became the norm. In some areas, the collapse of normal cattle - cereal exchanges fell to such low levels that huge numbers of livestock were marketed to secure food, that livestock holdings collapsed. It will take at least a decade of stable herd growth for cattle numbers to recover and longer if, as can be expected, households are faced with future shocks. In some areas, the complete failure of markets and associated purchase opportunities triggered extreme food insecurity and even famine in some localised areas.⁵²

Text Box 6: Selected men participant comments - livestock sales

Dinka ironstone plateau

- Many years ago, poor families could only sell sheep/goats or just chickens. Now you can see a poor man selling cattle in a distant market. Some of these cattle have been *raided*

Toposa SE semi-arid

- In 2010 we sold our livestock well. Then what they call the 'dollar' arrived and sales have changed because prices are inflated for everything
- Marketing has changed completely as there are many traders/ trekkers who buy our animals and take to Juba

Dinka NW floodplain

- The economy is causing many people to sell cattle - I recently saw a family selling 5 cattle in one day to buy food
- In 2010 we sold our livestock well and were able to buy many things. Now we sell livestock to buy food
- We used to be able to sell our animals on the road. Now we have to sell in markets and pay a tax. Animals can be *stolen* on the way to market these days
- The linking to the dollar has caused huge problem and forced prices up and up
- Trekkers may take 10 days taking cattle to Sudan. Some of the animals they take may have been *raided*

Nuer NW Nile

- In 2010 the prices were low and there was little *raiding*. Now the economy is poor and *raiding* has affected the livestock markets. Cattle can be stolen as you go to market

Nuer NE

- Goats and cattle were sold in large number before the *war* because there was pasture, water and vaccinations
- In 2010 prices were not as high as they are now, and money was having real value. Money has no value today at all, so it is impossible to buy a cow for a poor person
- For all wealth categories, the main change is that they no longer sell cattle as they used to – this is because they are fearful that if they do and the floods and disease come that they will eventually have no cattle. They now sell sheep and goats and chickens. The change is caused by flood and disease
- Cattle are sold to meet our food needs, to pay for medical fees and also to pay for school fees. Cattle are our bank

Finally, in this sub-section, the KIs provided additional useful comments and analyses on livestock marketing and selected observations are presented in Table 13.

⁵² Devi (2017).

Table 13: KI observations on livestock marketing

Questions	Responses
How far do livestock keepers trek their animals to markets?	<p>Dinka ironstone plateau</p> <ul style="list-style-type: none"> - Cattle are trekked by local traders for 3-4 days to market when it is safe - Up to 7 days - Sheep and goats are trekked for 1-2 days to market - Agro-pastoralists may trek their livestock up to 2 days to Rumbek market.
	<p>Toposa SE semi-arid pastoral</p> <ul style="list-style-type: none"> - Herders can trek their cattle for 4-5 days - Some local trader trek their animals to the border markets in Ethiopia - Pastoralists will walk cattle up to 75kms to markets but small ruminants only around 15kms
	<p>Dinka NW floodplain</p> <ul style="list-style-type: none"> - The distance varies - some travel 5 hours while others travel for 7 hours or more - To reach Awiel market will take 5-7 days, while it takes 30 days to trek cattle to Juba - It can take 2 months to drive cattle to Juba and 10 days to reach Sudan. Traders travel very far to market their livestock - Herders will walk for 8 hours or even 2 days to sell their cattle in markets to a market - It takes 10 days to trek cattle to Sudan
	<p>Nuer NW Nile</p> <ul style="list-style-type: none"> - Many people will walk their livestock 7-8 hours to market - Some twill travel for up to 5 days or more from remote areas
	<p>Nuer NE</p> <ul style="list-style-type: none"> - People will walk very far to a good markets - Local traders will trek cattle 7 days to bigger markets - Many herders will walk their livestock 7-8 hours to market - People will trek sheep-goats for 4-7 hours to a small local market - Traders will walk cattle 21 days to Ethiopia
What are the main trends in livestock sales?	<p>Dinka ironstone plateau</p> <ul style="list-style-type: none"> - People started to sell cattle around Independence. A wealthy herder <i>sold half of his cattle</i> (a more safe investment) and bought a 2-storey building in town - People routinely sell cattle to pay school fees for the children in Yei and Uganda. They hope their children will get jobs - Women were given small ruminants by an NGO. These were later sold in large numbers in the market
	<p>Toposa SE semi-arid pastoral</p> <ul style="list-style-type: none"> - Since the famine, many livestock have been sold as the prices were poor. More continue to be sold today as some are <i>fearful, they will be raided</i> and others that their cattle are getting thin as they can't graze freely - When some individuals start to sell, others will quickly follow. In other cases, NGOs have been the encouragers – some people listen to them. - The markets around here are quiet. Sales have fallen from 300-500 cattle each day to 50-100. This is because traders go to the kraals and buy at low prices and avoid market taxes.
	<p>Dinka NW floodplain</p> <ul style="list-style-type: none"> - Many livestock were sold in 2015 and again in 2019-2020. The reasons were floods in 2015. In 2019-2020 there was a drought and then floods. The floods destroyed crops. Both drought and floods force people to sell livestock. Prices were also good - In 2016 <i>fighting</i> in Juba closed the markets and there were no livestock sales in this area
	<p>Nuer NW Nile</p> <ul style="list-style-type: none"> - There have been major changes since the <i>Civil War</i> and also since the increase in cattle <i>raiding</i> - Many <i>fields are now abandoned</i>, so people have to rely on the sale of livestock - <i>Insecurity</i> in recent times is changing the face of livestock keeping and marketing

	<p>Nuer NE</p> <ul style="list-style-type: none"> - Before the <i>war</i> there were lots of animals sold here. They were healthy. Today there are fewer as people have fewer animals to sell - In 2011 there were between 100-300 bulls in the local market each day. There are far fewer today - People are forced to sell more animals to feed their families as the floods have stopped people farming - There was a good trade to Ethiopia around 2014
What are the main trends in livestock prices?	<p>Dinka ironstone plateau</p> <ul style="list-style-type: none"> - There are big changes in the prices of basic goods, even livestock medicines. Prices have had to increase - <i>Raiding</i> has stopped people bringing animals to market and prices have gone very high - The 'lost boys' send remittances to buy cattle to marry and prices have increased
	<p>Toposa SE semi-arid pastoral</p> <ul style="list-style-type: none"> - The change is because of the devaluation of the local currency. So, all prices have increased not just livestock - Prices are more volatile than in the past. You can buy and sell a week later and make good money at times - 2011 was a good year for livestock sales. Inflation has made marketing more difficult for livestock keepers. Things have been made even worse by <i>conflict</i> – as people sell their livestock in some areas or are raided
	<p>Dinka NW floodplain</p> <ul style="list-style-type: none"> - There have been big price increases: large bulls sold in 2010 from 5 to 12,000 SSP, now 150-200,000 SSP. The price of small bulls also up from 800-1,000 SSP to between 30,000-110,000 SSP in the same period <p>Prices have increased because of the devaluation of the currency</p>
	<p>Nuer NW Nile</p> <ul style="list-style-type: none"> - SSP are pegged to the US dollar. So, prices vary with the dollar and are high since the devaluation - Prices have been very high in 2019-2020 - Livestock prices are controlled by foreigners who buy with dollars and sell elsewhere for high profits
	<p>Nuer NE</p> <ul style="list-style-type: none"> - Prices were low in 2010 as there were more animals. Today as there are fewer cattle the prices are high - Prices have increased from 500 SSP to 300,000 SSP for a bull, and yet the traders are still buying - Prices have increased for a small bull from 1,500 SSP - 200,000 SSP and more, if sold to Ethiopia. Local prices are 50,000 - 100,000 SSP but few people can buy due to depreciation of local currency - On the Ethiopian border livestock are sold in birr

The KIs provided useful insights into the importance and challenges associated with livestock marketing. For example, they confirm that agro-pastoralists and pastoralists trek their livestock for many hours and indeed several days to reach local, primary markets. Some, presumably in small armed groups will trek livestock further to reach a secondary market, where they can secure better prices. Typically, at this point, local traders take over and trek long distances to terminal markets – to Juba and to neighbouring Ethiopia and Sudan.

The KIs also confirmed profound changes in livestock marketing as a result of the Civil War and recurrent crises – insecurity, flood, drought, inflation and market collapse. Distress livestock sales to meet household needs are, it seems, routine in South Sudan and during times of lower livestock - cereals terms of trade, herders are forced to sell more animals than they would like, in order to meet household needs.

Finally, the KIs confirmed the impact of South Sudan's inflationary pressures that have driven livestock prices since the Civil War. For example, the sale price of a bulls has increased from around 500 to 200,000 SSP and above or an increase of 40,000 percent. The Civil War and resultant insecurity have also at times forced the closure of

markets as traders have diverted business to more secure markets. Such market failure inevitably undermines wider market integration and the flow of livestock to terminal markets. As markets are also a place where friends meet and social networks are refreshed, the closure of markets can also have profound and negative knock-on effects on community relations.

2.3 FUTURE PROSPECTS FOR THE LIVESTOCK ECONOMY AND HOW THESE ARE EXPECTED TO CHANGE

Drivers of change

The men's groups scored and ranked causal factors that are driving increased poverty levels and the results are presented in Table 14. Scores above 20 are highlighted. In ascending order, the aggregated scores are: the economy - 56, floods and poor roads (access issues) - 70, livestock disease - 125, and insecurity - 206, which is significantly higher than all the other totals.

Table 14: Average causal factors driving changes in wealth status scores 2010-2020 (n=20 men's groups)

Causal factor by rank	Dinka ironstone plateau	Toposa SE semi-arid pastoral	Dinka NW floodplain	Nuer NW Nile	Nuer NE	Totals	Rank
Insecurity*	73	38	2	72	21	206	1
Livestock disease and cost of vet medicines	10	47	32	8	28	125	2
Drought	8	10	-	-	-	18	5
Witchcraft	8	-	-	-	-	8	7
Economic crisis and poverty	1	4	51	-	4	60	4
Floods and poor roads	-	1	2	20	47	70	3
School fees	-	-	13	-	-	13	6
Total	100	100	100	100	100	500	

**Insecurity includes the Civil War, cattle raids - traditional and militarised, changes in bride price payments, and compensation payments for killing while raiding*

These findings are presented graphically in Figure 3 and clearly illustrate the impact of insecurity, animal disease, floods and poor roads (in particular in Nuer NE), and the economic crisis that is itself the result of South Sudan's Civil War.

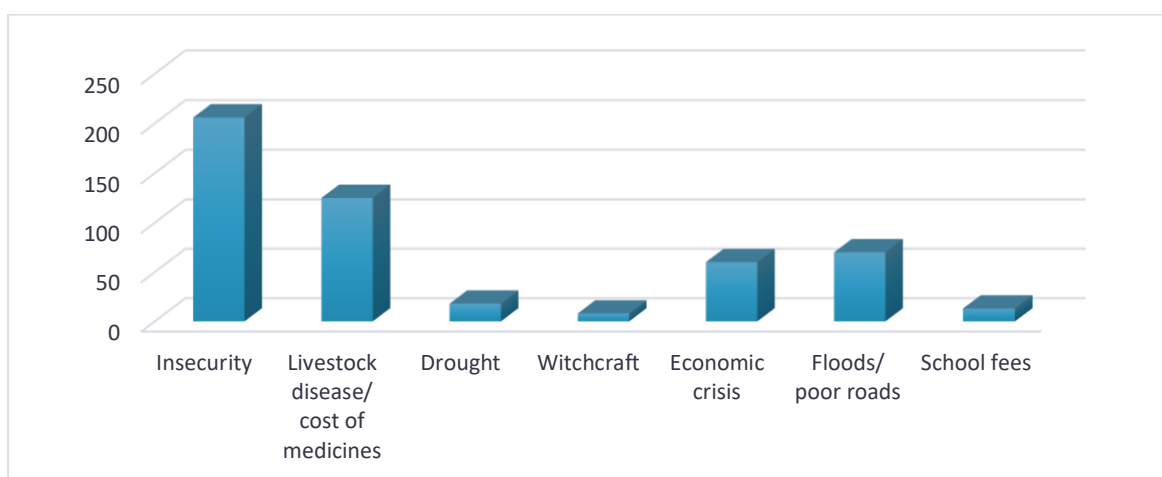


Figure 3: Average causal factors driving changes in wealth status scores – 2010-2020 (n=20 men's groups)

Recorded comments and observations during the focus group discussions on the factors driving change in wealth status are presented in Text Box 7.

Text Box 7: Selected men participant comments - causal factors driving changes in wealth status

Dinka ironstone plateau

- *Conflict* is affecting our herding – we now herd closer to towns even though the pasture and water are poor for protection. There are many young men with guns in the bush
- Having cattle near the town causes problems between cattle keepers and farmers. If the cattle remain here through the next growing season, the harvest will be affected
- The problem is politics in Juba
- We used to have plenty of milk, blood and meat. Our cattle do not do well here – they give little milk. We *need to be free to move our cattle* again

Toposa SE semi-arid

- The rains this year were good, so we did not need to move our cattle. If this was a drought year it would have been bad as we cannot move our animals freely as there is a *lot of raiding*
- I don't think our herding has changed much at all. We continue to follow the rains and pasture and water. We fear drought and livestock disease

Dinka NW floodplain

- I had more than 100 cattle before the *Civil War* (2013). Now I have none. Yes, some died of disease but most I had to sell to buy food to feed my family in the War
- I have lost so many animals over the year to disease – Contagious Bovine Pleural Pneumonia (CBPP), haemorrhagic septicaemia, black quarter, foot and mouth disease (FMD) and even parasites
- This year we lost our crops, chickens and even horses in the floods. The poor will be hungry
- People sell livestock for survival these days
- Disease might kill a few animals and a drought many animals, but you can lose all your animals in a day to raiding
- The government should have stopped this *raiding* by now

Nuer NW Nile People don't cultivate remote fields because of *insecurity*. They sell livestock to buy food

- There was little *raiding* before the Civil War, but now it is everywhere. Raided animals can be sold for big money
- Before we could drive our cattle through many villages without any threat, but now we can either stay in one place or migrate only to nearby villages
- Cattle *raiding* has changed - even neighbouring counties will *raid*

Nuer NE

- High prices in the market make cattle *raiding* very attractive for young men
- In 2010 we herded our animals where we wanted. There was very good grazing and water and the cows were happy. Now we have to herd in smaller areas as the floods are very bad and the *raiding* is bad when the floods are not. *War* and floods are not good for us

These comments provide confirmation of the impact of South Sudan's Civil War on livestock holdings and the associated indirect impacts. As referenced by a Dinka NW floodplain respondent, '*before the Civil War I had more than 100 cattle, but I had to sell them all to buy food for the family*'. Whether all, the majority or just a significant number, the respondent clearly associates the Civil War with personal losses. Tragically, similar personal testimonies can doubtless be recorded across the whole country.

Youth and cattle

The young men’s focus groups included the listing of day-to-day tasks in the cattle camps. Tasks are allocated according to age and ability and include the following: untethering the cattle in the morning and taking them to pasture and water, preparing cows for milking, cleaning milking utensils, feeding calves, collecting dung and cleaning the kraals, protecting cattle at night, making ‘tents’ to protect calves, branding animals for identification, looking for lost animals, identifying and treating sick animals, constructing and maintaining shelters and camps, and making pegs and ropes to tether cattle. For this work, they listed the following payments: milk, food, clothes, shoes, calves, goats, in-calf heifers, bulls, and more cattle at the time they want to marry.

The young men’s groups attributed cattle with a range of values and the average scores are presented in Table 15. In order of importance, they include: the main source of food – in particular milk, but also blood in season and occasionally meat; for marriage; a source of income; compensation payments for fines; and assets for strengthening social networks. In brief, the young men recognised that cattle are ‘essential to life’. These scores are also presented graphically in Figure 4.

Table 15: Average youth perceptions of the value of cattle scores (n=20 groups)

Importance of cattle	Dinka ironstone plateau	Toposa SE pastoral	Dinka NW floodplain	Nuer NW Nile	Nuer NE
Marriage/bride price	32	13	25	17	20
Food - milk/ blood/ meat	13	16	17	40	31
Savings/ prestige/ social networks	25	7	-	4	14
Barter trade/ income	7	22	18	12	10
Blood money/ compensation*/ fines	13	10	7	20	18
Sacrifices/ rituals	4	9	-	1	-
Cultivations - ox ploughing	6	4	6	-	-
Transport	-	5	-	-	-
Buying guns	-	6	-	-	-
Skin and hides for sleeping	-	5	3	1	1
Dung - fields, fuel, insect repellent	-	3	12	5	4
Health care	-	-	12	-	-
Horns - for utensils	-	-	-	-	2
Total	100	100	100	100	100

* Compensation: adultery/ sex with an unmarried girl

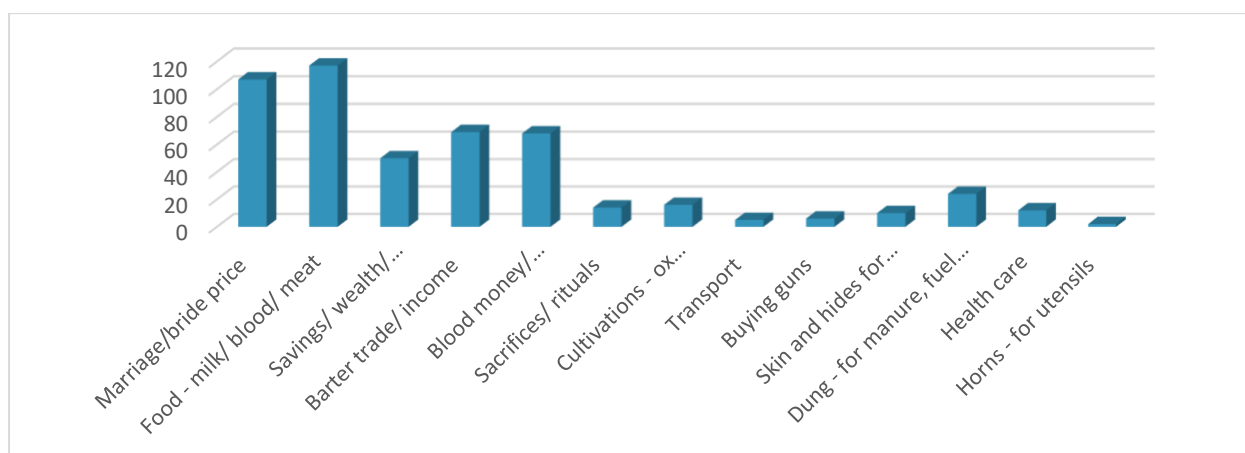


Figure 4: Average youth value of cattle perception scores (n=20 groups)

The young men’s focus groups were also asked to provide insights into any personal experiences that they had had with raiding. Comments and observations are presented in Text Box 8.

Text Box 8: Selected youth participant comments - livestock raiding

- Our cattle were raided by a large group. They found us in the rangeland and quickly overpowered us and took our cattle. They killed one herd boy. We followed them but we couldn’t retrieve a single animal
- Cattle raiding has intensified as the raiders are trained in militias and have new skills. They always use mobile phones to coordinate with each other. Raiders also carry the best weapons. They are highly organised
- Thieves are just a few in number. They tie 2-3 animals to bushes with ropes. If the herd boys are lazy, they will be missed. The thieves will then untie them and drive them to a far market
- Raiding has intensified. It was always there, but warriors would only raid the furthest villages and with spears. Now our own neighbours raid us heavily. If they feel there are more animals, they will raid us again even in the evening of the same day
- Our fathers used to say they only feared lions and hyenas. Today we fear raiders. A lion can eat only one cow, but raiders can kill you and take all your cattle in one hour. Raiders are free to kill anyone
- The Government has to bring raiding to an end
- You cannot marry respectfully without cattle. The poor have no choice but to raid cattle
- It used to be Arabs that raided us. But now it is our own people that raid. Some of our friends raided a neighbouring village and so the youth of that village retaliated, took all our animals and killed four herd boys
- It was the Arabs who used to raid us in the years 1994-1998. We are fortunate in this area that we’ve not had any raids since. Things have changed.
- In those days, our culture and gods cursed young men who raided. Today some are even honoured in their communities – women and girls now sing songs about successful and brave cattle raiders
- Last year all of one family’s cattle were taken. We retaliated and brought cattle for the family
- Any young man who has not raided is seen by his family as a coward and can even in some families be excluded from a family gathering
- Girls like fearless warriors that are successful cattle raiders
- We once stopped a major raid, but many were wounded on both sides
- You are free to burn crops and homes when you raid
- When you raid plan well, it is important to take time, go with many people and plenty of guns and bullets
- If you cannot afford a gun, you can approach a wealthy man and he will buy a gun and provide you with ammunition. You will then have to raid for him for some time, providing him with most of the animals until he has been paid in full

The young men stated that their peers who demonstrate their love of cattle and commitment in protecting them are rewarded with guns and ammunition and, in time, invited to join in livestock raids. They confirmed that raided animals are shared with family members, relatives by marriage and friends and that in this way they consolidate and build strong social networks. They also noted that raided animals are gifted to traditional healers and prophets able to dispense ‘cleansing powers’ and free them from ‘bewitching’. They said this was particularly important for those who had killed during a raid.⁵³

Finally, the young men confirmed that contemporary cattle raiding in South Sudan encompasses both ‘traditional’ cattle raiding carried out by relatively small groups of youth, and highly ‘organised’ cattle raiding which typically involves hundreds of heavily armed young men led by individuals with military training. They continued that such

⁵³ Customary codified practice that was documented in the 1930s, forbids the killing and abduction of women and children during cattle raids that has broken down since Civil War, the result of the growth of influence of militarised cattle camps and militia (FAO, 2020).

‘organised’ cattle raids also include known criminals who they said would typically sell all their stolen animals for cash in distant markets, so that they could not themselves be raided. This confirms what KIs reported, that militias are involved in cattle raiding as a weapon of war and that some militias have been involved in as many as 260 engagements in a year. Such militias are supported by elites living in Juba or overseas.

Livestock sector investment opportunities

Finally, under this third key theme, KIs were asked to identify priority livestock sector investment opportunities for the decade up to 2030. Illustrative examples are presented in Table 16 under thematic headings and each comment is cross-referenced with the appropriate livelihood zone where the KI interview was held. There is a strong correlation between these proposed investment priorities, and the causal factors driving poverty identified in the focus groups presented in Figure 3 above.

Table 16: Selected KI comments on livestock sector investment priorities

Marketing - livestock and livestock products
<ul style="list-style-type: none"> - Some pastoralists appreciate the commercial value of milk and livestock products <small>Dinka ironstone</small> - I think we should invest in improved milk handling, processing and storage equipment: I think pastoralists can make a lot more income than they do from their livestock e.g., milk, ghee, hides/ skins <small>Dinka NW, Nuer NE</small> - Build more livestock markets and construct abattoirs <small>Dinka NW, Nuer NE</small>
Animal health
<ul style="list-style-type: none"> - There is considerable indigenous knowledge on disease identification, management and treatment. This knowledge can complement modern veterinary medicines and will help improve animal health, in particular in areas where there are no government /NGO veterinary services <small>Dinka ironstone, Nuer NE 54</small> - Training local community animal health workers (CAHWs) is, I feel, a really important investment priority <small>Dinka ironstone, Nuer NE</small> - Pastoralists also want better livestock medicines and locally trained veterinarians <small>Toposa, Dinka NW and Nuer NE</small>
Peace and security
<ul style="list-style-type: none"> - I see that the most important area for investment is in achieving peace. This has to be the most important development outcome <small>Dinka ironstone, Toposa, Dinka NW</small> - We need disarmament of civilians <small>Dinka ironstone, Dinka NW, Nuer NE</small> - Perhaps we need to introduce grazing regulations to prevent conflict over water and pastures <small>Dinka ironstone, Dinka NW and Toposa</small>
Rangeland management
<ul style="list-style-type: none"> - If people kept fewer animals, I think the rangelands could be improved and the animals better fed. We need to change attitudes <small>Dinka ironstone,</small> - I think if we could improve the rangelands and develop water, people could fatten animals before they go to market and get better prices <small>Toposa</small> - Some local herders complain that mining and mining companies are destroying rangeland in some areas <small>Toposa</small> - Improved drainage of swampy areas <small>Nuer NE</small>
Alternative livelihoods
<ul style="list-style-type: none"> - Training young men to plough would help them get work and plough oxen will not easily be stolen <small>Dinka ironstone</small>

These issues are explored further in the report’s final section.

⁵⁴ Importantly, these comments were offered by community animal health workers.

3. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This section of the report presents broad conclusions for each of the study themes:

The importance of livestock to livelihoods and how this has changed over time

The historical timeline provides a sobering account of South Sudan's long history of conflict and violence that spans two centuries. Much of the violence has been perpetrated by and on livestock keeping communities as cattle are recognised as valuable assets. Furthermore, in contrast to fields, cattle can be trekked away from drought, flood and disease and can therefore help reduce vulnerabilities and enhance resilience. Cattle can also be trekked away from areas of conflict, although to less effect as cattle raiders are themselves highly mobile. At the time of the 2018 negotiated peace agreement, South Sudan's bloody civil war had claimed around 400,000 lives and displaced 4 million – 1.8m IDPs and 2.2m in refugee camps in Sudan, Ethiopia, Kenya and Uganda. Between 2014 and 2018 lost cattle production alone was estimated to be between at more than a US\$ 1 billion per annum.

The study finds both huge numbers of poorer households and significant wealth inequalities in livestock, land holdings, family size, and numbers of children being schooled and in employment. A staggering 60 to 70 percent of agro-pastoral and 34 percent of pastoral households were classified by study participants as 'poor' and 'very poor'. This finding is corroborated by the Integrated Food Security Phase Classification (IPC) January 2021 update that indicates around 7 million people or slightly more than 60 per cent of the population of South Sudan are expected to face severe acute food insecurity in 2021. The study findings suggest that 'wealthy' families own between one and two hundred times more livestock than the 'very poor'. The result of these profound inequalities, 'very poor' and 'poor' are unable to meet even basic household food needs and no sooner do they build up livestock numbers, than they are forced to sell animals to meet immediate needs. To try to break this vicious cycle, they work as casual farm and cattle herding labourers, and collect and sell rangeland products. The majority are at least partially dependent on food assistance and many are supported by relatives abroad.

The result of extreme violence, social networks in South Sudan are today probably weaker than at any previous time in South Sudan's history as inter-ethnic transactions have been truncated and such are the numbers of 'very poor' and 'poor' households that it is beyond the capacity of even the wealthy elite to provide assistance to all in the form of milk and food gifts, livestock loans and gifts, and bride price payments. It will take a decade or more for herders to patiently rebuild their herds and flocks, if at all as the rebuilding process is likely to be interrupted by further livestock disease, flooding and further raiding. It will similarly take poorer households many years to build robust and expansive social networks.

Sadly, efforts to rebuild herds and social networks include cattle raiding. According to scale and intensity, not only do such thefts render victims' households destitute, but they also 'require' that the youth in the victims' households and communities engage in retaliatory raiding. This vicious and continuous cycle undermines household food security, reduces livestock production and productivity and results in injury and loss. Since South Sudan's 2013 Civil War in particular, the proliferation of militias, of militarised cattle raiding and the extreme violence of raiding including violence against women and children, have eroded long held social mores and frameworks. Women and children are now routinely killed and abducted. It can be expected that it will take far longer than a decade to rebuild degraded social fabric and frameworks in South Sudan.

The Civil War has not only resulted in huge loss of life and displacement but has also dislocated livelihoods. In the period 2014 - 2017, the collapse of national food production fuelled inflation and led to tumbling livestock-cereal terms of trade. This resulted in a haemorrhaging of household livestock numbers through distress asset sales. It also resulted in significantly poorer diets as livestock were herded in safe areas remote from homesteads, resulting in steeply declining milk availability for women and children. Milk and milk products were replaced with food assistance and wild products that can be collected from the immediate rangelands. While livestock-cereals

exchanges have returned to normal and people are again engaged in arable cropping in many areas, diets remain far more diverse than in the pre-Civil War era. In particular, reduced access to milk and milk products continues to impact child nutrition, as evidenced again by the IPC January 2021 update, with the highest annual forecasts for MAM (1.3 million) and SAM (310,00) since 2013.

The state of livestock markets and how they are changing/ evolving,

The study findings on the sale of livestock products and livestock provide useful insights to livestock marketing. The study found that with the exception of 'very poor' women, those in other wealth categories routinely sell small but increasing amounts of milk and other livestock products, and the income used to purchase high density carbohydrate foods such as cereals. Such sales are encouraged by some NGOs. While milk sales inevitably increase the availability of milk for urban populations, they also reduce the availability of milk in the rural areas, with nutritional consequences that have already been discussed. The continued commercialisation of milk and milk products produces 'winners' and 'losers', with the latter typically children and women from poorer households, as they receive decreasing levels of milk gifts from wealthier women relatives and friends.

The historical timeline for livestock marketing confirms that since time immemorial agro-pastoralists and pastoralists have exchanged livestock for cereals with their more agrarian neighbours, to 'trade up' calories, in particular during the dry season or in times of crises. Over time and with the penetration of the cash economy, barter has in many areas been superseded by sales in South Sudan's network of more than 160 livestock markets. Annual livestock sales are now valued in US\$ millions. While actively engaged in sales however, livestock keepers with modest herds and flocks are acutely aware that the more animals they sell, the more they threaten herd growth and ultimately a staple food source. Sales are also tempered as individual animals are better understood as a 'bundle' of rights and obligations rather than outright ownership in the Western model. Despite this, some livestock experts continue to promote livestock marketing and report increasing sales and exports as a success factor, denoting commercialisation and modernization. Who is selling, why they are selling and the implications for different household members in the homestead are typically relegated to second and third-tier reporting, if they are referenced at all. This is not to suggest that livestock marketing is unimportant, in particular during crises when distress livestock sales can result in plummeting prices that further undermine household food security and resilience.

Future prospects for the livestock economy and how these are expected to change

The study findings confirm that the main causal factors driving poverty in agro-pastoral and pastoral livelihood zones are, in order of importance: insecurity, livestock disease, floods and the economy.

With the majority of the population under the age of 30 years old, it is difficult to see pathways to stable and secure livelihoods and it is therefore hardly surprising that many young men have no alternative but to live in cattle camps – owned by relatives and also in which they are simply hired on a casual basis – and, according to age and ability, are allocated daily tasks that relate to the care of livestock. For this work, they receive food, clothes, young animals and support with cattle at the time they want to marry. Young men living in cattle camps quickly learn that cattle are essential for 'life' and that to build their own herds, to marry and to achieve recognition in their families and communities that they are required to raid. Raided animals can also be gifted to family members and friends to consolidate and build social network and to traditional healers to dispense 'cleansing powers' and free them from 'bewitching', in particular for those who have broken taboos and killed. All sectors of agro-pastoral and pastoral societies are however embroiled, as older and wealthy men supply weapons, women sing praise songs about their fearless sons and young women prefer to marry brave and wealthy raiders.

The study found strong correlation between the causal factors driving poverty listed above and the participants' perceptions and KI recommendations for priority livestock sector investments. These can be clustered under the following themes: peace and security, livestock interventions and alternative livelihoods.

Recommendations

Informed by the study findings, the following recommendations are offered for future investment in South Sudan.

5. **Civil society engagement** with cattle camp/ militia leaders, cultural prophets, elders and women's and youth representatives to explore:

- *Customary codified frameworks* - a return to customary protection frameworks for women and children in different parts of the country to afford increased protection during cattle raiding and increased support to prophets to discontinue 'cleansing ceremonies' for perpetrators
- *Migration* - negotiated peaceful migrations (see rangeland management below)
- *Disarmament* - the phased, equitable and voluntary disarmament of heavy weapons as a first step to the wider control of small arms
- *Bride price payment amounts* - capping and progressive reduction in cattle bride price payment numbers, irrespective of cattle prices in markets
- *Youth initiatives* - provision of alternative livelihood opportunities for young men
- *Institution building* - long-term investment in strengthening state institutions responsible for law and order, justice, and ensuring respect for human rights and fundamental freedoms

6. **Livestock sector** informed by Livestock Emergency Guidelines and Standards (LEGS),⁵⁵ and local knowledge and experience and lessons learned in the delivery of livestock projects at individual state level, in particular those affected by high incidences of conflict:

- *Destocking* - informed by livestock market and livestock-cereals terms of trade monitoring and analysis, increased support for destocking (both commercial and slaughter destocking) during times of crisis, to mitigate distress livestock sales, stabilise livestock prices and protect agro-pastoral and pastoral livelihoods. In particular, expanded support for poorer households through targeted destocking of small ruminants and poultry
- *Veterinary support* - the detailed mapping of former and current decentralised animal health delivery services - community animal health workers (CAHWs) and private veterinary pharmacy networks (PVP) - to identify and address gaps and weaknesses. To improve the delivery of efficacious veterinary medicines and phase out and replace the distribution of free livestock medicines with voucher-schemes implemented through local service providers. Also deliver reliable, seasonal vaccination campaigns through local animal health service providers and strengthen indigenous technical knowledge (ITK) networks to research, document and promote the use of efficacious treatments in particular for poultry and small ruminants
- *Livestock feeding* - specifically rangeland management issues that threaten viable livestock production systems. Priorities may include work with cattle camp leaders, elders and administrators to develop local agreements that facilitate seasonal transhumance movements and eventually to develop a legal transhumance framework to protect routes and ensure the continued passage of livestock between wet and dry season rangelands. Agreements will need to resolve outstanding local conflicts and include mechanisms to resolve issues as they occur

Other priority investments may include community commitments to protect key rangelands from agricultural development and better management of seasonal grazing - resting rangelands for recovery. Where appropriate, the control of invasive species and re-seeding with locally important rangeland plant species

- *Livestock water* - the participatory mapping of livestock grazing and water points in wet and dry season grazing areas with the full and active representation of all groups with recognised customary rights. Priority investment for rainwater harvesting systems that prevent year-round grazing and the

⁵⁵ LEGS. (2014).

establishment of permanent settlements, protect key rangeland resources and can be maintained by the communities themselves

- *Livestock provision* - informed by a detailed review of the lessons learned in previous livestock provision or restocking projects. Priorities for investment should be on community-led initiatives that include community contributions, albeit modest in size. In this way, the provision of livestock can help strengthen social capital and reinvigorate personal networks, that have been progressively undermined by the conflict
- *Livestock product marketing* - targeted support to women in 'very poor' and 'poor' wealth categories to produce and market eggs and poultry meat
- *Skills training* - for employment of young men in ancillary livestock sub-sectors - health, marketing and conditioning of animals - that may also offer 'alternative' livelihood opportunities
- *Policy and advocacy* - The priority policy and advocacy challenge for the livestock sector in South Sudan is improved governance to address conflict, insecurity and cattle raiding. In this context, it is important to develop and use locally appropriate delivery strategies that ensure good practice and good returns on investment

7. Alternative livelihoods

- *Non-livestock sector* - significantly increasing investment support for vocational training and non-livestock dependent livelihoods, including small-scale irrigated vegetable production and marketing
- *Fishing inputs supply* - the provision of inputs, training and management for locally sustainable fisheries

8. Nutrition informed by the United Nations work in South Sudan:

- *Nutrition appropriate emergency food assistance* - increased use of locally sourced animal proteins including milk and milk products, eggs and poultry meat, fish and meat using voucher-based schemes
- *Cash transfers* - unconditional and conditional cash transfer can be augmented by nutrition voucher schemes
- *Emergency seed distribution* - with a primary focus on seed fairs that promote the multiplication and sharing of locally important field crops, vegetables and fruit trees as opposed to imported hybrid seeds that require sophisticated market systems and cash
- *Agricultural input supply* - seeds and tools for displaced communities where emergency needs have been met. As recognised above, with a primary focus on seed fairs and locally appropriate tools
- *Processing and storage* - for locally important and perishable vegetables, crops and fruit, to extend availability in particular, where possible, into the 'lean season'
- *Vegetable gardens* - technical training and ongoing advisory support for agro-ecological/ perma-gardening methods for increased vegetable production in community and private managed gardens

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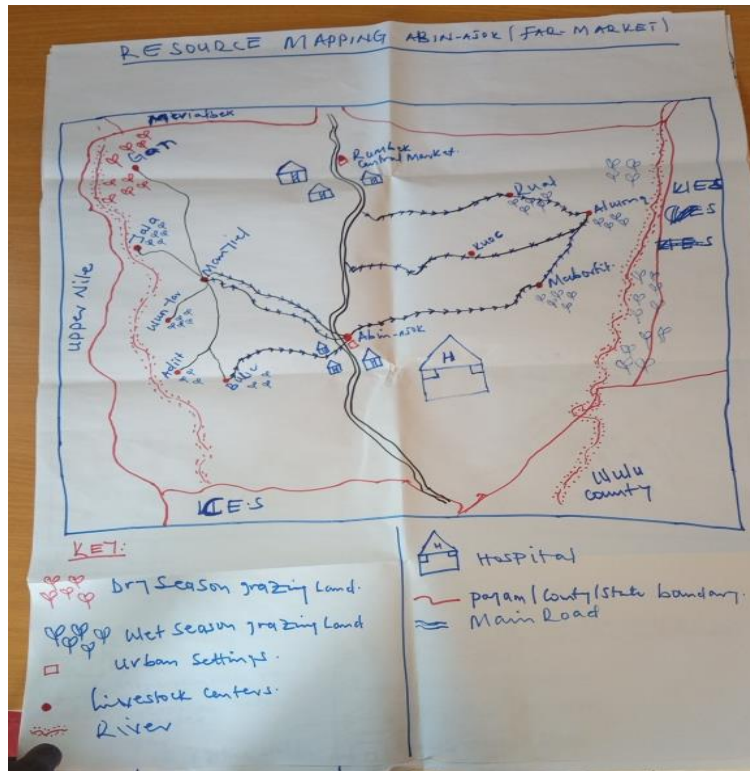
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ANNEX 1: SAMPLE RESOURCE MAPS

Resource Map - Abin Ajok, Dinka Ironstone Plateau



Resource Map – Chumakori, Toposa pastoral



ANNEX 2: QUESTIONS AND PRA TOOLS USED WITH FOCUS GROUPS

Standardised questions	Participatory rural appraisal (PRA) tools
<p>For men's groups How have household livestock holdings changed since 2015?</p>	<ul style="list-style-type: none"> ▪ Wealth ranking: 2015 - 2020 to identify changes in livestock holdings Follow on question and answer: to estimate bride price changes for young men from different wealth categories and livestock numbers required to achieve a viable livelihood threshold ▪ Proportional piling: to identify the main drivers of change ▪ Seasonal migratory mapping: to identify changes in migratory routes as the result of conflict and climate change Follow on question and answer: to identify if there are wealth category related changes
<p>For women's groups How have household food consumption, income and expenditure changed for different wealth categories since 2015?</p>	<ul style="list-style-type: none"> ▪ Wealth ranking and proportional piling: 2015 - 2020 to identify changes in food consumption for different wealth categories ▪ Wealth ranking and proportional piling: to identify changes in income and expenditure patterns for different wealth categories Follow on question and answer: to identify which wealth categories own 'viable' herds/flocks to meet their basic needs
<p>For both men and women's groups Where do men sell cattle, men/women sell sheep/goats and women sell livestock products and where do you think they are eventually consumed?</p>	<ul style="list-style-type: none"> ▪ Wealth ranking and ranking: to identify and rank the most important animal types/ products sold for different wealth categories Follow on question and answer: to identify where each is finally consumed

ANNEX 3: QUESTIONS FOR ELDERS AND YOUTH

Standardised questions	Participatory rural appraisal (PRA) tools
<p>For elders' groups Where did you herd your livestock in the dry season in 2010? Where do you herd your livestock in the last dry season? Are there differences? What caused the differences?</p>	<ul style="list-style-type: none"> ▪ Map natural resources and movements between wet and dry season grazing ▪ Follow-up question and answer
Standardised questions	Participatory rural appraisal (PRA) tools
<p>For youth groups Why are cattle so important? What are your main duties in the cattle camps? How are you recompensed for your work? Do raiders share their livestock with others? Have you ever been a victim of a livestock raid? Do you see changes taking place in raiding?</p>	<ul style="list-style-type: none"> ▪ Proportional piling ▪ Ranking ▪ Follow-up question and answer

ANNEX 4: QUESTIONS FOR KEY INFORMANTS

Key Question 1	Livestock holdings: <ul style="list-style-type: none">▪ What are the main trends in livestock management – grazing, water, health – and what are the main drivers?▪ What are the main trends in livestock holdings – including of different animal types – and what are the main drivers?▪ What are the most likely trends in livestock management and livestock? holdings in the coming decade at household and local economy levels?▪ What are the main development investment trends in livestock production e.g. health, breeding and feed?
Key Question 2	Livestock marketing: <ul style="list-style-type: none">▪ What are the sources and how reliable is livestock marketing data?▪ What are the trends over the last three years in the numbers of livestock sold in the main livestock markets?▪ Who are the key actors in livestock marketing?▪ From how far are different animal types trekked to markets?▪ What are the main trends and drivers of livestock prices for different animals?▪ Where do women typically sell dairy products and in what seasons?▪ What are the main development investment trends in livestock marketing and added value?