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LIVELIHOOD DYNAMICS IN NORTHERN KARAMOJA

A Participatory Baseline Study for the SUSTAIN Project
DRAFT REPORT



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Acronyms and Abbreviations

ACF	Action Contre La Faim (<i>Action Against Hunger</i>)
AU	African Union
CAHW	Community Animal Health Worker
CBPP	Contagious Bovine Pleuropneumonia
CCPP	Contagious Caprine Pleuropneumonia
FAO	United Nations Food and Agriculture Organization
FEG	Food Economy Group
FFW	Food for Work
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GoU	Government of Uganda
HH	Household
ICRAF	The International Council for Research in Agroforestry
KIF	Karamoja Innovation Fund
KII	Key Informant Interview
LRA	Lords Resistance Army
MCS	Microfinance Support Center Ltd.
MFI	Microfinance Institute
NAADS	National Agricultural Advisory Services
NGO	Non Governmental Organization
NR	Not Ranked
Pcs	Pieces
PIA	Participatory Impact Assessment
REDD	Reducing Emissions from Deforestation and Degradation
SACCO	Rural Saving and Credit Cooperative
SSI	Semi Structured Interview
SUSTAIN	Sustainable Transformation in Agriculture and Nutrition (Project)
TLU	Tropical Livestock Unit
UGX	Uganda Shilling
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UPS	United Parcel Service
USAID	United States Agency for International Development
UPDF	Uganda People's Defense Force
VHT	Village Health Team
VSLA	Village Saving and Lending Group
WASH	Water, Sanitation and Health
WFP	United Nations World Food Programme

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SUMMARY

This report documents the findings of a livelihoods assessment carried out as part of the USAID funded Sustainable Transformation in Agriculture and Nutrition (SUSTAIN) project being implemented by Mercy Corps and partners in the Karamoja sub-region of Northeastern Uganda. The assessment is one component of a broader research and learning agenda involving a set of livelihoods, impact and gender studies. The research is being led by the Feinstein International Center (FIC) with the overall objective of informing the design and implementation of project interventions and assessing project impact.

The overall goal of the SUSTAIN project is to promote peace and food security through three complementary strategic objectives aimed at (1) strengthening livelihoods, (2) improving nutritional outcomes for children under two and (3) building local capacities for conflict mitigation. The project is being implemented in three districts of Northern Karamoja, Abim, Kaabong and Kotido. The objective of this particular study is to inform implementation and collect baseline impact indicators for the activities under objective # 1. Under this objective (*livelihoods strengthening*) the project aims to improve productivity, market access, marketing behaviors and the overall business environment.

With a view to informing project implementation, the assessment set out to identify the major opportunities and constraints to production and marketing in the study area and to investigate what productive resources are currently available and how these are being utilized. The assessment also set out to investigate recent events and longer-term trends with the objective of understanding how these might have an impact on production and livelihoods. The study also set out to estimate the current utilization of different products and services from the perspective of project participants largely concentrated in rural areas. This was done to assess the availability, accessibility and quality of existing services both to inform programming and to establish a service delivery baseline against which to measure impact against. The study also set out to investigate perceptions of poverty and inequality and to quantify the proportion of study participants belonging to different wealth categories. This was primarily done to enable changes in relative wealth to be captured as a proxy for project impact during future assessments.

The study was conducted during the first quarter of 2013 in seven markets and thirty-one villages in Abim, Kaabong and Kotido districts. Focus groups were carried out in all villages using semi-structured interviews complemented by participatory exercises including community mapping, timelines and ranking and scoring exercises. The study also included a number of visits to market centers as well as key informant interviews.

The assessment results point to a number of recent events and trends that are having an impact on livelihoods. The impact of conflict in the form of violent livestock raiding continues to have a negative impact on human security and food security. However, the security situation has improved over the past three years and this has had a positive impact on production, mobility, access to markets and the local economy in general. Nonetheless, mobility and production are still hindered by outbreaks of conflict, the fear of conflict and criminality.

Poverty is also deep and widespread in the study areas and manifests itself in different ways. It appears as though poverty is increasing at least when defined in terms of livestock ownership. It is unclear whether absolute numbers of livestock have declined or if there has been a massive redistribution of livestock wealth. **Either way more people have fewer livestock than they did in the past and this has had a major impact on income and food security for the majority of people.** The decline or redistribution of livestock assets may in part be due to cattle raiding. However, disease related livestock mortality can also be

attributed to the absence of reliable animal health services and an increase in livestock disease associated with the protected *kraal* system set up following the disarmament campaigns.

The redistribution or decline in livestock assets has also contributed to another longer-term trend of people exiting pastoralism and becoming increasingly dependent on crop production. Although this trend is not unique to Northern Karamoja, it could have major implications on poverty and food security as rain-fed crop production is extremely risky given the frequency of drought and crop failure in the region. The expansion of agricultural production could also potentially undermine the livestock sector which currently represents the greatest economic potential for the region.

Constraints to production and economic activities in the area include drought and rain failure, livestock disease and insecurity. The absence of basic inputs and services in concert with poor and limited infrastructure, particularly roads, also undermine the economic potential of the area. Misguided development policies along with government neglect and poorly conceived interventions have and may well continue to hamstring economic growth in the area.

Nonetheless, the sub-region has considerable natural resources and economic potential. The improved security situation is attracting investments in infrastructure and services along with an increase in development and private sector activities. As mentioned, the commercial potential of the livestock sector is largely untapped and could provide a much-needed stimulus to economic growth. The expansion of the livestock sector is however contingent on continued security and herd growth which can be achieved through investments in animal health and the availability of livestock credit. Pro-livestock development policies are also much needed and possibly the best way to advocate for these would be to raise awareness of the commercial benefits of transhumant livestock production.

There is also potential for promoting cash crops in the greenbelt zone of Abim district and parts of Karenga sub-county. These include cereals, pulses, groundnuts, oilseeds and fruit trees and possibly even certain types of root crops and vegetables. Aside from climatic factors, crop production is currently constrained by the lack of seeds, tools, fertilizer and draft animals/tillage. Improved access, availability and quality of these products and services along with agricultural loans, extension services and crop insurance would all help to improve this sector. However, interventions to promote commercial crop production in the agro-pastoral zone at the expense of livestock production should be avoided. To do so would be negligent and even irresponsible. Not only is it risky from a livelihoods perspective but it also has limited economic potential in these areas.

One of the greatest development challenges for Karamoja will be to identify and promote alternative income earning opportunities for people outside of crop and livestock production. Although these activities will continue to be a mainstay of the local economy, people will continue to exit pastoralism and dependency on crop production is not a viable or sustainable alternative. However, not everyone is an entrepreneur and there is no blueprint for creating hundreds of thousands of jobs in this context. At present there are few employment opportunities for the Karamojong aside from menial temporary work. This partly has to do with the fact that other sectors are underdeveloped and even so the Karamojong do not have the necessary skills to take advantage of these. Nonetheless, opportunities exist to develop certain sectors and build people's capacity to exploit these.

For example, natural resources include a variety of wild plants such as aloe, desert date, gum-arabic and shea nut which have considerable economic potential. Identification of buyers and markets for these commodities and the development of supply chains and value addition could help promote this sector. Honey is another product that could potentially be expanded.

Artisanal gold mining is also potentially lucrative, though insecurity and the lack of water and other basic services in the gold mining areas limit the exploitation of this sector. In addition to this the absence of formal miners organizations with legal representation means that miners have little voice or bargaining power and are open to exploitation.

The growth of urban centers in the region is an ongoing trend that represents both opportunities and threats to livelihoods. On the one hand this trend will create employment and income earning opportunities with the increase in demand for agricultural and livestock products as well as bush products and building materials. It will also create employment opportunities in the retail, service and construction sectors. If the Karamojong are to take advantage and benefit from this trend, there will need to be a transfer of skills and knowledge. Investments in education, adult literacy, business skills and financial literacy will be needed as will training in skilled trades. Local industries could also be developed around value addition and processing in agriculture, meat, dairy and leather, potentially creating jobs and business opportunities for people.

However, the growth of these towns will also fuel the demand for firewood, charcoal and bricks and the exploitation of these will ultimately undermine the natural resource base without any significant economic returns for the local population. The promotion of alternative fuel sources and investments in more efficient kilns for brick making will be critical if the natural resource base is to be preserved.

Recent innovations in mobile phone technology also have enormous potential in Karamoja and include platforms for money transfers, credit, insurance, market information systems and agricultural apps. This technology has already revolutionized banking for the poor in other parts of East Africa and it is only a matter of time before this trend expands into Karamoja.

Ultimately, what the region needs most is for the security situation to continue to improve along with a responsible long-term development strategy and improved infrastructure and services. If the security situation continues to improve, investments in development, infrastructure and services will continue and in turn provide greater incentives for peace. In this kind of mutually re-enforcing operating environment the region has considerable livelihoods opportunities and economic potential. The SUSTAIN project is not only well positioned to help Karamoja achieve its potential it could also be instrumental in defining and guiding the longer term development strategy for the region.

1. INTRODUCTION

1.1 Research Background and Overview

The USAID funded SUSTAIN project is a 5-year livelihoods initiative being implemented by a consortium of 5 organizations in Abim, Kaabong and Kotido districts in Northern Karamoja. The goal of the project, which is being led by Mercy Corps, is to promote peace and food security through an integrated, gender sensitive approach. The project has three complementary strategic objectives aimed at (1) strengthening livelihoods, (2) improving nutritional outcomes for children under two and (3) building local capacities for conflict mitigation.

Originally, FIC had proposed doing a conventional impact assessment using a pre-post study design with a large household survey component. The objective of this study was to assess the impact of objective # 1 (*livelihoods strengthening*) on livelihoods assets. However, during a scoping visit to the study area to design the baseline, it became apparent that the proposed approach would be methodologically inappropriate and possibly meaningless given some of the unique characteristics of the SUSTAIN project. For example, objective # 1 proposes using a “*systems approach*” to service provision. Under this approach the portfolio of products and services available is not limited and allows for the flexibility to offer appropriate products and services based on choice and tailor these to the needs and capacities of different project stakeholders. However, in terms of designing an impact assessment baseline, these undefined products and services represent unknown variables. For the same reasons, no impact group could be identified at the time of the baseline, hence no sampling frame. Without knowing what kind of interventions (or services) would be provided or who would receive these, there was no way of establishing a practical sampling frame or identifying appropriate impact indicators for conventional impact measurement against a baseline.

FIC therefore proposed a more flexible research design that would consist of a set of ‘livelihoods’ studies with the objective of assessing livelihoods dynamics in the project areas and understanding how and where the SUSTAIN project fits into these dynamics. More specifically these studies would focus on changes (or impacts) relating to objective 1 such as improvements in inputs and services, market access and value addition. Although this design does not allow household level impact to be assessed against a baseline, once specific interventions and impact groups have been identified, Participatory Impact Assessments (PIA) that do not require baseline data could be used to assess these.

Following discussions with Mercy Corps, it was agreed that the overall study approach would include a livelihoods/market study (baseline) in year 1. This would be carried out in all three districts (Abim, Kotido, Kaabong). Additional studies would then be carried out over the course of the project. Where applicable, this could include comparative end-line studies or discrete PIA’s to assess a specific project intervention, or a combination of both. Alternatively these studies could be used to answer a specific and non-impact related research question thus enabling the research to be more responsive to the learning needs of the project as typically these become more apparent after implementation has started. It was agreed that the research questions for these studies will be jointly identified and agreed upon by Mercy Corps and FIC and Mercy Corps proposed the following specific research themes for consideration.

1. Ease of movement (people, livestock, goods)
2. Complexity of commercial networks
3. Perception of inequality (wealth)
4. Perception of opportunity/social mobility
5. Access to useful products/services

6. Perception of key challenges in their livelihood system
7. Identification of the kind of support/interventions communities would like

It was therefore proposed that the first study in year 1 would be used to collect data on livelihoods and markets at community level with the understanding that this would not be a conventional baseline but more of a contextual analysis focusing on livelihoods dynamics, production and marketing and economic opportunities and challenges. As part of this contextual analysis the study would investigate the impact of recent events and ongoing trends on livelihoods. The study would also include a market component to investigate commercial networks, market access, opportunities and challenges. It was agreed that some impact indicators would be collected allowing for pre-post measurement of project impact, specifically in terms of changes in inequality and wealth status. Based on discussions with Mercy Corps right before the study was launched, it was agreed that a greater emphasis on the availability of services would be important and a service utilization component was included under the impact measurement component. Based on this process and all the discussions, the following research questions were proposed for the ‘baseline’ study:

1.2 Research Questions

1. What trends and events have or are likely to have an impact on production and livelihoods?
2. What are the major constraints to production and economic activities in the project area?
3. What resources and economic opportunities exist in the project area?
4. What products and services are currently available and how useful/reliable are these?
5. What access do the poor have to productive resources and services?
6. What access do the poor have to markets and how do they utilize these?
7. What interventions or services might improve production and income for the poor?

2. METHODS

2.1 Study Overview

The study was carried out in Abim, Kaabong and Kotido districts from January 16th to February 10th 2013. The study had two key objectives; the first of these was to carry out a contextual livelihoods analysis to inform project implementation. The second objective was to collect baseline data on wealth distribution and service delivery at community level to be used for future impact assessments. The study also included a market component to investigate market networks, transactions, opportunities and constraints. The study included 31 Focus Group Discussions (FGD) in ‘project villages’. The FGDs were used to assess people’s access to markets, resources and services and investigate inequality and wealth distribution and assess the impact of recent events and trends. This component of the study used a checklist structured around a set of standardized participatory methods that was developed using an integrated livelihoods and conflict analysis framework. The study included a number of Key Informant Interviews (KII) with community leaders, service providers, transporters and traders. A team of five people including two FIC researchers, an FIC consultant and two full time translators carried out the research.

2.2 Sampling

2.2.1 Method and Size

A mixture of random and purposive sampling was used for the FGD component of the study. Study areas were purposively selected to include all three districts (Abim, Kaabong, Kotido) where the SUSTAIN project is being implemented. In Kaabong district, Karenga, Lolelia, Kathille and Kapedo sub counties were also purposively selected given that Mercy Corps had a particular interest in these areas. All other sub counties in Kaabong were excluded. In Kotido district 12 villages were randomly selected although ultimately one of these was used as a pre-test and excluded from the study. In Abim and Kaabong, random sampling was used to select parishes within each sub-county and the same approach was used to select 10 study villages within these parishes. Convenience sampling was used for the market component as visits to these locations were designed to coincide with market days. The following table shows the final sample for the FGD component.

Table 1: Sample for focus group component

Abim (n=10)		Kaabong (n=10)		Kotido (n=11)	
Sub-County	Village	Sub-County	Village	Sub-County	Village
Morulem	Odollo East	Lolelia	Moruangita	Nakapelimoru	Masula 2
	Gulongor North		Napetabul		Kalekori
	Gulongor East	Kathille	Narube	Panyangara	Lomokori
Alarek	Ribocing	Karenga	Naoyaro	Kotido TC	Looi
	Loyoroit Center		Lokori Center		Lokochil
Lotuke	Wipolo		Loyoro North		Umum
Abim S/C	Ajwokodinyo	Kapedo	Tulianyang	Rengen	Kokoria
Abim TC	Yeglemi		Nakorichokey		Lodoket
	Aywee North		Komem		Nangolemuria
	Abongodoro		Kalimon	Kotido SC	Lomudit
					Lokore

Table 2: Characteristics of informants

Interview/Informant Type	Location and Number of Events		
	Abim	Kaabong	Kotido
Total number of focus group discussions (FGDs)	10	10	11
Total number of key informant interviews (KIIs)	30	20	37
Grain traders and individual grain and vegetable sellers	12	8	9
Cloth traders, consumable goods sellers and buyers	2	10	11
Animal drug sellers	-	-	3
Livestock traders, truck owners, sellers and middlemen	3	2	14
People selling food, drinks and locally made tools	7	-	-
Village health teams (VHTs)	6	-	-
Community animal health workers (CAHWs)	4	2	-
Government officials*	2	-	-
Knowledgeable elders and youth**	3	-	-
Human health professionals	2	-	-
Microfinance Institute (MFI) representatives	-	-	2

Notes on Table 2:

- Participation in FGDs was voluntary and on average roughly 15 participants attended each exercise. More or less half of the participants were male and half female with between 3-6 youth.
- All KII respondents were interviewed as encountered based on voluntary consent

2.3 Data Collection Methods

Semi structured interviews were used as the primary data collection tool for the FGDs. These were structured around a set of standardized participatory exercises including community mapping, timelines and participatory ranking and scoring methods. The timeline was used to identify trends and events and the mapping exercises were used to identify community resources, markets and services and human and livestock mobility. These exercises were not only used to develop maps and timelines, but part of the process involved interviewing the map or timeline to gather additional information on shocks, trends and livelihoods. For example the mapping exercises were also used to collect information on seasonality. A comprehensive checklist of research questions was used during these exercises although not every question was necessarily asked or answered. This included a set of questions on production and livelihoods, access and utilization of markets and services, wealth distribution and inequality, and livelihoods shocks and events.

A participatory wealth ranking exercise was used to establish the proportion of households belonging to different wealth categories. This was done with the objective of assessing anticipated changes (improvements) in wealth distribution or inequality as a result of the project. During a pre-testing exercise participants were asked to classify the community into different wealth categories. They felt comfortable with the three categories viz. better off, middle and poor so these classifications were adopted and applied across all study villages. During each focus group, participants were asked to identify characteristics for each wealth category. Once consensus had been reached on which characteristics (indicators) applied to each category, volunteers were asked to estimate what proportion of their community belonged to each wealth category using proportional pilling with 100 counters. Different volunteers would do this exercise until the majority of FGD participants were comfortable that the distribution of counters was representative of their community. Following this exercise participants were asked to estimate the proportion of household income derived from livestock production, crop production and all other income sources for each wealth category in a recent year with a good harvest. This was done using proportional piling with 100 counters and visual aids were used to represent each income source.

Participatory scoring was also used to assess the utilization of a pre-identified list of products and services. Again this was done in order to be able to assess changes in service delivery over time. The assumption was made that utilization would be a useful composite proxy indicator for service availability, accessibility (affordability) and quality (reliability). For each product or service, participants were asked to estimate the proportion of 'eligible' community members currently using that service. This was done using proportional piling with 50 counters¹. The distinction between 'eligible' and 'non-eligible' community members was discussed during the explanation for each product/service indicator. For example primary school attendance would only apply to eligible children and clinic attendance would only apply to sick people. However, for most indicators the household was considered as the primary measurement unit. If the utilization of a product or service was low, participants would be asked the reason for this and these were recorded under the categories of availability, accessibility, quality or other.

Participants were also asked to identify and rank the most important cash crops and identify and rank the interventions or services that would from their perspective be most beneficial to them. Proportional scoring was also used to assess cattle off-take/mortality in seven villages and small ruminant off-take/mortality in four villages. This was done using proportional scoring with the counters representing the estimated number of animals that entered the protected *kraals* at a given point in time. As such, the number of counters used varied across study sites.

¹ The reduction to 50 counters was done to save time given that it was a long checklist of indicators – the conversion to 100% was done during the

The off-take was then estimated by assigning counters from the original pile to piles representing the number of livestock that had died, been sold or stolen (raided). A second part of this exercise involved participants allocating the counters for animals that had died to different causes which they identified. Participants were also asked to identify community impact indicators or project benefits and then estimate the current score for each indicator and the score they hope will be achieved in 5 years time. These could potentially be used as impact indicators for future assessments, although the expectations of participants seemed unrealistically high. Table 3 shows a summary of the tools and methods used during the focus group exercises:

Table 3: Summary of focus group methods

	Tool	Type of Information Collected (method)	FGD
1	Key Events Timeline	<ul style="list-style-type: none"> A timeline of recent events in the project area Perceived impact of recent events on livelihoods/mobility/security 	N=30
2	Participatory Mapping Exercise	<ul style="list-style-type: none"> Natural resources (grazing/water/ cropping areas) Main human settlements & markets Infrastructure (roads/foot paths) Services (e.g. veterinary clinics, schools, shops) Seasonal movements/mobility (human/livestock) Ethnic groups and seasonal and spatial contacts with other communities/herds Areas of high risk for conflict/disease/parasites <i>(Major changes in any in recent years)</i> 	N=30
3	Community Wealth Indicators	<ul style="list-style-type: none"> Identification of community wealth indicators and assigning these to different wealth categories 	N=30
4	Community Wealth Ranking	<ul style="list-style-type: none"> An estimation of the relative proportion of the community belonging to different wealth groups (proportional piling) 	N=30
5	Scoring of Income Sources	<ul style="list-style-type: none"> Relative contribution of different income sources by wealth category (proportional piling) Reasons for any recent changes in income sources 	N=30
6	Crop Inventory	<ul style="list-style-type: none"> Inventory of all crops grown in the study area and utilization of these (sold/consumed/fodder etc.) Prioritization of the most important cash crops - (simple ranking) 	N=30
7	Problem Prioritization Exercise	<ul style="list-style-type: none"> Identification and ranking of key constraints to production and marketing (emphasis on poorest households (discussion and simple ranking) 	N=30
8	Assessment of Service Providers	<ul style="list-style-type: none"> Identification of different service providers (agriculture/veterinary/financial etc.) Scoring of different products and services/providers based on utilization (proportional scoring) Assessing, availability, access and quality of services (SSI & proportional scoring) 	N=31
9	Intervention Preference Ranking	<ul style="list-style-type: none"> Identification of products services or interventions to improve production and income Ranking/prioritization of preferred interventions (simple ranking) 	N=30
10	Livestock Mortality Impact Scoring	<ul style="list-style-type: none"> 'Absolute' scoring of cattle off-take due to different reasons 'Absolute' scoring of small ruminant off-take due to different reasons <i>(Proportional scoring using 'actual' number of counters)</i> 	N=7 N=4

Note: SSI = Semi Structured Interview/direct question FGD = Focus Group Discussion

Semi structured interviews were also used with key informants during visits to markets using a standard market survey checklist. This included information on commodity and transport prices as well as the opportunities and constraints associated with buying selling and transporting market goods during different seasons. None of the

study checklists used were strictly adhered to or followed in a chronological sequence, but rather used as reference material.

2.4 Pre-Testing

Field-testing of the assessment tools was carried out in two villages in Kotido district right before the assessment started. Some changes and modifications were made during this process. However, once the assessment started further problems were identified and one of the selected study villages was also excluded and reclassified as a pre-test location.

2.5 Data Analysis and Triangulation

Data derived from the wealth ranking and income and service utilization scoring exercises was calculated at the median and range using SPSS software (version 18) and agreement between informant groups was assessed using Kendall's coefficient of concordance (W). Wilcoxon's signed ranks test was used for the analysis of the results on cattle and small ruminant herd dynamics. Due to the assessments limited coverage and representativeness, the results were triangulated with other research and secondary data from the study area. This material was used not only to support the study findings but incorporated into the actual analysis.

3. RESULTS

3.1 Trends and Events

Table 4: Timeline of Recent Events (summarized across all study sites)

Year	Event
1980	<ul style="list-style-type: none"> Abim town municipality closed Makilathin market (It had been established in 1960)
2001	<ul style="list-style-type: none"> Conflict intensified (seasonal movements halted as people remained at home to defend their villages) Voluntary disarmament program launched Outbreak of human brucellosis (<i>still present at the time of the assessment</i>) Good crop harvest in some areas of Kaabong
2002	<ul style="list-style-type: none"> Voluntary disarmament interrupted as UPDF diverted to combat LRA raids leaving some communities armed and others vulnerable to raiding (e.g. Jie allegedly raided Dodoth in Kapedo)
2004	<ul style="list-style-type: none"> Forced disarmament program launched
2005	<ul style="list-style-type: none"> Massive cattle raids by Dodoth against Nyapore clan in Karenga UPDF barracks set up in Karenga
2006	<ul style="list-style-type: none"> Forced disarmament continues Makilathin market was reopened² Livestock moved into protected <i>kraals</i> in Kapedo
2007	<ul style="list-style-type: none"> Major drought led to crop loss and livestock mortality (Locally known as <i>Ekarualanga</i>) Crop loss from floods in some areas Forced disarmament continues Large scale cattle raiding in some study communities
2008	<ul style="list-style-type: none"> Crop failure due to partial rain failure Forced disarmament continues with cordon and search tactics including torture Cattle raids by Turkana and Matheniko Outbreak of cholera (lasted until 2009) Wild fires destroyed crops in Karenga Livestock moved into protected <i>kraals</i> in Kathile
2009	<ul style="list-style-type: none"> Crop failure - second consecutive partial rain failure resulting in crop loss Security improves NAADS carried out small ruminant restocking program in Karenga Mobile barracks set up in Lolelia to protect livestock – Jie stole cattle from the barracks community suspected army of complicity
2010	<ul style="list-style-type: none"> Crop failure - third consecutive year of rain failure resulting in crop loss World Vision and NAADS launched a restocking program in Abim (continued to 2012)³ Dodoth raid against Napore in Karenga (stole crops/food/clothes) Major cattle raid by Jie against Dodoth in Kapedo New road built to Kathile village (Kaabong) Mercy Corps initiated peace meetings between Jie, Dodoth, and Turkana (security improved)
2011	<ul style="list-style-type: none"> Good crop harvest Local Defense Units established in Karenga (security improved) Livestock tracking chips introduced in Kapedo (allegedly resulting in livestock mortality)
2012	<ul style="list-style-type: none"> Crop failure due to excessive rain (floods) Trypanosomiasis outbreak in Kalekori (allegedly originated in Kacheri) Livestock tracking chips introduced in Kaabong (allegedly resulting in livestock mortality) Forced disarmament with spies and torture being utilized⁴ Dodoth and Sudanese Didinga joined arms against the Kacheris VSLA groups established in some study communities (mobilized by Caritas) Government permitted gold mining in some areas where it had been banned since 1986 Didinga raids in Karenga (stole food/crops/cooking utensils) Jie cattle raided by Dodoth in Masulla II (December)

² The Makilathin market has lost its importance as a livestock market since reopening in 2006.

³ The oxen, goat, pig and chicken restocking interventions were blamed for animal and poultry disease outbreaks in host populations.

⁴ Men suspected of hiding guns had their testicles tied and pulled.

3.2 Wealth and Inequality

Table 5: Wealth Breakdown

District	Mean Score (range) proportion of wealth class (%)		
	Better off	Middle	Poor
Abim (n=10 FGD)	15.5 (4-39)	32.7 (11-51)	51.8 (13-85)
Kaabong (n=10 FGD)	17.6 (4-34)	33.4 (13-78)	49 (18-68)
Kotido (n=10 FGD)	17.1 (8-33)	35.8 (18-63)	47.1 (17-68)
Test Statistics	Abim	Kaabong	Kotido
<i>Kendall's W</i>	0.630	0.520	0.570
<i>Chi-Square</i>	12.600	10.400	11.400
<i>df</i>	2	2	2
<i>Asymp. Sig (P Value)</i>	0.002	0.006	0.003

W=Kendall's coefficient of concordance. Value of W varies from 0-1: the closer to 1 the higher the level of agreement (all results above 0.5 show agreement)
P Value shows significance level (all values below 0.5 show agreement over 95% Confidence Interval)

Table 6: Relative importance of different income sources

Wealth class/income source	Mean Score (Range) relative importance of income sources (%)		
	Abim (n= 10 FGD)	Kaabong (n= 10 FGD)	Kotido (n= 10 FGD)
<u>Better off</u>			
Sale of livestock	27.3 (11-56)	38.4 (4-75)	42.1 (22-61)
Sale of crops	46.9 (26-66)	36.2 (18-72)	33.3 (13-55)
Other	25.8 (6-52)	25.4 (6-48)	24.6 (9-42)
<u>Middle</u>			
Sale of livestock	29.4 (4-68)	29.9 (9-54)	29.5 (10-53)
Sale of crops	48.2 (20-80)	31.6 (16-52)	34.8 (19-50)
Other	22.4 (10-42)	38.5 (14-68)	35.7 (16-57)
<u>Poor</u>			
Sale of livestock	15.4 (1-76)	20.8 (0-70)	19.9 (8-34)
Sale of crops	36.7 (5-80)	24.1 (2-47)	23.8 (7-47)
Other	47.9 (8-93)	55.1 (23-98)	56.3 (37-80)
<u>All wealth groups</u>			
Sale of livestock	24.0 (1-76)	29.7 (0-75)	30.5 (8-61)
Sale of crops	43.9 (5-80)	30.6 (2-72)	30.6 (7-55)
Other	32.0 (6-93)	39.7 (6-98)	38.7 (9-80)

Kendall's W ranged from 0.010 to 0.0390 across all wealth groups in all districts showing little agreement and a wide range in income contributions for different groups. The only exception was a W Value of 0.630 for the poor category in Kotido. Similarly, the combined results for all wealth categories show little agreement

Notes on tables 5 & 6

- The results show agreement in the proportion of households classed as poor, middle and better off in all three districts.
- The results show little agreement in the proportion of income derived from crops, livestock and all other income sources across wealth categories and districts. All other income includes income derived from sources other than crop or livestock sales such as brick making, stone breaking, gold mining, brewing, trading, pole, charcoal, firewood, gum-arabic, wild foods and honey sales, farm labor, construction, cash for work, domestic work and other employment. These results suggest there is considerable heterogeneity in income sources across wealth groups and villages even within the same district.

3.3 Production and Economic Activities

Figure 1: Household food security and market price calendar

Indicator	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Grain prices	Low												
	High												
Animal prices	Low												
	High												
Milk yield	High												
	Low/nil												
Farm produce harvest or arrival time	Maize												
	Sorghum												
	Millet												
	Beans/Pulses												
	Groundnuts												
Livestock sales	High												
	Low												
Poor road conditions													
Hunger period													
Crop plantation													
Major cattle breeding													

Notes on Figure 1:

- Some spatial and temporal variations will occur and the results are not necessarily representative of the study area as a whole
- Livestock sales in January and February are often used to purchase oxen and for house construction
- The lowest grain price in November is due to the harvest
- Birth pattern is one of the key factors determining the availability of milk

3.3.1 Crop Production

Table 7: Constraints to crop production

Constraint	Contributing factors/remarks	Frequency Reported # FGD
Drought, rain failure, abnormal rain and wind	Lack of improved seeds (particularly short maturing varieties)	30/30
Crop pests, diseases and weeds	Absence of government extension services and private input suppliers for seeds and pesticides	30/30
Lack of oxen, seeds and tools	Animal theft & disease & poor market services	30/30
Conflict and thieves	Disarmament	30/30
Termites, rodents, birds, wild animals and poor storage facilities	Ecology, including presence of park in the area	30/30
Decreased soil productivity, demanding task of clearing virgin land ⁵ , absence of water, health & education facilities at newly established farming areas	Overuse of land without manure, male youths lack of experience in crop farming and high prevalence of human diseases like malaria and diarrhoea in newly established sites	6/30
Problem of transporting harvests from field to settlement sites and to markets and inefficient method of drying crops	Sun drying of grain and sliced potatoes, cassava and banana takes a long time	12/30
Lack of reliable markets	Mainly fruits, vegetables and cash crops	13/30

⁵ These problems are specific to communities who either started farming away from their settlements or intended to use tractor tillage service that requires clearing and de-rooting trees.

Table 8: Main crops – opportunities and constraints

Relative importance of food crops			
Type	Rank	Merits/opportunities	Limitations/constraints
Ground nuts	1	<ul style="list-style-type: none"> • More reliable food • It has a good market, 85,000 UGX per bag and the yield is 6 bag/ha 	<ul style="list-style-type: none"> • Land preparation is difficult • It is susceptible to pests
Beans	1	<ul style="list-style-type: none"> • It is the best food item • It arrives within 4 months starting in March • We send children back to School with it • High price of 200,000 UGX/bag 	
Red sorghum	2	<ul style="list-style-type: none"> • Best for making posho • It is also good for brewing 	<ul style="list-style-type: none"> • It takes a long time to mature (Mar – Nov) • Susceptible to birds, honey dew and wind • Weevils at storage
Millet	2	<ul style="list-style-type: none"> • It has a good market • Good yield of 5 bags/ha • Good price 150,000 UGX/ bag • Good for making posho 	<ul style="list-style-type: none"> • High risk of production failure • It needs land used for sweet potatoes and does not produce on virgin land • Weeds, pests & tree grasshoppers
Maize	2	<ul style="list-style-type: none"> • We use it while it is green • It is good for brewing • We sell within the village to WFP for school feeding for 90,000 per bag • The yield is high, 15 bags/ha 	<ul style="list-style-type: none"> • It needs specific soil types • Very susceptible to rain failure
White pea	3	<ul style="list-style-type: none"> • It arrives within five months starting in April • Leaves arrive within 2 months 	<ul style="list-style-type: none"> • Weevils
Cassava	3	<ul style="list-style-type: none"> • It takes 8 months starting in July • It has a good market in Kotido as Jie's do not produce it • The yield is 20 bags/ha and each bag fetches 60,000 UGX 	<ul style="list-style-type: none"> • High market competition in Abim area
Sunflower	Not Ranked (NR)	<ul style="list-style-type: none"> • It contains more oil than ground nuts or <i>simsim</i> • Good yield of 6.5 sack/ha • The price is 600 UGX/kg 	<ul style="list-style-type: none"> • Labor intensive • Birds
<i>Simsim</i> (Sesame)	NR	<ul style="list-style-type: none"> • It has a good market • Easy to extract oil 	<ul style="list-style-type: none"> • It requires specific types of soil • More susceptible to rains • Labor intensive • Low yield of 1.5 bags per hectare • Highly susceptible to pests or too much or too little rains
Cow pea	NR	<ul style="list-style-type: none"> • Easy to grow 	<ul style="list-style-type: none"> • More drought tolerant
Canute	NR	<ul style="list-style-type: none"> • Good cooking oil 	

Table 9: Fruit production – opportunities and constraints

Relative importance of fruits		Opportunities/Constraints
Type	Rank	
Mango	1	<ul style="list-style-type: none"> Food for children during critical food shortage period, as it arrives in June and December The price is good, 200 UGX/mango and a tree gives around 50,000 UGX High market competition in May and June It takes 3-4 years to produce
Papaya	2	<ul style="list-style-type: none"> It arrives within 8 months and it produces for a 3 year period It has a good market, 1000 UGX per fruit Difficult to differentiate male and female at early stage
Orange	3	<ul style="list-style-type: none"> No market problem (easy to sell) It takes 5 years to produce
Passion fruit	4	<ul style="list-style-type: none"> Relatively easy to produce
Jack fruit	NR	<ul style="list-style-type: none"> Harvested once per year and each tree produces around 20 fruits Medium size fruit fetches 10,000 UGX It takes 10 years to produce
Banana	NR	<ul style="list-style-type: none"> We store it for the dry season although sun drying is inefficient
Avocado and Guava	NR	<ul style="list-style-type: none"> Mainly for home use
Jute	NR	<ul style="list-style-type: none"> It can be made in to wine

Table 10: Vegetable production – opportunities and constraints

Vegetables	Use	Opportunities/Constraints
Potatoes	Home use	<ul style="list-style-type: none"> It takes 7 months starting in July or August Worms are a major problem
Tomatoes	Cash	<ul style="list-style-type: none"> Pest and disease Highly perishable and difficult to sell
Cabbage	Both	<ul style="list-style-type: none"> Disease and pests
Onion	Cash	<ul style="list-style-type: none"> Pests and disease Highly perishable and difficult to sell
Egg plant	Both	
Spinach	Both	
Carrot	Both	
Pumpkin	Home use	
<i>Sukamawiki</i> (like kale)	Both	
<i>Malakwan</i>	Both	The leaf is made into wine in Kampala

Table 11: Community suggestions for improving crop production

Constraint	Suggestion
Rain failure	<ul style="list-style-type: none"> Promote use of improved seed varieties
Crop pests and disease, and shortage of seeds	<ul style="list-style-type: none"> Promote establishment of multipurpose farm store selling seeds, tools, pesticides and knapsack sprayer
Shortage of oxen, plows and other farming tools	<ul style="list-style-type: none"> Identify and support skilled people who can produce farming tools within the community
Poor households' lack of oxen	<ul style="list-style-type: none"> Targeted credit facility for oxen fattening and/or tractor tillage service (Animal Health Services)
Shortage of land needed for backyard vegetable farming	<ul style="list-style-type: none"> Support paramilitary forces and facilitate peace building to expand production into insecure areas
Fruit farming	
Lack of seedlings	<ul style="list-style-type: none"> Training on how to raise seedlings
Low productive mango variety	<ul style="list-style-type: none"> Grafting with apples
Damage caused to fruits due to poor harvesting, storage and transportation methods	<ul style="list-style-type: none"> Training on improved harvest and storage methods Use of ventilated materials such as baskets instead of sacks Use of donkey carts for transporting to markets
Termites kills the seedlings	<ul style="list-style-type: none"> Use of recommended polythene tubes
Problem of differentiating male and female papayas on time	<ul style="list-style-type: none"> Training and technologies
Pigs destroy the seedlings	<ul style="list-style-type: none"> Owner should take responsibility
Sun drying of banana takes a long time	<ul style="list-style-type: none"> Identify and introduce better technology such as use of solar for drying
High market competition at time of harvest	<ul style="list-style-type: none"> Introduce simple fruit processing technologies such as to juice and powder

3.3.2 Livestock Production

Table 12: Constraints to livestock production

Challenge	Contributing factors	Frequency reported (# FGD)
High prevalence of disease	Poor veterinary services	30/30
Mortality relating to tracking chips	Animal raiding	12/30
High calf/kid mortality	Poor management at <i>kraal</i> centres	12/30
Water shortage	Boreholes damaged partly due to overuse	30/30
Lack of access to potential pasture	Conflict, <i>kraals</i> and tsetse fly	30/30
Lack of reliable livestock markets due to bad roads during the wet season and conflict	Bad roads and conflict affect processes of trucking and trekking trade animals respectively	30/30
Poultry diseases such as fowl cholera (<i>Newcastle disease</i>), chicken mite etc.	Confined settlement patterns and absence of effective veterinary services in the area	30/30

Table 13: Community Suggestions for Improving Livestock Production

Constraints	Suggestions
Shortage of quality water for people and livestock	<ul style="list-style-type: none"> • Rehabilitation of damaged boreholes and installation of hand pumps to reduce risk of supply interruption due to absence of wind • Mechanized dams with canals and water outlets • Establishment of effective water management system and strong WASH training
Salty borehole water	<ul style="list-style-type: none"> • Construct boreholes away from valleys and flood zones
Animal diseases and poor animal health services	<ul style="list-style-type: none"> • Promote establishment of privatized CAHW systems through: <ul style="list-style-type: none"> ➤ Refresher trainings and start up stock for active CAHWs ➤ Job contracting private veterinary professionals to supervise and compile CAHWs monthly treatment reports among other routine activities ➤ Initiate community-based tsetse fly control program such as traps and use of recommended chemicals e.g. spot on
Herders' failure to repay credit service used from CAHWs	<ul style="list-style-type: none"> • Discourage CAHWs act of providing credit services through training and kit agreement
Chips used to control cattle theft	<ul style="list-style-type: none"> • Further research to document the impacts of chips on cattle health and raiding to inform decision-makers
Poor management at <i>kraals</i>	<ul style="list-style-type: none"> • Further research to quantify livestock mortality and production losses due to <i>kraals</i>
Lack of reliable markets due to bad roads and conflict	<ul style="list-style-type: none"> • Promote use of bush markets and decentralization of market service delivery system through linking external traders to village-based markets and traders with mobile phones

Table 14: Cattle herd dynamics since entering kraals (Abim)

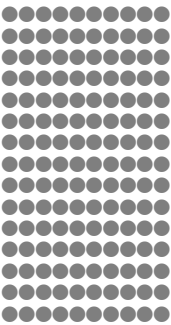
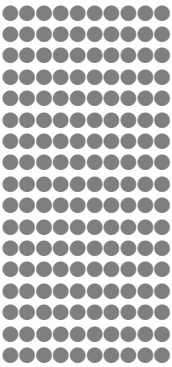
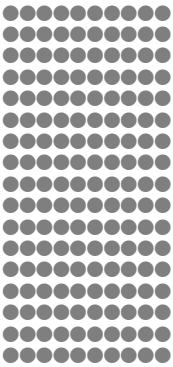
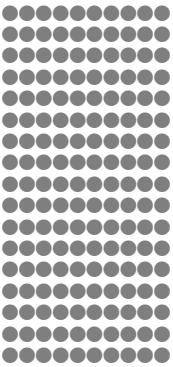
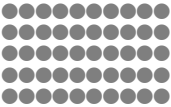
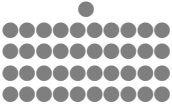
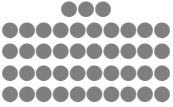








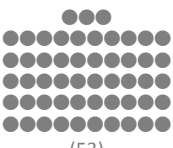


















Village		Odollo West	Gulonger North	Loyoro Central	Gulonger East
Kraal entry date		2011	2010	2011	2011
Original herd entering kraal (estimated)					
Estimated number of births		 (50)	 (41)	No Data	 (43)
Estimated number of calves that survived birth		 (33)	 (14)	No Data	 (16)
Sold		 (14)	 (23)	 (13)	 (11)
Raided/Stolen		(0)	 (28)	 (53)	 (6)
Died	Tracking chips	 (31)	 (14)	 (29)	(0)
	CBBP	 (9)	 (4)	 (3)	 (8)
	Trypanosomiasis	(0)	 (2)	 (1)	 (3)
	Tick borne disease	 (10)	 (7)	 (5)	 (2)
	Other disease	 (9)	 (4)	 (1)	(0)
Estimated percentage of original herd remaining		74%	61%	Incomplete Data	92%

Table 15: Cattle herd dynamics since entering kraals (Kaabong & Kotido)

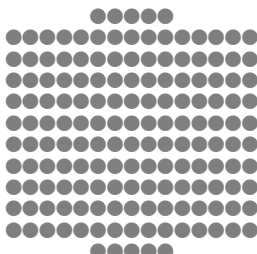
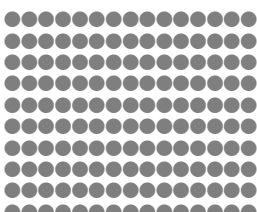
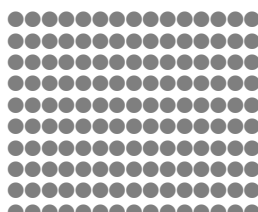
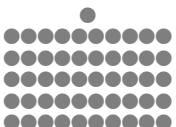
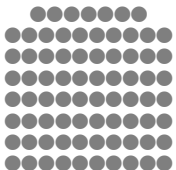























Village (District)		Nangolemurya (Kotido)	Moruangita (Kaabong)	Narube (Kaabong)
Kraal entry date		2008	2008	2007
Original herd entering the kraal (estimated)		 (160)	 (150)	 (150)
Estimate number of births		 (51)	 (77)	 (47)
Estimated number of calves that survived birth		 (14)	 (40)	 (36)
Sold		 (37)	 (11)	 (32)
Raided/Stolen		(0)	 (36)	 (48)
Died	Tracking chips	 (17)	 (31)	 (9)
	CBBP	 (9)	 (3)	 (7)
	Trypanosomiasis	 (6)	 (11)	 (1)
	Tick borne disease	 (6)	 (7)	 (4)
	Other disease	 (4)	(0)	 (5)
Estimated percentage of original herd remaining		59%	61%	53%

Table 16: Small Ruminant herd dynamics

	Gulonger North	Nangolmurya	Moruangita	Narube
<i>Kraal</i> entry date	2010	2008	2008	2007
Original herd entering <i>kraal</i> (estimated)	109	122	153	90
Number of births	<i>No data</i>	56	<i>No data</i>	<i>No data</i>
Number of animals that survived birth	<i>No data</i>	33	<i>No data</i>	<i>No data</i>
Sold	26	20	18	33
Raided/Stolen	40	0	67	20
Died	Tick borne disease	22	17	9
	Mange	2	23	15
	CCPP	12	62	20
	Other disease	5	0	24
Estimated % of original herd remaining	<i>Incomplete Data</i>	40%	<i>Incomplete Data</i>	<i>Incomplete Data</i>

Notes on Tables 14-16

- Data derived using proportional piling using a specified number of counters to represent the estimated size of the original herd entering the *kraal* – Off-take was estimated for three variables viz. sales, death and raiding. Birth survival was estimated using additional counters.
- CBBP = Contagious Bovine Pleuropneumonia
- CCPP = Contagious Caprine Pleuropneumopnia

3.3.3 Other Income Earning Opportunities

Table 17: Natural resources and employment

Resource	Opportunities	Constraints
Wild foods/bush products	<ul style="list-style-type: none"> • Availability of Tamarind, <i>Balanaites</i>, shea nut and other commercial bush products 	<ul style="list-style-type: none"> • Security problem when collecting wild fruits and vegetables and high market competition and perishable nature of the products • No local processing facilities for commercial use • Bush encroachment, loss of trees to agricultural expansion, firewood collection, brickmaking and wood for construction
Honey production	<ul style="list-style-type: none"> • Demand from UPDF/urban dwellers • More resilient to rain-failure than crops • Good profit 85,000 UGX for a 20 liter Jerri can in Kotido • Potential for small scale wax product enterprise 	<ul style="list-style-type: none"> • Lack of skills/knowledge in honey production/collection • Bush encroachment, loss of trees to agricultural expansion, firewood collection, brickmaking and wood for construction
Gold mining	<ul style="list-style-type: none"> • High profits 	<ul style="list-style-type: none"> • Insecurity, malaria & disease at mining sites • Absence of food, shelter and water at mining sites • Lack of mining tools & water for sifting • Low price of gold to middlemen in the bush • Exploitation by mine owners
Brick making and stone breaking	<ul style="list-style-type: none"> • Growing demand as small urban centers like Kotido, Abim, Kaabong and Karenga expand 	<ul style="list-style-type: none"> • Brick making activity is only carried out during the dry season, high competition • Critical shortages of water and firewood, firing bricks consumes large quantities of firewood⁶ • Lack of skills, technology = poor quality bricks • Lack of transport services
Sale of charcoal and firewood	<ul style="list-style-type: none"> • Growing demand as small urban centers expand 	<ul style="list-style-type: none"> • Shortage of firewood • High competition and lack of buyers • Inaccessibility of markets and lack of transport services • Bush encroachment (environmental impact)
Sale of labor	<ul style="list-style-type: none"> • Increasing opportunities as small urban centers expand 	<ul style="list-style-type: none"> • Limited employment opportunities for male youth in towns • Girls and children 'lost' to towns over time • Contractors escape with payments for government construction work subcontracted to communities'.
Business, retail cottage industry, petty trade	<ul style="list-style-type: none"> • Increasing opportunities as small urban centers expand 	<ul style="list-style-type: none"> • Absence of training programs on small scale business planning and management • Shortage of cash (poverty) to start businesses • Lack of credit & credit institutions misuse and theft of group money in cooperatives and VSLA's • Short loan repayment period (one month for VSLAs) • Lack of business and market opportunities

⁶ Burning 15,000 bricks requires an Isuzu truck full of firewood and this activity has a potentially harmful impact on the natural resource base of the region

3.4 Markets

Table 18: Sale volume and prices for livestock in Kanawet market

Proportion (%) of supplied animals sold in Kanawet (Kotido) market			
Species	Dry	Wet	Remarks
Cattle sold	39	12	<ul style="list-style-type: none">On January 23, 2013 the market was full the high supply was attributed to the fact that people were selling their livestock to compensate for crop losses due to abnormal rainDonkeys were from Kotido and Turkana with herders being the main buyers for donkeys
Small ruminants	35		
Donkeys	50		
Change in livestock prices			
Species	Jan 2013	Jan 2012	Remarks
Male cattle	950,000	1,450,000	The price increment was due to inflation
Heifer	600,000	500,000	Price at Makilathin market in Abim
Male goat	156,250	98,750	The supply was from Kotido, Turkana, Kaabong, Abim
Male sheep	77,000	77,000	The price increment was due to inflation
Female goat	65,000		For meat
Female kid	17,000		For production
Donkey male	300,000	280000	The donkeys were from Kotido and Turkana Herders are the main buyers using income from charcoal and stone breaking during the dry season
Donkey female	400000	350000	

Table 19: Transport method Kanawet (Kotido) market

Origin	Transport/Method	Commodity	Remarks
Soroti	Vehicle (<i>truck</i>)	Potato & sorghum	<ul style="list-style-type: none"> External livestock traders cannot access Kotido market during the rainy season resulting in a shortage of livestock buyers and a grain supply shortage Conflict and insecurity are the main challenges encountered with trekking animals to and from Kotido market
Mbale	Vehicle	Tomato & banana	
Acholi	Vehicle	Potato & sorghum	
Lango	Vehicle	Cassava & sorghum	
Kaabong	Vehicle	Livestock	
Busiya	Vehicle	Various	
Palisa	Vehicle	Various	
Buguere	Vehicle	Various	
Turkana	Foot (<i>trekking</i>)	Livestock/Other	
Moroto	Foot	Livestock	
Kotido	Foot	Livestock	

Table 20: Market prices (Kanawet)

Prices of Kotido market		Price by Season (UGX)		
Items	Unit	Dry	Wet	Source
Chicken	Head	8,125	8,125	Kotido
Egg	Pcs	275	275	Kotido
Duck	Head	14,500	14,500	Kotido
Dried fish (<i>umena</i>)	Cup	500	Not sold	Lira
Beans	Kg	2500	2500	Soroti, Mbale, Lira
Sorghum	Kg	1000	4500	Lira, Abim
Ground nut	Kg	3500	4000	Soroti
Millet	Kg	1000	1500	Locally produced
Maize	Kg	650	850	
Cucumber	Sack	36000	36000	Locally produced
Temrin	Bundle	100	100	Locally produced
Charcoal	90 kg	15000	15000	Locally produced
Ox plough	Pcs	250000		Locally produced
Local drink	100 litres	20000		Kotido
Tobacco	Block	70,000		Kotido and Turkana
Tobacco	Cup	500		Kotido and Turkana
Soda (<i>Magadi rock</i>)	Pcs	22,500		Mbale
Onion	Pcs	200		Kotido
Traditional chair	Pcs	55,000		Kotido
Mortar	Pcs	77,500		Kotido
Broom	Bundle	500		Kotido
Axe	Pcs	15000		Imported
Bow and arrow*	Pcs	13,500		Locally produced
Pears	Pcs	7000		Locally produced
Bed sheet	Pcs	20000	10000	Imported
Prices of animal drugs at Kotido market				
Limoxin 10%	Vial	7000	7000	Kampala
Alamycin 20%	Vial	15000	15000	Kampala
Ivomec	Vial	25000	25000	Kampala
Bernil	Sachet	3000	3000	Kampala
Albendazole 1 g	Bolus	1000	1000	Kampala
Alben 2500 mg	Bolus	2000	2000	Kampala
Alben 300 mg	Bolus	1000	1000	Kampala
2.5% liquid	1000 ml	10000	10000	Kampala
2.5% suspension	500 ml	8000	8000	Kampala
2.5% suspension	120 ml	3000	3000	Kampala

The use of bow and arrows has apparently increased since disarmament

Table 21: Crop and food prices Makatiin market

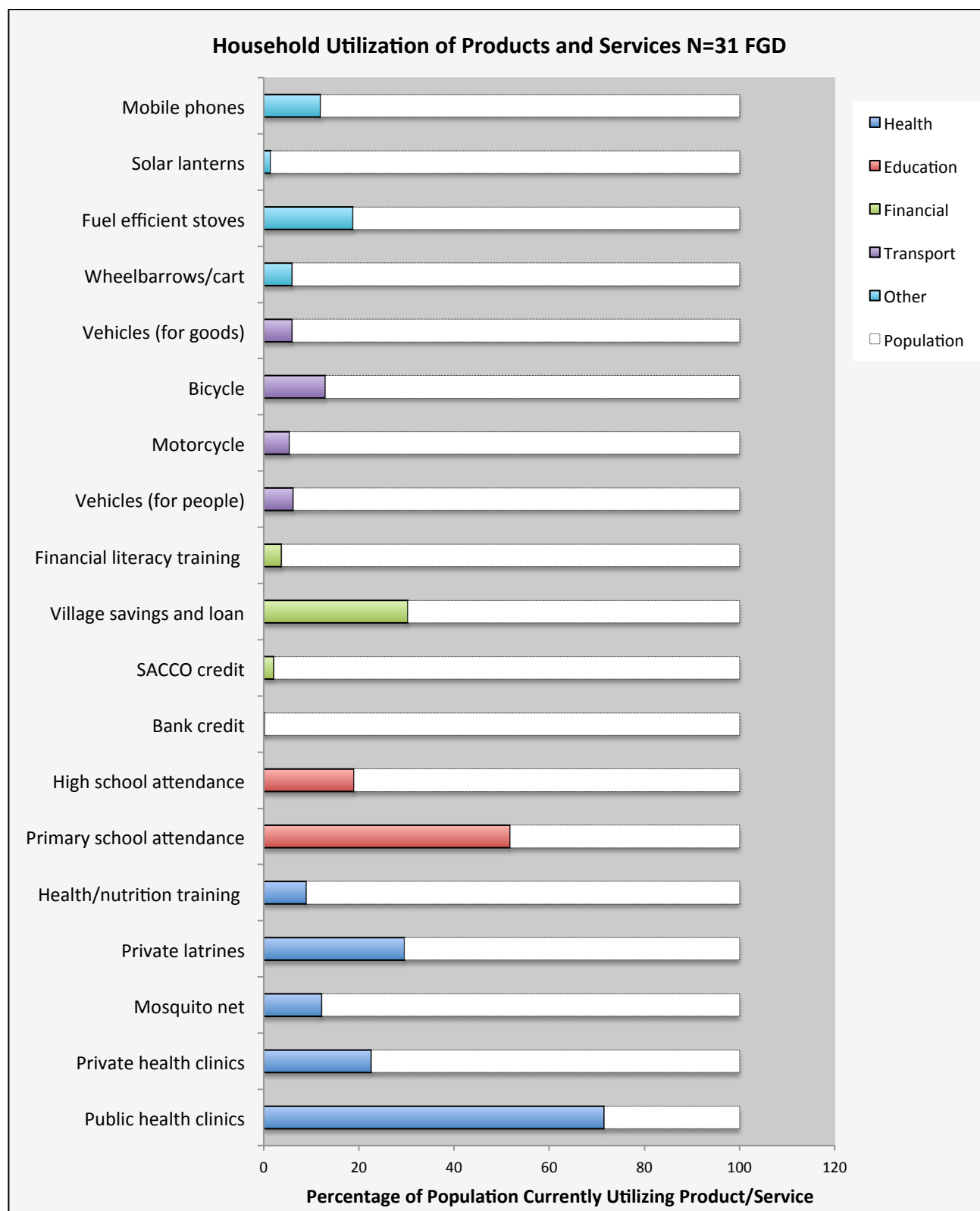
Item	Unit	Purchase (UGX)	Sale (UGX)
Beans (local)	Kg	950	1300
Beans (k132)	Kg	1500	2700
Sorghum	Kg	800	900
Ground nut	Sac	130,000	150,000
Millet	Kg	1300	800
Cassava	Sack	80000	90000
Posho	Kg	600	700
Tomato	Jeri-can (20 lts)		22000
Cabbage	Pcs	500	800

3.5 Access to Products and Services

Table 22 Utilization of products and services by district (Mean Score)

Product/Service		Abim (n=10)			Kaabong (n=10)			Kotido (n=11)		
		Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum
Transport	Vehicles for people	1.6	0	10	4.6	0	18	11.9	0	66
	Motorcycle	5.7	0	28	3.5	0	18	6.9	0	25
	Bicycle	9.5	0	42	1.8	0	18	26.3	0	100
	Vehicles for goods	0.2	0	2	4.8	0	17	12.4	0	75
Credit	Bank credit	0.8	0	6	0	0	0	0.0	0	0
	SACCO credit	6.6	0	35	0	0	0	0.0	0	0
	Village saving and loan	21.2	0	60	13.4	0	44	54.0	0	100
	Received financial training in the past 3 yrs	11.6	0	43	0	0	0	0.0	0	0
Livestock	CAHW service	25.9	6	66	11.9	0	38	8.5	0	39
	Livestock vaccination and treatment	21.5	5	32	33.7	0	100	2.8	0	18
	Poultry vaccination and treatment	9.2	0	27	22.1	0	100	0.0	0	0
	Received training in animal production	12.2	0	39	0	0	0	0.0	0	0
Agriculture	Using plow oxen	15	8	27	10.5	0	24	12.1	0	69
	Received training in crop production (3 yrs)	19.9	0	50	2.5	0	25	0.0	0	0
	Tillage/tractor	2.4	0	15	1.27	0	6	4.9	0	42
	Fertilizer	0	0	0	0	0	0	0.0	0	0
	Pesticides/herbicides	5.5	0	39	0	0	0	0.0	0	0
	Seed vouchers	22.2	0	50	2.8	0	28	0.0	0	0
	Post harvest preservation sacks	9	0	50	0	0	0	0.0	0	0
Health & Education	Public health clinics	50.4	4	100	61.4	47	100	100.0	100	100
	Private health clinics	18.1	0	34	25.4	0	50	24.2	0	100
	Mosquito net	7.2	0	26	14.4	0	50	14.8	0	100
	Private latrines	7	0	35	32.3	0	92	47.7	0	100
	Received health/nutrition training	25.5	0	50	3	0	30	0.0	0	0
	Primary school attendance	24.2	4	38	51.2	10	88	77.5	21	100
	High school attendance	11.1	2	39	21.2	6	41	24.5	6	65
Other	Fuel efficient stoves	18	0	39	27.4	0	63	11.6	0	43
	Wheelbarrows/cart	1.9	0	9	10.5	0	47	5.8	0	64
	Solar lanterns	0.9	0	9	3.4	0	34	0.3	0	3
	Mobile phone utilization	3.92	0	9	15.5	0	85	16.0	0	36
12 months food secured from own production		18.3	5	50	9.1	0	30	25.6	7	88
Test Statistics										
Kendall's Wa		0.503			0.547			0.669		
Chi-Square		150.877			164.161			220.760		
df		30			30			30		
Asymp. Sig.		0.00			0.00			0.00		

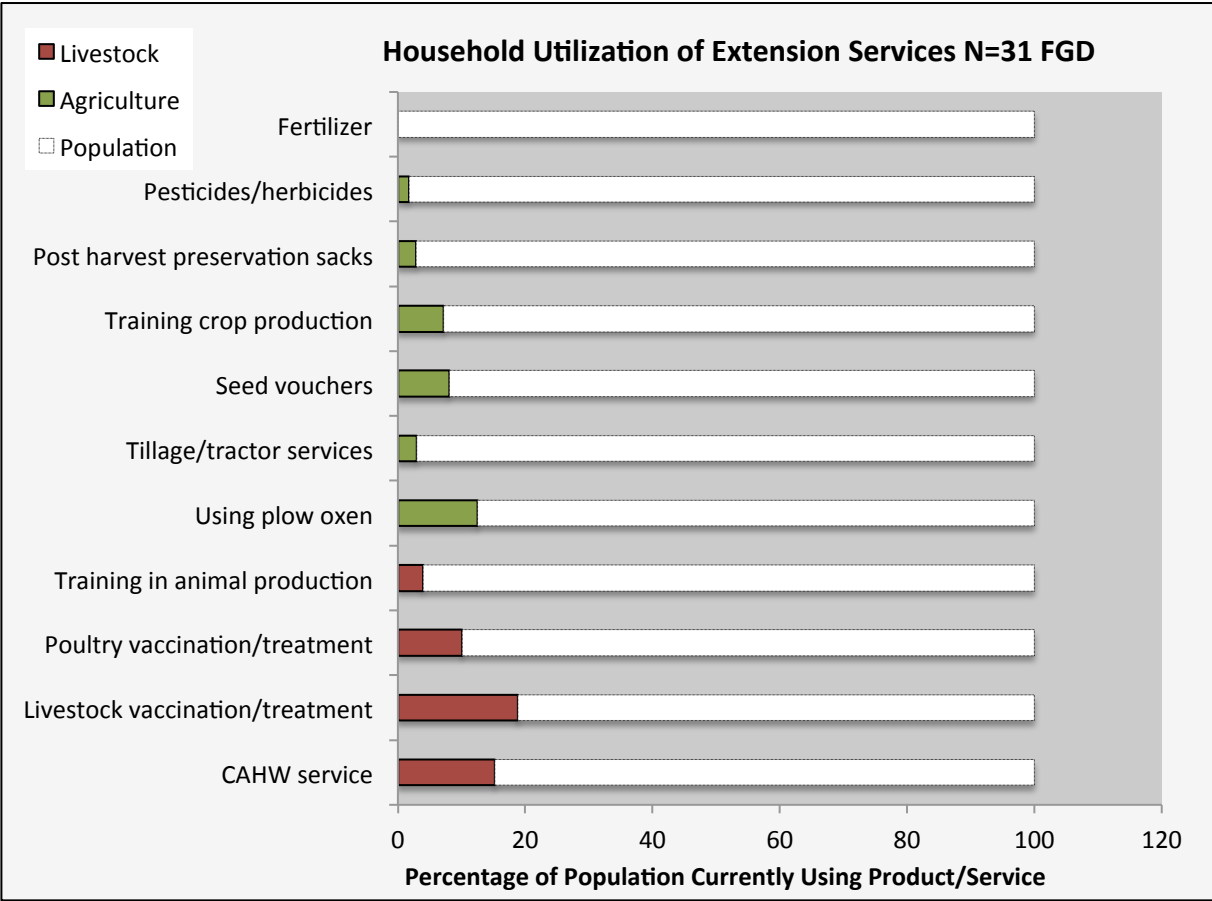
Figure 2: Proportion of study population using different products and services



Notes: Training utilization refers to those that received training in the past three years

Population refers to all eligible people (i.e. primary school children, people in need of medical care, adults eligible to join savings groups etc.)

Figure 3: Proportion of study population using production inputs and extension services



Notes: Training utilization refers to those that received training in the past three years

3.5.1 Transport Services and Utilization

Figure 4: Costs of transportation (n=19)

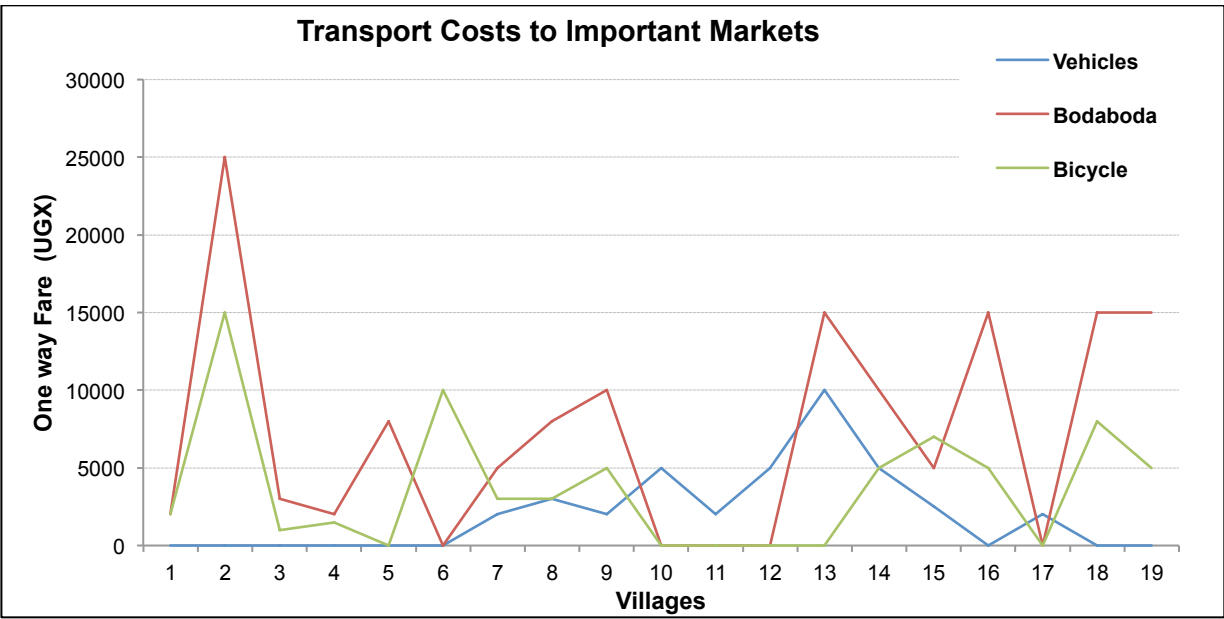


Table 23: Utilization of transport services

Proportion (%) of Study Villages and Households Using Different Transport Services						
Means of transport	Abim (n=10)		Kaabong (n=10)		Kotido (n=10)	
	Village	HHs	Villages	HHs	Villages	HHs
Truck	40%	13%	50%	5%	18%	1%
Motorbike	70%	8%	30%	4%	55%	5%
Bicycle	80%	24%	20%	7%	55%	9%

Notes on figure 4 & Table 23

- Generally people closer to towns use vehicles (trucks and pickups) as these are available and fares are cheaper than in distant villages. However, people who live very close (a few Kilometers) will usually walk as it is cheaper and often quicker given the waiting time to fill up the vehicle.
- Fares for motorcycles (*bodabodas*) are typically more expensive than vehicles (depending on distance from town) therefore many participants were reluctant to use these.
- Study participants generally don't use vehicles to transport livestock, as it's cheaper to walk them to markets.

4. Discussion

4.1 Assessment Constraints and Methodological Limitations

As previously mentioned the option to carry out a conventional impact assessment baseline was rejected due to a number of practical and methodological reasons. Alternatively, a more flexible study approach was adopted and the assessment became part fact find mission and part baseline study. As such, the study objectives and priorities, along with the tools and methods were continuously evolving or changing and complicating the research design.

One of the main stated priorities of the assessment was to collect baseline data that would enable changes in inequality to be assessed over time as a proxy for project impact. The limited time and resources available for the assessment along with the need to have representative geographical project coverage determined that inequality would have to be measured using a limited sample. It was therefore decided that participatory wealth ranking, a method that has been applied successfully in Karamoja in the past, could be used to assess changes in inequality. Although the method worked quite well and the results between informant groups show agreement, these exercises took anywhere between one half to two thirds of the time allocated for the whole focus group. This resulted in other exercises being rushed with obvious compromises in data quality and learning. The team did not anticipate these exercises taking so long and underestimated the difficulty in trying to define and conceptualize poverty and inequality in the context of Northern Karamoja. More details on these conceptual challenges are discussed in section 4.2. However, the point should be made that these exercises often resulted in a protracted and unprompted discussion on food aid even though the study objectives had been clearly stated from the outset. It is unclear whether participants perceived these exercises to be some sort of undercover food needs assessment, but if they did it could potentially bring in to question the reliability of the results.

Given the limited sample size, assumptions were made about the homogeneity of the three different study areas. However, the results indicate that there is considerable heterogeneity between villages even within the same district and agro ecological or livelihood zones. Caution should be applied in generalizing these results up to the district or project area level, as they are certainly not representative. The only generalization that can safely be made is that there is considerable variation and diversity both within and across communities and districts. The results and modeling on livestock herd dynamics should also be treated with caution. The sample for these exercises was small and the results, although perhaps true are quite alarming. There is a possibility that these findings were exaggerated either due to sensitivities around declaring true livestock numbers, or in the way the exercise was implemented and understood by participants.

4.2 Recent Trends and Events

The defining events affecting livelihoods in Northern Karamoja over the past ten to fifteen years have been drought, crop failure and protracted conflict in the form of armed cattle raiding (Table 4). In recent years, external responses to these events in the form of policies, interventions and development activities have also had a considerable impact on livelihoods both positive and negative (Table 4). Respondents in all study areas reported an improvement in security and an associated decrease in raiding since 2010 and the last three years can be characterized as relatively peaceful. These improvements can be partly attributed to the disarmament campaign, an increased military presence and the utilization of protected *kraals* for livestock. However a

number of informants suggested that improved security largely had to do with the fact that they no longer had any livestock to steal.

The decline in overall livestock numbers in recent years or at least a dramatic redistribution of livestock holdings is possibly the most significant livelihoods trend occurring in the region today. Not only has this had a negative impact on poverty and food security it has also transformed many of the social institutions that define Karamojong culture (Stites *et al* 2007; Carlson *et al* 2012). Although this trend is by no means unique to Karamoja (see Catley and Aklilu, 2013) large scale raiding along with the poorly implemented disarmament campaign and the protected *kraal* system have undoubtedly accelerated it. Factors such as reduced mobility and commercialization of the livestock sector have likely played a role although the relationship between all these contributing factors is not easily defined.

Regardless of the reasons for this trend, study participants universally claimed that more people have fewer livestock holdings now than they did five years ago. As a result greater numbers of people are moving away from transhumant livestock production with many becoming dependent on crop farming. Evidence from other studies in Karamoja suggests that dependency on crops is associated with an increase in vulnerability and food insecurity (Levine, 2010; Mubiru, 2010) and this might be expected to continue and get worse. As more people move into crop farming this will translate into a greater loss of mobility for pastoralists and increase competition for land and water between pastoralists and farmers potentially fuelling future conflicts.

Although there has been an overall improvement in security since 2010 and a reduction in armed raiding, opportunistic theft of livestock and other assets was widely reported and appears to be on the increase (see also Howe, 2013). This may be linked to the decline or redistribution of livestock holdings as participants suggested that in the past young men (male youth) were busy looking after the cattle but that now hunger and idleness act as a dual incentive for them to engage in livestock theft. Recent reports on Karamoja also suggest that commercial livestock raiding is on the increase (Stites *et al* 2007) although study participants, with one possible exception did not mention this⁷.

Although it is difficult to determine what impact climate change has or will have in the future, research findings suggest that crop yields in Karamoja have been declining over the past 20 years (Ayoki, 2007). Study participants frequently identified increasingly variable and unreliable weather patterns for crop failures with five of the past six years being associated with poor or failed harvests (Table 4). If this pattern continues, more people will be at risk from production failure as increasing numbers of people become dependent on crop farming.

Economic diversification is another ongoing trend that is likely to increase over time particularly as more people move out of pastoralism and have to spread the risk of crop failure through alternative livelihoods activities. Already there has been an increase in the number of people engaged in activities such as charcoal production and brick making and over time these '*maladaptations*' (Young *et al*, 2009) are likely to have a significant impact on rangeland, crop, wild food and honey production with obvious implications on livelihoods. Nonetheless the growth of small towns in and adjacent to Northern Karamoja will also create employment and marketing opportunities as will improvements in the access and availability of education for Karamojong youth.

⁷ In one study community participants suspected army complicity in a cattle raid near a mobile barracks

4.2. Wealth and Inequality

4.2.1 Conceptualizing poverty - who are the poor?

The three study areas of Abim, Kaabong and Kotido are ranked in the bottom four districts in the country on the Human Development Index and top three in the country on the Human Poverty Index (UNDP, 2007). However, while acknowledging that poverty in Karamoja is widespread, Levine (2010) argues that income-based poverty (*measured as expenditure*) is not much different than other parts of rural Uganda.

In trying to quantify inequality the research team attempted to collectively define different wealth categories with study participants and proportionally assign members of the community into each category. While this process was fascinating and informative it revealed that in Northern Karamoja poverty concepts are as subjective, dynamic, multidimensional and difficult to measure as in other contexts. One of the key challenges was in trying to actually define '*the poor*' and in determining what poverty measure (*indicator*) to use in order to quantify this group. In the development literature a number of broad and narrow definitions of poverty have been used and these are partly determined by different ideologies, worldviews and academic disciplines (Ludi and Bird, 2007). As such, there is no correct universal definition of poverty (Ruggeri Laderchi, 2006) and the term has been described as both 'vague' and 'ambiguous' and as "an inherently messy notion" (Hazlitt, 1996; Ludi and Bird, 2007; du Toit, 2009: 228). One commentator suggests that most of the poverty literature from the past two centuries fails to define poverty and that the authors take "it for granted that both they and their readers know precisely what is being discussed" (Hazlitt, 1996: 31). If accurate this is probably a reflection of the fact that the term poverty has been used in different ways, and has different meanings to different people (Baulch, 1996; Ludi and Bird 2007, Ravallion *et al*, 2008). One analyst suggests that there is "no objective, uncontroversial, value-free and unitary concept of poverty (du Toit, 2009: 228) and Robert Chambers (2006: 3) argues that perceptions on the meaning of poverty depend on "who asks the question, how it is understood and who responds". To illustrate the range and diversity of poverty concepts Chambers (2006: 3-4) identifies four different clusters of meanings around poverty; income poverty, material lack or want, capability deprivation and multi dimensional poverty. He also proposes a fifth cluster 'multiplicity of meanings' or the different definitions and dimensions of poverty based on the views of the poor themselves. This fifth cluster is probably the most useful way in which to conceptualize poverty and inequality in the study areas.

4.2.2 Wealth characteristics in Karamoja

In many ways it was easier to identify characteristics of the wealthy or better-off people in the community partly because the majority of study participants considered themselves poor. As in most pastoral and agro-pastoral communities livestock are considered the primary determinant of wealth and there was common agreement that those with cattle or plow oxen or medium to large herds of small ruminants were considered relatively well to do. The majority of study sites visited were in pastoral and agro-pastoral areas where livestock, particularly cattle and small ruminants as opposed to equines and poultry were considered important wealth indicators.

In some of the green belt areas around Abim and Karenga, livestock were also considered an important measure of wealth but less so than in other areas visited. In one study site people with livestock were actually classified as poor, as they were considered more vulnerable due to their dependency on animals⁸. This particular village was in an agricultural production zone⁹ and fairly close to an important urban center

⁸ Lokori Center, Karenga

⁹ Loyoro North, Karenga

(Karenga) with greater cash crop and marketing opportunities. In this village the wealthy were considered those who made enough income from crop sales to send their children to private schools (even in Kampala) and could afford to pay for transport to bring sick family members to private clinics. Nearby study sites also placed less emphasis on the importance of livestock as a wealth indicator although they attributed this to the depletion of livestock assets due to raiding and reported greater livestock ownership amongst the better-off wealth categories¹⁰.

Productive capacity in cereal crop production (yields) was also considered an important determinant for classifying wealth categories across all study areas. Indicators for this included the number of plow oxen owned, household labor capacity, and the ability of a household to hire farm labor. Typically, farm laborers are paid in *quete* (local brew) and better-off households have greater access to this commodity, being able to convert some of their crop surplus into liquid assets. Linked to this, the amount of land cultivated was also considered to be a good indicator of wealth status although it proved difficult to collect generalizable data on this by wealth group.

Participants also considered the number of months food needs met through on farm production as a good indicator of productive capacity or proxy for wealth. This proved to be a useful wealth indicator across the study areas and although there were significant differences across livelihoods zones, after a good harvest better-off households would expect to meet their food needs from own production for 12 months or more, the middle for 6-7 months and the poor for 3-4 months.

Based on these indicators, the results show that between 15-18 % (mean score) of the study population belongs to the better-off category, 33-35 % to the middle and 47-51% to the poor category (table 5). Although overall the results showed agreement there were large discrepancies in the proportion of people belonging to different wealth groups across villages (table 5).

The results should be treated with caution as they were derived from a process whereby external actors tried to define wealth in quantifiable terms that were probably quite meaningless to the study participants. As some analysts remind us, poverty is too often defined as that which can be easily measured and as such it becomes reduced to a measurable indicator that is in reality no more than an abstraction (Chambers, 2006; duToit, 2009).

4.2.3 Poverty dimensions in Karamoja

Abstractions aside, in the pastoralist and agro-pastoralist areas disparities in wealth are largely linked to livestock holdings. In Karamoja, Livestock are not only representative of wealth and status but have been described as ‘the measure of all things’ for a pastoralist community (Dyson Hudson, 1987: 28). The importance of livestock cannot be overestimated and not just in terms of financial capital. The allegiances, identity and the social fabric that defines these communities revolve around their livestock.

Keeping this in mind, in every study site visited, participants reported a considerable loss of livestock in recent years resulting in what in their perspective could be described as the ‘*impoverishment*’ of the majority of households in their communities. As such, they now more or less consider everyone to be poor. This trend is illustrative of what Stites *et al* (2007: 21) have described as an increasing inequity in livestock ownership and therefore wealth resulting in a shift to a more stratified and “individualized form of livestock ownership”. This may be part of a broader trend for pastoralists in the Greater Horn of Africa whereby commercialization amongst other factors is driving poorer herders out of livestock based livelihoods production and increasingly

larger herds are being concentrated in the hands of fewer wealthy pastoralists (Aklilu and Catley, 2009; Aklilu and Catley 2010; Catley and Iyasu, 2010; Catley and Aklilu, 2013).

Certainly in Northern Karamoja other factors such as raiding, disarmament and livestock disease have played an important role in accelerating this process. Nonetheless the outcome is that many communities have lost most or all of their livestock. Over twenty five years ago one commentator described the experience of the 'Dodos' people after having lost all their livestock to raiding as 'a major trauma having been deprived not only of their livelihood but also of their reason for living' (Dyson Hydson, 1987: 29). This is a pertinent observation that transcends the whole spectrum of poverty concepts from narrow income based poverty, to broad multi-dimensional poverty. From the perspective of income-poverty, the loss of livestock represents a direct loss of income through the sale of livestock and livestock products.

Poverty has also been conceptualized in terms of inequality or relative deprivation whereby in addition to an absolute lack of goods and services, an individual's relative place in society and their ability to participate in certain activities, or access certain resources and services represents an important dimension of poverty (Townsend, 1979). In pastoralist communities wealth and status are often directly linked to livestock ownership so it follows that the loss of livestock would translate into a loss of status or position or 'relative place' in society. On an individual level men who have lost their livestock assets may also lose some prestige but in Karamoja this also extends to entire groups within society such as elders, male youth and possibly also to some extent women. For example, it has been suggested that traditional elders have lost a considerable amount of influence and authority due to the decline in livestock given that traditional structures and customary laws are essentially based on a pastoralist livelihoods system (Carlson *et al*, 2012).

In Karamoja, the utilization of livestock as a measure of wealth represents a nuanced gendered dimension to poverty analysis, as the relationship between livestock, marriage, women and wealth is a complex one. Seeing as men control the cattle there is a common perception that all women are poor (Levine, 2010). From this perspective, if we consider livestock to be the key determinant of 'wealth', then it could be argued that either a loss or increase in livestock assets would have little to no impact on a women's *wealth* status. On the other hand the importance of livestock for dowry payments in Karamoja is directly linked to a married women's status in society (Stites *et al*, 2007, Carlson *et al*, 2012). Marriages conducted without the complete dowry payment are considered 'unofficial' subjecting both the bride and groom to a diminished social position and limited voice in the community (ibid). If we accept the argument that "social recognition matters as much as economic conditions in defining poverty within communities" (Krishna, 2009:187) and that unofficial marriages are on the rise due to the shortage of cattle, then **livestock herd dynamics can also have a direct impact on women's wealth or poverty status in Karamoja.**

Also affected by a decline in livestock numbers are the young men whose job it is to look after the animals. Participants repeatedly mentioned that many of the male youth 'are now idle for the lack of livestock for them to look after'. This represents a dimension of poverty that is consistent with Amartya Sen's (1999: 87) Development as Freedom approach which views poverty in terms of capability deprivation, or the lack of opportunities and choices that prevent a person from leading the "kind of life he or she has reason to value". Within this rubric, **aspects of poverty such as exclusion, or the inability to participate in society, or maintain cultural identity due to a lack of independence, power and voice are frequently cited in participatory assessments, as are stigma, humiliation, shame and the breakdown of social relationships** (Narayan *et al*, 1999).

It could be argued that these dimensions of poverty apply to all Karamojong, who to some extent are losing part of their cultural identity through the loss of livestock (see Carlson *et al*, 2012). **This type of capability deprivation is particularly pronounced for young men, for without livestock, they can "neither practice their skills nor express their values"** (Dyson Hudson, 1987: 29).

The exclusion and marginalization of the young (uninitiated) male ‘youth’ is by no means exclusively attributable to a decline in livestock numbers¹¹. Karamojong society is based on a hierarchical system of age sets whereby power is handed over to younger generations through periodic formal ceremonies that take place in times of peace and prosperity (Stites *et al*, 2007). The last time these ceremonies took place was in the late 1950s and the absence of any since then has left several generations of male Karamojong without any real power, status or voice (ibid). This has resulted in heightened tensions between generation sets, an erosion of traditional leadership and consequently the emergence of new more violent forms of cattle raiding, banditry and theft (ibid). One commentator describes the frustration of a group of middle-aged uninitiated men as follows: (Gray, 2000: 20; cited by Stites *et al*, 2007).

We are nothing more than “rats”, or uninitiated men, without a formal identity in the traditional power structure.

This statement illustrates, that for these younger generations of Karamojong men, the poverty experience is underscored by psychological elements such as the lack of identity and humiliation or they lack in the words of Adam Smith (1776) the ability to go about without shame. Another psychological dimension of poverty is fear of crime (Narayan *et al*, 1999) or indeed violence in general which was frequently mentioned across all study sites. Although there has been relative peace since 2010, participants consistently mentioned their fear of attacks and raids from neighboring groups and tribes and in some cases they mentioned recent incidents of these events (Table 4). This has had the effect of limiting people’s mobility and access to grazing, cropland, markets and labor opportunities representing a widespread form of capability deprivation. Violence in various forms including assault and alarming levels of rape and domestic violence have also been recently documented (Howe, 2013) and undoubtedly represents a particularly disturbing psychological dimension to the poverty experience of Karamojong women.

4.2.4 Poverty dynamics and inequality in Karamoja

As discussed there are multiple dimensions to poverty in Karamoja, it is not about the lack of a single thing but more of a phenomenon that is experienced in many different ways by different people. Narayan *et al* (1999: 7) describe poverty as a “gendered, dynamic, complex, institutionally embedded, and location specific phenomenon”. As such, the nature of poverty might vary by “social group, season, location and country” and consist “of many interlocked dimensions” (ibid). When conceptualized in this way then poverty is clearly widespread in Karamoja and it would be fair to conclude that the majority of people are poor.

Generally speaking, study participants implied that poverty is increasing and this largely has to do with the loss of livestock assets although frequent drought and poor harvests were also mentioned as important contributing factors. It is unclear however, to what extent the loss of livestock has resulted in an absolute decline in livestock numbers and to what extent there has been a dramatic redistribution of livestock holdings into the hands of the few. Either way, the majority of people now consider themselves poor because they have fewer livestock.

Certainly from the perspective of the participants interviewed there was a general consensus that everyone was poor. When it comes to poverty and vulnerability this concept is neither uncommon nor inaccurate (see Harragin and Chol, 1998; Ellis, 2008, Narayan *et al*, 2009). Relatively speaking and in global terms the rural poor in Sub Saharan Africa are indeed poor. However, the evidence also suggests that in terms of consumption, the economic differences between households living in poor communities are negligible (Ellis, 2008). In Karamoja there may even be an additional reason why everyone is considered poor. In her work on the differences between hot and cold climate cultures, Sarah Lanier (2000) draws a distinction between societies

¹¹ Note, the uninitiated male “youth” could be in their 40s, with grown up children of their own (Stites *et al*, 2007)

that are structured on “individualism” and those that are “group identity” cultures. Pastoralist groups share similar characteristics as the “group identity cultures” described by Lanier, as such they would understand poverty as group poverty as opposed to individual poverty. Frank Cowell (2008) describes inequality as an awkward word when used in connection with poverty or poverty measurement. In poor communities such as Karamoja the concept of inequality is even messier to try and quantify. As discussed, inequalities in income, food security, inclusion status, and social mobility exist in Karamoja. However, from the perspective of study participant’s inequality is largely understood in terms of livestock ownership. The implication here is that equality for women will not be addressed until women gain ownership rights over livestock. Or alternatively people’s understanding and benchmarks of poverty and inequality change.

From a purely reductionist point of view, inequality suggests a departure from some kind of equality (Cowell, 2008: 1). It would be difficult to argue that there was ever a time when Karamojong women experienced what could be considered ‘equality’. Perhaps in the early half of the last century the inequities in status between the older and younger generations of Karamojong men were less pronounced than today. This may well be a desirable equilibrium to return to, but even if it can realistically be attained it is well beyond the scope of the SUSTAIN project. Alternatively we might revisit Lanier’s (2000) concept of “group identities”. From this perspective, one could assume that everyone has now departed from a state of ‘equality’. Consistent with this, study participants now consider themselves all to be poor because they have lost their livestock. This suggests that such a state of ‘equality’ would have been at a time when there were either more livestock, or fewer inequities in livestock ownership.

Interestingly in several of the villages assessed, when participants were asked how best could the growing inequality between the rich and poor be addressed, they suggested that peace and improvements in animal health would ultimately lead to a reduction in inequality as herd growth would eventually allow the rich to marry more daughters from poor households allowing for a redistribution of wealth through dowry payments. However, there will be limits to the amount of redistribution that will actually occur even with improvements in animal health and herd growth. If inequity in livestock ownership is indeed linked to the broader dynamics and processes of people falling out of pastoralism described by Catley and Aklilu (2013).

Furthermore, participants implied that a considerable number of those who had formerly been wealthy and had many wives had lost all their livestock but were now just poor with many wives. They suggested that this was partly because the men continued to marry young girls instead of redistributing their livestock wealth amongst their existing wives. Consistent with this Levine (2010: 13) wittingly points out men will frequently use an increase in cattle “to increase the number of households (wives) that the herd must support. In other words a man may be considered rich if he is the head of many poor households” (ibid). There also appears to be an increasing prevalence of older men using their daughters dowry to marry additional wives, depleting cattle that could be used for their sons marriages, or for supporting multiple households (Stites *et al*, 2007). If accurate, these practices hardly point to an equitable or sustainable redistribution of wealth and suggest that an overall increase in livestock numbers would only have a limited direct impact on inequality in Karamoja.

4.3 Crop Production

4.3.1 Constraints to crop production

Rainfall – too much, too soon, too little, too late

Food insecurity in Karamoja has been attributed to low rainfall, unreliable rainfall and rainfall distribution and low soil fertility (GOU, 2010). Drought represents by far the biggest threat to crop production and participants across all study areas mentioned between two to three droughts in the past ten years resulting in complete harvest failure. Poor harvests are also common with these events being reported in five out of the past six years (Table 4). Poor harvests were typically attributed to inadequate rainfall or unreliable rainfall and inconsistent rainfall distribution. Floods were also mentioned as contributing to crop loss in 2011-2012 and in 2007-2008. Unlike other places where floods replenish the water table and improve soil moisture, soil and stream types in Karamoja result in large swaths of land being inundated with water (Dyson Hudson, 1987). High temperatures also limit optimal crop production with an associated increase in evaporation and decrease in soil moisture content (Mubiru, 2010).

Crop Pests

A variety of crop pest were also mentioned including stem borer, smut, shot flies, armyworms, grasshoppers, birds and rats. Livestock (mostly pigs) and wild animals were also blamed for crop losses. Across all three-study areas there was little evidence of farmers using herbicides or pesticides although there was considerable demand for these products (Figure 3).

Insecurity

Insecurity was also given as a major constraint to crop production and in one study site significant harvest losses were attributed to crop raiding as recently as 2010¹². Although insecurity and raiding are mostly associated with livestock, a food security assessment from 2008 ranked insecurity as the second biggest threat to crop production (after drought) in Kaabong and Moroto (ACF, 2008) and another study identified it as the biggest constraint (before drought) to crop production (Ayoki, 2007). Aside from actual raiding, fear of insecurity was also mentioned as a limiting factor in expanding on crop production and accessing high potential cropland.

Availability of Draft Animals/tillage services

Similarly, the lack of plow oxen was frequently mentioned as a limiting factor in expanding on crop production. This was attributed to the loss of livestock holdings in recent years. The availability, reliability and cost of tillage services were also mentioned as limiting factors although there were discrepancies across the study areas in terms of availability and demand (or at least the capacity to pay for these services). In a number of study areas participants suggested that tillage services were only for the rich, and in part this may have been based on past experiences where tillage support interventions had been poorly targeted and implemented and participants strongly alluded to elements of corruption associated with these interventions.

¹² Loyoro North (Karenga sub county)

Lack of Skills/Capacity

The lack of household labor capacity was also mentioned as a constraint to crop production and participants suggested that there was a strong correlation between crop production (yields) and labor deficit households. Labor shortages represent a key constraint for poorer households and again this is linked to the shortage of draft animals. Participants often cited hunger (lack of energy) as a primary factor contributing to their lack of productive capacity. It should also be noted that poor households are involved in a variety of livelihoods activities aimed at smoothing consumption and therefore have limited time to prepare their land. They often plant late, as they typically will work on farms of better-off households in land preparation. Delayed planting often results in failed harvests for poorer households.

Input Supply

The shortage of both seeds and other inputs was also frequently mentioned as a constraint to crop production. In some cases this had to do with availability, particularly of short-term cereal varieties. But in general there appears to be a shortage of quality seeds and planting material in many areas. This is hardly surprising given the frequency of poor harvests and drought. Participants mentioned that some people travel to other areas such as Kitgum, Pader and Lira to purchase seeds (and tools) although for poor households the transport costs can be prohibitive. Apparently this practice was more common in the past when people had more livestock to sell to cover the transport costs involved. There have been a number of Government and NGO seed distributions and one issue that was frequently mentioned was the poor timing of these in relation to the planting season. Participants mentioned that some tools are available in larger district centers such as Kotido, Kaabong and Karenga although cost and quality were mentioned as limiting factors. In many areas people are using rudimentary tools such as wooden sticks and hoes for land preparation which is done during the dry season when the soil is baked hard by the sun. The use of fertilizers, pesticides or herbicides was rarely mentioned in any of the study areas (Figure 3) except as a potential solution to improve crop production. The use of animal by-products or composting for fertilizer did not appear to be common either.

Lack of Extension Services

The lack of agricultural extension services (training) was also surprising given the importance of crop production in the Karamoja Action Plan for Food Security 2010-2015. The National Agricultural Advisory Services (NAADS) and NGO's have provided some training although it mostly seemed to be very basic stuff such as row planting and vegetable production. Nonetheless the lack of training in crop production was rarely mentioned as a constraint to production suggesting that it may not be a high priority for many people.

Poor Storage Facilities

Although farmers use a variety of traditional granaries (Annex I) people mentioned post harvest losses for all crops but particularly for sorghum beans, tomatoes and onions. Having said this, some participants (presumably poorer) suggested that they typically consumed or sold their crops before storage became an issue. Weevils were specifically mentioned as a problem for red sorghum and white peas and inadequate drying procedures were mentioned as a constraint for grains, bananas, cassava and potatoes (Tables 7-8). The construction of communal drying slabs was observed in some areas although these were evidently too small for even a large household. Mostly people dry their sorghum by initially hanging it in a tree and then spreading it on the ground in the dirt where it is difficult to gather up in the event of a sudden rain shower and is easily eaten by livestock (Annex I).

Future Trends/Constraints

The risk of drought and crop failure in Karamoja is extremely high and this is particularly concerning given that more and more people are becoming dependent on crop production as a result of increasing inequity in livestock ownership. Evidence from other studies suggests that people who are dependent on crop production are at far greater risk from drought than those who obtain a substantial part of their income from livestock production (Ayoki, 2007; Levine, 2010). If this trend continues one would expect to see a significant increase in the need for humanitarian food aid. One commentator even goes as far as suggesting that rain fed agriculture is simply not a livelihood option for Karamoja, that it only creates greater vulnerability to poverty and famine (Adoch, 2012: 2). While this may seem a little extreme, the potential for expanding on crop production does appear to be somewhat limited.

Households in Karamoja have already seen a decline in crop yields over the past 20 years (Ayoki, 2007) and participants in one village ostensibly in the green belt (see GOU, 2010) claimed that the last time they experienced a good harvest was in 2001¹³. Unfortunately, recent weather patterns are hardly encouraging. For example, extended dry spells were experienced in parts of the region in 2002, 2004, 2006 and 2009 (Mubiru, 2010; 4)¹⁴ and weather related harvest failures were reported for five out of the past six years in the areas assessed (Table 4). The Karamoja Action Plan for Food Security also refers to ‘extreme and intense climate change patterns that will continue to increase’ (GOU, 2010; 4-5). What’s a little surprising is that the same document then outlines what is essentially and almost exclusively a crop based agricultural strategy in a rain fed production zone.

It is certainly difficult to attribute weather events in Karamoja to climate variability and indeed research on the impact of climate change focusing on the Greater Horn of Africa concludes that it is ‘likely to be varied, site-specific and uncertain (Eriksen *et al*, 2013: 13). Nonetheless, there appears to be a consensus that even though aggregate rainfall has not declined, the intensity, distribution and predictability of rainfall have, comprising what has become commonly and increasingly referred to as erratic rainfall (Ayoki, 2007; Stites *et al*, 2007: ACF, 2008; FAO, 2010; GOU, 2010; and Mubiru, 2010). This may also be supported by recent evidence from research in the Horn of Africa suggesting that extreme weather events such extended dry spells and torrential rain have become more frequent and intense in recent years (Troger *et al*, 2011). There is also a growing body of evidence to suggest that rainfall patterns are becoming more unpredictable in terms of distribution and timing, even where mean rainfall appears to be more or less the same (Burns *et al*, 2010, Troger *et al*, 2011). Regardless of whether the frequency of dry spells or the erratic nature of rainfall has increased or will continue to increase, even twenty-five years ago, “extreme unpredictability” was used to describe rainfall in Karamoja (Dyson Hudson, 1987; 13). Essentially, rain fed crop production has and will continue to be a risky prospect for the majority of people in Karamoja, but especially for poor households whose productive capacity is constrained by labor shortages, draft animals and the lack of resources for inputs.

4.3.2 Opportunities for crop production

Despite these constraints, crop production is essential to people’s food security and represents an important component in a mixed production livelihoods strategy. In a good year crop sales contribute between 30-40 % of household income across the three study areas (Table 6)¹⁵. The potential for crop production in Karamoja also appears to be relatively good in comparison to other semi arid regions in the Horn of Africa, even outside

¹³ Tulenyang (Kapedo sub county)

¹⁴ 2010-2012 have seen relatively good growing conditions except for floods in some areas in 2011

¹⁵ In a bad year no income from crop sales can be expected outside of the greenbelt (see FAO, 2010)

of the greenbelt. In the agro-pastoral zones cereal production is somewhat opportunistic and grains are primarily grown for human consumption and in the event of a poor harvest crop residues are utilized for livestock feed. In good years surplus grains are sold or converted into local brew which is then sold or used as payment for hired labor although this mostly applies to better-off households with greater productive capacity in terms of labor and draft animals.

Important cash crops include all cereals (in good years) beans, groundnuts, chickpeas and cowpeas. Sunflower and sesame (*simsim*) are also produced and sold in all study areas and people mentioned beans and groundnuts as having the most income earning potential (Table 8). Tobacco is also important in dry areas and certain types of fruit in the greenbelt. Root crops such as sweet potato and cassava are also grown in some areas and there may be potential to introduce cassava into some of the drier areas of Kotido. Vegetables such as onions, tomatoes and pumpkins are also grown and provide a small but steady source of income for people when water is available (rain or irrigation).

Improve Input Supply

The availability of seeds for short maturing cereal crops was frequently mentioned as a constraint to crop production as the long-term varieties are more susceptible to harvest failure due to unreliable and 'erratic' rainfall in the area. Interventions to improve seed availability might include loans to seed traders, improved storage or the establishment of seed banks in strategic locations. The establishment of seed and planting material nurseries for all cash crop varieties could also help to improve seed availability and production. Improved access/availability of quality tools would help people expand on crop production and input supply (seeds/tools/herbicides) is one area where the SUSTAIN project is well equipped to support this, possibly through loans to private input suppliers and then linking these suppliers to communities. There may also be options within the project to support the development of a local tool making industry to manufacture/produce tools and other labor saving inputs that could improve crop production such as watering cans and wheelbarrows or push carts¹⁶.

Access to Draft Animals/Tillage

Access to draft animals would greatly improve people's productive capacity and opportunities exist for increasing the availability of plow oxen through improved (privatized) animal health services. The provision of (privatized) tillage services would also greatly improve the potential for expanding crop production although the willingness of people to pay for these services (tillage) and the relative costs of providing these will likely be restricted to green belt zones with reasonable road access. Caution should be applied when supporting tillage services as there have been mixed results in areas where these have been introduced. This included corruption around the selection of beneficiary farmers or outright theft of the money collectively contributed by individuals for the payment of the tractor. There were also complaints that the tractor came too late to be of any value but with no reimbursement of the money contributed. All these point to a need for a significant investment in coordination management and oversight where the provision of tillage services is being introduced for the first time. Without this investment the risk of failure will be high, potentially leading to reluctance to utilize these services in the future.

Targeting for tillage services should be restricted to high potential areas with reasonable roads and in the absence of risk management instruments such as crop insurance, targeting should also be restricted to productive (better-off) farmers who can absorb the investment and harvest loss in the event of drought or rain-failure both of which are extremely common in the project area. Nonetheless with appropriate guarantees there may be opportunities to explore the provision of tillage vouchers for the poor.

¹⁶ The absence of animal carts in the area was quite surprising

Reduce Post Harvest Losses

Interventions to decrease post harvest losses may include the introduction of post harvest preservation sacks and this could be explored and piloted under the project. Even simple solutions like improving the availability of tarpaulins would help with post harvest drying and storage. Ideally elevated drying racks using some combination of local materials and fine wire mesh for example could greatly improve losses from wind and poultry (see Annex I). The construction of these could even be developed under a broader income generating activity support intervention such as a carpentry/metal workshop in towns like Karenga designed to support local production of farm tools, pushcarts, granaries, beehives, furniture etc.

Expand Fruit & Wild Food Production

There may be some potential for expanding fruit production around Abim town by establishing fruit tree nurseries as an income generating activity. Skills training in fruit production (grafting and top working) could also help improve production and add value. Participants also mentioned that products from palm and shea-nut trees (*Vitellaria paradoxa*) were being processed into wine and cosmetics.

Agro-processing and Value Addition

There may also be potential for small scale agro processing. Participants in Karenga suggested that a sunflower oil press in Karenga town would not only provide them with an additional source of income (oil sales) but would also represent a significant savings for them and others who have no choice but to purchase 'imported oil'. Similarly there may be options for shea nut and groundnut to be converted into oil even if it is just for local sale and consumption. There is already a groundnut (peanut butter) press in Kaabong and Kotido. Participants in Karenga claimed they travel to Kotido to get their groundnuts pressed into peanut butter. However, they only do this for their own consumption, as the overhead in transport is prohibitive.

This would suggest that there are opportunities around sunflower and groundnut mills and not just of the commercial variety. Hand presses (similar to a small meat grinder) can also be used allowing for individuals or village saving groups to invest in small-scale agro-processing of oil and peanut butter¹⁷. This would require exposure and awareness through demonstration, training and procurement support. Other agro processing opportunities that might be explored under the project includes fruit drying and packaging in Abim and Karenga.

Targeting of Interventions

In the greenbelt zone of Abim and parts of Karenga, crop production has far greater potential and in the absence of livestock it is an important source of household food and income. In terms of market oriented crop production these areas certainly have the greatest potential. However, careful identification and targeting is needed for interventions designed to support cash crop production and processing. Interventions that might be appropriate in Abim or Karenga sub-county will not work in the drier less fertile localities of Kotido or the South Central and Eastern parts of Kaabong. There may be opportunities for commercial fodder production in these drier areas but essentially they will have limited potential for cash crops. The household economy profiles developed by FEG consulting and FAO provide a useful resource for the planning and geographical targeting of different types of interventions (see FAO, 2010).

¹⁷ The Africare GIRA project did this quite successfully in Zimbabwe with demonstrations on recipes, support in the procurement of presses, jars and labels

Individual or household targeting is also critical in designing cash crop interventions bearing in mind that poorer households are less likely to have the capacity to produce the required surplus for the market. Typically, poor households are engaged in a variety of livelihoods activities designed to smooth consumption such as working on the farms of better-off households, collecting firewood, brickmaking, petty trading and other forms of casual labor. As a result they are often late in preparing their own land and do not have the time to effectively utilize it. In concert with a lack of labor, draft animals and inputs this results in mediocre harvests for poorer households. As such, rain-fed crop production for the poor is essentially another way of spreading and managing risk as opposed to a reliable income earning activity. In the absence of effective risk management instruments such as crop insurance, poor households are less willing to engage in risky productive activities even where the potential rewards may be high (Dercon, 2005, Holzmann and Kozel, 2007, Dercon *et al*, 2008). Although this represents a development dilemma, it is important to acknowledge that project participation comes at the expense of income or production losses elsewhere (for example see McCord, 2004; Van de Waal, 1998; and World Bank, 2001: cited by McCord, 2008) and inappropriate and poorly designed interventions without any guarantee of success can ultimately put poor households at greater risk and often result in greater vulnerability (see Burns *et al*, 2010).

4.4 Livestock Production

4.4.1 Constraints to livestock production

Narratives Policies and Development Strategies

Perhaps the biggest constraint to livestock production in Karamoja is the negative misperceptions towards pastoralists and the misguided narratives, policies and development strategies that follow. Uganda is by no means unique in this respect, as indeed pastoralism has been described as having suffered more from biased language and narratives than any other livelihood system (Little, 2013). The African Union Policy Framework on Pastoralism points to the continued misappropriation of pastoral rangelands, particularly in riverine areas valued for dry season grazing, in favor of sedentary crop production, commercial agriculture, irrigation, wildlife conservation and so on (AU, 2010). The justification for these 'land grabs' is based on arguments dating back to colonial times that have since been discredited, but also a failure to recognize the complexity and sophistication of transhumance livestock production, or the economic contributions of pastoralism (ibid). Although in more recent times such actions are often perpetuated by corrupt and powerful interests motivated by greed (Little, 2013).

Criticism of development policies and strategies in Karamoja is not new although it seems to be largely ignored. Commenting on the Ministry of Economic Development's plan for Karamoja in the early seventies, one commentator describes the document as "an anti-pastoralist polemic set in a political economy frame" ... which represented pastoralist values as backward and standing in the way of progress and agricultural development (Dyson Hudson, 1987: 11). Evidently, the Ministries plan didn't pan out so well. More recently one analyst described National policy towards Karamoja as 'skewed and largely constructed around misrepresentations and myths' while others suggested it was "one of overall neglect punctuated by ill-conceived attempts at disarmament" (Levine 2010; Stites *et al*, 2007: 19). Carol Adoch (2012: 2) describes the real problem in Karamoja as being the misguided policies of successive governments since colonial times pursuing with almost obsessive zeal to settle pastoralists and introduce agriculture to Karamoja. Perhaps to some extent these policies have at last been successful in forcing people into sedentary agricultural production at the expense of livestock production hence the proposed argument that it is structural biases and the associated policies towards pastoralism that represent the biggest challenge to livestock production in Karamoja.

Although the voluntary disarmament campaign may have been well intentioned it is a perfect example of how a misguided government intervention has had a major negative impact on livestock production and essentially destroyed livelihoods in the process. The poor implementation of this intervention resulted in some groups being disarmed leaving them vulnerable to raids from groups that had not been. Ultimately this resulted in some of these groups losing all their livestock and essentially losing livestock production as a livelihood option. It is difficult to conceive how the forced disarmament phase with the cordon and search tactics and livestock massacres by gunship helicopters could have in any way been well intentioned. Ultimately this also resulted in the loss of livestock, undermining livestock production, although granted for the time being it has also translated into a relative improvement in security.

Restricted mobility

Common constraints to livestock production in pastoral areas include livestock disease and reduced mobility, which in turn limits access to pasture and water with an associated increase in morbidity and a decrease in production. In Karamoja although pasture is plentiful, mobility has been an issue for some time due to insecurity. However, improvements in security as a result of disarmament have not contributed to improved

mobility, conversely where the protected *kraal* system has been utilized, mobility has been severely restricted. Arguably, the protected *kraal* system has some positive attributes and some study participants appreciated the protection provided by these even suggesting that without them they would have lost more of their livestock. Nonetheless the inflexibility in the design and implementation of the protected *kraal* system has traded protection for mobility. This lack of mobility along with high concentrations of animals being confined to the protected *kraals* at night has resulted in disease related livestock mortality that possibly even exceed absolute losses incurred to raiding prior to disarmament (Tables 14-16).

Livestock Disease

The study findings suggest that disease related mortality represents the biggest challenge to livestock production (Table 12) if one ignores the other contributing factors. Livestock disease has always been a challenge to livestock production and in Karamoja this is compounded by the lack of animal health services and veterinary drugs (Table 12). Interestingly, even though people claim to have lost most of their livestock, participants consistently prioritized improved animal health and veterinary interventions including the supply of vet drugs over other types of assistance. Although, the government carries out periodic mass vaccination campaigns these are infrequent. Livestock mortality from disease has almost certainly increased since the introduction of protected *kraals*, but even under more favorable circumstances the absence of drugs and quality services has and will continue to be a major impediment to livestock production. In some ways this constraint also relates back to government neglect and misguided development strategies as illustrated in the Karamoja Action Plan for Food Security. Under this five year plan, just over a paltry half a million dollars is allocated to supporting animal health in contrast to over twenty million dollars for crop based agricultural interventions (Levine, 2010: 8).

Digital Tracking Chips

Participants also associated an increase in calf mortality (and a decrease in milk production) with the introduction of digital tracking chips for cattle (Annex V). It is unclear why the chips would be causing livestock deaths but certainly more research is needed to determine if and how these chips are killing animals and to what extent. In all study areas where these chips had been introduced participants mentioned them as a reason for the decline in livestock numbers. It is possible that participants exaggerated mortality caused by these as it has been proposed that they are extremely unpopular being viewed by pastoralists as another means to sedentarize them (Anon, 2013).

Insecurity

Insecurity and raiding have and will continue to have a negative impact on livestock production both in terms of livestock losses and reduced mobility. In theory and within a given system raiding should only result in spatial and temporal variations in livestock distribution and not in a significant reduction in the absolute number of livestock. However, the 'redistribution' that is taking place appears to be creating inequities in livestock ownership between communities and individuals that may permanently force people out of this mode of production. Arguably the disarmament process has accelerated this trend although to be fair weaker groups have been losing their livestock to stronger groups in Karamoja long before disarmament (Dyson Hudson, 1987). Insecurity also limits access to pasture and water with potential impacts on animal health. Undeniably, insecurity in the form of large scale violent raiding is a detriment to livestock production in the project areas. Unfortunately, it is also too commonly used as a justification for the kind of policies and interventions that systematically attempt to undermine transhumant livestock production as a livelihoods system.

Water

The lack of water, particularly during the dry season also has an impact on animal health and production. Aggravating factors include insecurity and the protected *kraals* by reducing mobility and access to water sources. Nonetheless, mobility itself is restricted by the shortage of dams and livestock watering points.

Future Trends/Constraints

In the medium to long term, mobility and access to water and rangeland will likely be further restricted due to several factors and this could potentially have profound implications on livestock production. Firstly, it appears evident that the strategic objective of the government is to expand agricultural production in Karamoja. Not only will this translate into the direct loss of rangeland to crop production, it will also restrict mobility and potentially cut of transhumant livestock routes. Agricultural expansion will almost certainly take place in fertile grasslands and riverine areas denying pastoralists access to critical dry season grazing and water. Increased competition between settled farmers and pastoralist over scarce resources will likely increase the potential for conflict.

Loss of rangeland and restricted mobility will also increase with an increasing population and the growth of urban centers, although these will also provide markets for livestock products and other opportunities for pastoralists. On the other hand demand for bricks and firewood from these urban centers could also result in greater bush encroachment affecting both the quality and availability of pasture. If more and more people are becoming dependent on rain-fed agriculture this may as proposed, lead to increasing poverty and food insecurity in the region (Levine, 2010; Adoch, 2012). If so, more and more people will resort to firewood collection and brickmaking as a coping strategy resulting in even greater bush encroachment and loss of rangeland.

Climate change could also have a considerable impact either positive or negative on livestock production in Karamoja although it is extremely difficult to predict which scenario will occur. For example, Eriksen *et al*, (2013: 78) explain that an increase in temperature in the presence of more rainfall combined with an increase in carbon dioxide improves water use efficiency, resulting in greater productivity. On the other hand, the interrelationship between precipitation, evapotranspiration and the frequency of dry spells could have an impact on browse and species composition and a corresponding impact on net productivity (ibid).

4.4.2 Livestock losses – guns, germs and stealing

The common perception is that the decline in absolute livestock numbers in Karamoja is the result of many years of large scale and increasingly violent raiding. The disarmament campaigns were ostensibly implemented in order to end this cycle of violence and with improved security livestock numbers would start to increase. However, there are a number of problems with these assumptions that are worth exploring, as it is unclear to what extent large scale raiding resulted in the levels of livestock mortality reported.

High livestock losses from raiding were reported across all study sites assessed but when Dodoth communities were asked who raided their cattle they said it was the Jie and conversely the Jie blamed the Dodoth. Other groups such as the Napore blamed both the Jie and the Dodoth and in some cases the Didinga and Toposa were also blamed for raiding (Table 4). In other words all the communities assessed experienced heavy livestock losses. Certainly, armed raiding would result in the loss of a few livestock but within a given system relative equilibrium would be maintained through raiding with only spatial variations occurring over time as raided livestock are transferred from one community to another. Off course it's possible, although unlikely, that most of the raided livestock are now in Sudan or even Kenya.

Large scale commercial raiding involving the rapid slaughter and sale of stolen animals has been documented (Stites *et al*, 2007) and might account for a decrease in absolute livestock numbers and in one study village participants suspected UPDF complicity in a raid on a ‘protected’ herd which if accurate may suggest high-level involvement in commercial raiding¹⁸. The problem with these explanations is that there is little evidence to support an absolute decline in livestock numbers or even a significant decline in per capita livestock holdings in recent years as illustrated in the following table.

Table 24: Estimated changes in livestock units since 1959

Year	Population				TLU/Capita
	Human	Cattle	Sheep	Goats	
1959	170000	600000	210000	160000	2.69
1969	260000	670000	275000	240000	2.00
1980	350000	300000	170000	330000	0.74
1995	409909	595000	(213000)	(213000)	1.12
2008	1200000	2253960	1685502	2025293	1.62

Sources: various¹⁹

Table 24 shows an increase of over one and a half million cattle and a similar increase in small ruminants since 1959. It also shows a sevenfold increase in human population²⁰. Granted this table was cobbled together from different sources and livestock census data for Karamoja is considered unreliable (Gelsdorf *et al*, 2012). Changes in geographical and administrative boundaries in Karamoja potentially add to the margin of error. Nonetheless, in the absence of more reliable data we can only assume that the existing data at least reflects an increasing trend in absolute livestock numbers. Overall, this data shows a significant increase in livestock holdings between 1959 and 2008. It also shows a slight increase in per capita livestock holdings since 1980 and since 1995. The lowest livestock numbers and per capita livestock holdings were in 1980 and this would correspond with the major drought and ensuing famine during that period. However, the table also suggests there has been a slight increase in per capita livestock holdings since 1995 (prior to the 1996 drought). In other words, if there has been a significant decline in absolute and per capita livestock holdings in Karamoja this has happened in the last four to five years. This may be the case, although if so, it can probably not be directly attributed to raiding losses for a number of reasons.

Firstly, respondents in all study areas reported an improvement in security and an associated decrease in raiding since 2010 (Table 4). Corresponding with this, the results show higher overall livestock takeoff from disease than from raiding since 2010 (Tables 14-16). Participants also reported considerable livestock mortality as a result of the helicopter gunship attacks in 2010. This along with other study findings suggest that the disarmament campaign and associated policies and interventions may have had as much and possibly even a greater impact on livestock mortality than large scale violent raiding for the following reasons:

1. The voluntary disarmament campaign resulted in entire communities loosing all their livestock although as discussed this probably did not result in a significant decline in absolute livestock numbers.
2. The introduction of the protected *kraal* system has limited livestock mobility with an associated decrease in the availability and quality of water and pasture. Ultimately this has resulted in higher morbidity with a

¹⁸ Commercial raiding was not mentioned in any of the other study villages.

¹⁹ 1959-1980 Novelli (1999; cited by ACF, 2008)

1995 Catley (1997) note all figures were for Kotido and Moroto Districts only figures for small ruminants were combined

2008 Population figures from WFP cited by Carlson *et al* (2013) livestock figures from National Livestock Census (2008)

²⁰ National census figures estimate the population to be less than a million but these are considered conservative (Carlson *et al*, 2013).

decrease in livestock re-production and possibly even higher mortality. (This being said it is also acknowledged that insecurity in the form of raiding would have also limited mobility).

3. The confinement of livestock in the protected *kraals* has arguably resulted in an increase in livestock disease and mortality through overcrowding, increased contact and transmission (Tables 14-16).
4. The introduction of microchip tracking devices has possibly contributed to cattle mortality. It is unclear if and how exactly these chips are killing livestock but in every village assessed where these chips had been introduced, participants mentioned them as one of the leading causes of calf mortality (see also Tables 14-16).

Although further research is needed, if accurate this represents a classic policy and development dilemma. The impact of violent raiding on human security and its associated poverty dimensions cannot be denied. On the other hand the impact of disarmament on livestock holdings is in effect systematically destroying people's livelihoods and impoverishing them in the process. Ultimately disarmament and its associated interventions such as the protected *kraal* system have and will continue to compound and accelerate inequities in livestock ownership leading to even greater wealth inequality over the next five years.

In turn this will translate into a greater dependency on crop production for the majority of people, an alarming prospect given that that 99-100% of participants in a recent study reported a decrease in crop yields for cereals, pulses, sunflower and pumpkins over the past 20 years (Ayoki, 2007). Although crop production is an essential and valuable complementary livelihoods strategy (Levine, 2010) it is also risky and has limited potential outside of certain productive localities within the greenbelt. The problem is that crop production alone cannot replace the food and income typically derived through livestock production and at present there exists no alternative livelihood options that can effectively replace livestock production.

4.4.3 Opportunities for livestock production

Commercialization

The value of the pastoral livestock and meat trade for the Horn of Africa in 2010 was estimated at approaching \$ US1 billion and this is expected to increase with expanding export markets and a growing and increasingly affluent urban population (Catley *et al*, 2013)²¹ In Uganda alone, it has been estimated that 8.5 % of total GDP comes from pastoralist and small holder livestock producers (Muhureza and Ossiya, 2004). Although few policy makers acknowledge or indeed are aware of the economic benefits of pastoralism, recent research suggests that pastoralism as a production system, is economically comparable with, or even better than irrigated cash crop production (Behnke and Kervan, 2013). Simple modeling using conservative figures for livestock production and optimistic crop yields support this suggesting that the pastoral and agro-pastoral zones of Karamoja generate higher income than the agricultural zones due to the contribution of income from livestock sales (Levine, 2010).

The demand for meat and livestock products is predicted to increase with the growth of urban markets in Uganda and other parts of East Africa, as is the export market to other parts of Africa, the Middle East and Asia (Aklilu and Catley, 2009; Little, 2013). Livestock production has and will continue to be the backbone of the economy in Karamoja and the livestock sector undoubtedly represents by the far the biggest economic opportunity in the sub-region. Prejudices against pastoralists will continue to stand in the way of pro-pastoralist policies although this can change if the evidence can be provided to convince policy makers of the economic benefits of pastoralism. To this end a comprehensive benefit-cost analysis of the crop and livestock sectors in Northern Karamoja would be an extremely valuable piece of research.

²¹ Note this excludes hides skins and dairy products

Resilience to Climate Variability

The extensive rangeland of Northern Karamoja is well suited to a mobile livestock production system. The spatial mobility within this production system minimizes the risks associated with the unpredictable and variable rainfall patterns discussed in previous sections (see Dyson Hudson, 1987). As Levine (2010, 3) points out: “A livestock based livelihood system (pastoralism or agro-pastoralism) is highly resilient to the natural shocks that the populations in Karamoja face. This should not be surprising. The very reason why people there have practiced pastoralism is because this guarantees their survival even with the climate shocks that frequently occur”. Consistent with this, in years of rain and crop failure in Karamoja, it is unusual for pasture to be badly affected as it is in other arid regions in east Africa (ibid). For these same reasons, a pastoral production system is better suited to the potential impacts of climate change than other forms of production. Climate change may even create greater opportunities for pastoralism by eliminating competition from agriculture as this form of production becomes unviable in some areas (see Jones and Thornton 2009 p432 cited by Eriksen *et al*, 2013).

Harnessing Local Knowledge and Capacity

The people of Karamoja also have remarkable knowledge of animal husbandry and their capacity for livestock production represents an underutilized opportunity. As Dyson Hudson (1987, 27) explains: “The Jie and Dodos have sophisticated systems of ecological knowledge related to livestock as opposed to crop production”. He describes them as specialists with a remarkable ability to diagnose animal disease and assess rangeland conditions (ibid). For the SUSTAIN project, the advantage of supporting livestock marketing is that little if any training would be required as people’s knowledge of livestock production in this context far exceeds anything an external expert could provide.

Improved Animal Health

Probably the biggest opportunity to support livestock production and marketing within the SUSTAIN project would be to prevent avoidable losses of livestock through the provision of privatized primary veterinary services (see Annex VI). This might include refresher training for existing Community Animal Health Workers (CAHW) and providing them with starter kits or loans. It might also include support or loans to private drug providers in urban centers such as Kotido and linking them to external suppliers and CAHWs. Although these are probably exaggerated, the results show extremely high livestock mortality due to disease (Tables 14-16) and participants consistently identified the lack of animal health services and vet drugs as the main reason for this (Table 12). The results from an impact assessment of an animal health intervention in Kathile in 1997 illustrate the benefits that can be realized from improved animal health services. The results from this study showed a 70% reduction in cattle mortality following the construction of crushes and provision of ‘paravets’ (Catley, 1997). Participants identified and scored the provision of drugs and vaccines and the ‘paravet’ activities as the most important factors contributing to this change (ibid). Interestingly, peace and reduced raiding was scored lowest of all factors contributing to reduced mortality although the report does not state whether there was an actual reduction in raiding over that time period or not. More recent research in neighboring Kenya also showed a considerable reduction in livestock mortality in herds treated by CAHWS supplied by private pharmacies in Mandera (Bekele and Akumu, 2009). The guide to primary vet services developed by FIC and Vetwork UK provides a valuable step-by-step reference document for the delivery of community based animal health services (Catley *et al*, 2002). Additional resources include National Guidelines for livestock interventions developed by the Ethiopian Ministry of Agriculture and Rural Development (2008).

Promote Herd Growth

Promoting herd growth (restocking) could also be supported by the project through the provision of livestock credit or loans targeting the poor. Aklilu and Catley (2009) argue that a poverty-focused approach in pastoralist areas should explicitly support herd growth as a strategy for supporting poor households. This rationale is supported by the fact that this is a strategy that poor households actively pursue and is validated by more than thirty years of economic research and analysis (ibid). However, although evaluations of restocking projects in pastoralist areas show encouraging results (see Wekesa, 2005), some analysts caution against providing livestock credit to people who have already exited a pastoralist livelihood system (Aklilu and Catley, 2009).

Promote Livestock Marketing

Improved animal health services, herd growth promotion and livestock credit will all help to support livestock marketing on the production or supply side. On the demand side however, one of the key constraints for external livestock traders (buyers) is access to Karamoja during the wet season. During the assessment road works were underway and the hope is that this will improve seasonal access. If so the project may be able to explore options of providing transport loans to external traders and linking them to herders in Karamoja. It should be noted however, that in many of the study communities there appeared to be some resentment towards external traders and participants bemoaned the fact that their own young men did not have the skills or connections to trade and implied that if there were more local traders this would be beneficial to everyone.

Drought Cycle Management

The SUSTAIN project is already developing a contingency plan for commercial de-stocking which is expedient given the likelihood of a drought occurring within the project timeframe. Commercial de-stocking has been shown to have positive benefits on income, livelihoods, drought-recovery, and local markets and possibly even the environment (Abebe *et al*, 2008). The cost-benefits estimates of destocking interventions are also encouraging (ibid). Useful [guidelines](#) for emergency destocking in pastoralist areas have been developed by the Ethiopian Ministry of Agriculture and Rural Development (2008) which could be a useful resource for the SUSTAIN project.

Promote Peace Building

The improving security situation is encouraging and can be seen as a major opportunity for livestock production and marketing. If this trend continues the impact on production and marketing is likely to be significant. Continued security would increase the possibility of abattoirs and meat processing plants being built in or close to the region potentially creating new commercial opportunities around livestock fattening, feed/fodder production and leather curing and processing. These and associated services (transport/water/animal health) could also create employment opportunities for people exiting pastoralism such as meat packers, transporters, herders, loaders, guards, drivers and so on.

Although most of the factors contributing to conflict in Karamoja are outside of the control of the SUSTAIN project, the activities under objective three could help to promote peace. If these can be linked to activities under objective one to promote production and economic activities, this could well provide greater incentives for peace right from the grassroots to the highest political level. These incentives could ultimately translate into greater investments in infrastructure and services and attract more investors to the sub region. For example, an assessment of the Pan-African Programme for the Control of Epizootics in Karamoja showed a positive synergy between animal health services and conflict management with associated improvements in road access, communications and trade (Minear, 2001).

4.5 Other Economic Opportunities

While crop and livestock production remain the two mainstays of the economy in Karamoja, people's livelihood strategies are dependent on a variety of activities that are essential in helping them meet their food and income needs. With the redistribution or decline in actual livestock numbers in concert with frequent crop failures, these activities are becoming increasingly important. The results show little agreement on the relative contributions of different income sources (crops/livestock/other) suggesting that many households are dependent on off-farm income earning opportunities (Table 6). These other income sources are likely to become more important as increasing numbers of people exit the pastoral livelihoods system. Even better off households that derive most of their income from crop and livestock sales rely heavily on other 'complementary' income streams (Levine, 2010).

4.5.1 Natural Bush Products

Wild foods are primarily collected by women and sold in local markets. These include tamarind (*Tamarindus Indica*), shea nut (*Vitellaria paradoxa*) and desert date (*Balanites aegyptiaca*) along with a host of other wild fruits, nuts, water lilies and tubers. Some of these products have considerable commercial potential as does gum-arabic (*Acacia senegal* and *Acacia seyal*)²² which are also widely available in Karamoja.

For example, the desert date has an impressive array of medicinal properties and considerable research on the industrial uses of this tree has and continues to be carried out at the World Agroforestry Center (ICRAF) laboratory in Bamako and Ben Gurion University in Israel. Gum-arabic also has a number of commercial uses and is widely used in the food industry. Similarly, the unique properties of aloe and shea nut are well known in the cosmetics industry where they are used in a variety of products. Potential opportunities exist for the commercial exploitation of all these products which could be supported by linking people to markets or through simple processing and value addition. (i.e. shea nut into soap or desert date into edible oil).

In some areas people are involved in wild honey collection using traditional beehives (Annex II). Honey production/gathering can be quite lucrative and there appears to be a growing demand for honey in and around small towns and army barracks. In the one study village where this activity was investigated, participants said that the beehives belonged to individual households but honey gatherers who are paid in kind for their services harvest the honey. Game meat from illegal hunting is also sold in market centers and is mostly done by men although young boys are also involved in hunting and snaring small rodents and birds. Traditional toothbrushes are also collected from certain trees and sold locally. Other natural products that are collected and sold include poles for construction and grass for roof thatching. People also collect and break stones which are used as aggregate (*kokoto*) for construction. The demand for these products is expected to increase with the expansion of urban centers in the sub region. Men mostly collect and cut poles and both men and women are involved in collecting and breaking stones.

4.5.2 Brickmaking

Brickmaking (Annex II) is visibly evident in all three districts and represents an important and sometimes quite lucrative source of income for many households. Both men and women do this although women are primarily involved in collecting water and firewood for this activity.

²² Note: Potentially half of Africa's *Acacia*'s may be re-classified under the genus *Senegalia* based on recent tests involving molecular analysis

Participants in one village suggested that they could make as many as 300 bricks in a day and sell each brick for 500 UGX (150,000 UGX total). The demand for this commodity is likely to increase with the growth of urban centers in Karamoja. However, these are generally low quality bricks that require large amounts of water and firewood in the making. Participants indicated that the production of 150,000 bricks would require an Isuzu Canter (see Annex III) full of wood. Therefore the long term impact of this activity on natural resources is extremely concerning given the potential impact on rangeland, soil moisture, honey and wild food products. Nonetheless, there may be opportunities to develop and support a more sustainable brick making industry in appropriate localities. Recent developments in bio-gas technology using animal and plant by-products might be adapted and offer a more sustainable alternative for small to medium scale brick factories²³. Collection centers for raw materials and animal and crop by-products for these factories could be established in various localities providing people with a complementary source of income.

4.5.3 Gold mining

Artisanal gold mining is also carried out in some areas and can be lucrative if one is lucky. The reopening of several gold mines in Kaabong and Abim represents an important opportunity for the further exploitation of this resource. However, powerful commercial interests could monopolize this resource and if the current disregard for the land rights of the Karamojong is any indicator, this is a valid concern.

In one-village participants indicated they could collect as much as one-gram in a day but more than likely this was the total amount a person would collect after a three-week stint at the mines²⁴. The same participants said they could sell a gram for 95,000 UGX in Kaabong but felt the gold buyers were ripping them off. Having said this, this price was more or less equivalent to international gold prices at the time (\$US 35/gram/January 2013). Participants suggested that better access to current information on gold prices such as flyers in towns like Kaabong showing current gold prices would allow them to get a fairer deal. Publically available electronic weighing scales might also help alleviate this kind of mistrust. In another community participants claimed that as a result of losing most of their livestock, 60% of the healthy adult population now went to the mines (in Nakoromit) including pregnant women who sometimes gave birth there²⁵. Both men and women go to the mines although participants indicated that women are mostly engaged in activities such as cooking and collecting water and firewood.

Study participants involved in gold mining identified insecurity, disease and the lack of water, shelter and food in the mining areas as major constraints. Part of the problem is that mining is carried out during the dry season when people have the time to engage in this activity. Participants partly attributed the prevalence of disease in the mining areas to large concentrations of people competing for water and wild foods, and sleeping without shelter. Insecurity also remains a problem and some participants claimed that people were often robbed on the way back from the gold mines. One community suggested that if boreholes were sunk close to the mines this would not only alleviate the water and health issues, but would provide an incentive for the army to set up a camp there and thus improve the security situation. If this were to happen, it is possible that small mining towns might emerge around the mines creating a number of economic opportunities in these areas.

²³ For example Crestank blue flame bio gas systems available from Crestan Ltd, Plot 265, Block 336, Kayandodo, Jinja road, Namanve email csales@crestanks.co.ug

²⁴ Tulenyang village Kaabong District

²⁵ Napetobul village in Kaabong - estimates derived from proportion piling using 100 counters

4.5.4 Trade and exchange

Informal trading is commonly practiced and much of this is done on an exchange basis and largely involves the exchange or conversion of grains and livestock. For example, the pastoral zone is a net importer of grains and a net exporter of livestock (FAO, 2010). Furthermore, people with surplus grain will often convert this into livestock assets or after a poor harvest people will sell livestock to purchase grains. People will also travel to neighboring districts/regions and even countries to sell, buy and exchange livestock, specific livestock types, grains and other food and non-food items. It appeared as though very few people in the study communities are involved in trading as their primary source of income and participants suggested that this was limited to younger wealthier men. However, some informants from these communities supplemented their livelihood through grain and livestock trading. One of these informants used to be a livestock trader and would purchase animals in Kotido (district) and sell them in Abim and Kaabong (Karenga). Isuzu trucks which can be found in Kotido (town) would transport the animals for a set price per head depending on the livestock type. The same person is now involved in grain trading and these are purchased in Abim and sold in Kotido. The participant maintained that he preferred livestock trading because the returns were higher but he had shifted to grain trading as he could no longer afford to purchase cattle.

Although few people in the study communities are involved in formal trading, a large number of professional traders operate in the region although few if any of these are Karamojong. In some areas study participants argued that they did not have the skills or knowledge to compete with external traders and there appeared to be some slight resentment of the fact that none of their 'young men' were benefiting from trading. These participants suggested that this could be addressed with training in business skills and financial literacy. Another constraint to trading is the lack of access to credit. Participants who were involved in some part time trading said they usually borrowed from friends but often at very high interest rates. Others said they would sometimes borrow from Somali businessmen and other middlemen in towns who offer more favorable interest rates than the banks. There was a universal mistrust of SACCO's and other Microfinance Institutes (MFI) in the study areas because of their political associations and reputation for corruption and theft of savings. However improved access to reliable credit could potentially be a boost to local trade in the sub region.

4.5.5 Traditional crafts

Local artisans also produce and sell a number of handicrafts including traditional stools, doors, jewelry, leather products, granaries, cooking utensils, bow and arrows and ropes. There may be some potential to support the local handicraft industry with the right kind of training, the provision of tools and raw materials and then linking them to middlemen and markets. For example [Kazuri beads](#) in Kenya hires and trains disadvantaged women to make high-end jewelry for export to Europe as well as the local tourist market. Similarly, Entrepreneurs in Ethiopia utilize UPS (United Parcel Service) to sell traditional silk scarves on e-bay. The relative transportability, lack of perishability and high returns that can be derived from jewelry, leather products and certain textiles gives them an advantage over many other commodities currently produced in Karamoja. For sure the investments in research, group organization, training, provision of raw materials, identification of middlemen and markets are all quite intimidating but the potential is worth exploring, particularly for jewelry and leather products.

4.5.6 Wage labor - employment

A number of employment opportunities exist in the study area although these are mostly limited to menial work as most people lack the necessary skills and education to take advantage of formal employment opportunities. One of the more common forms of employment is agricultural labor with poorer households

working on the farms of wealthier neighbors in activities such as land preparation, weeding and harvesting and often being paid in grain or local beer. In some communities' people will travel to more fertile regions such as Pader for this kind of work, but this appeared to be limited to communities that had links through farmers associations as well as peaceful relations with the communities hiring them. Similarly, young men also work as herders and trekkers for wealthier livestock owners.

There are also a number of temporary employment opportunities in urban centers with men being employed in casual labor such as construction, loading trucks and digging pit latrines and women being employed to fetch water and firewood. Some young women are also employed as domestic workers or hired as cleaners and dishwashers in local eateries. Women are also employed to fetch water and help prepare local beer for brewers in town, often being paid with beer residue which is then consumed as a food substitute. Food and cash for work programs also provide temporary employment for food insecure households.

As urban centers grow, so will the demand for labor and services such as water and transport providing employment opportunities for people. The demand for drivers, mechanics, seamstresses, cooks, butchers, masons, carpenters, metalworkers, electricians, storekeepers, guards and porters will all increase. However, investments in training and the transfer of skills and trades will be needed if the Karamojong are to take advantage of future employment opportunities. This might include capacity building in metal and woodwork (carpentry), masonry and solar power installation and maintenance. There are a number of options in how this could be done. For example the project could assist in providing loans to groups of investors to set up metal or wood workshop in the larger towns to manufacture some of the local products the project aims to provide such as farm tools, push carts, grain drying racks, modern granaries as well as other items such as modern beehives, animal carts and furniture. Most of these trades would probably attract young men but similar investments in leather processing, tailoring (clothes making), jewelry making, and agro-processing and dairy processing would cross the gender divide.

4.5.7 Tourism

There may be some employment opportunities in the tourism sector for guides, drivers, game scouts and camp and hotel staff. One of the study participants near Kidepo valley informed the team that he worked part time as a bird guide for one of the camps in the park. However, most participants complained that they had lost grazing land to the park and that the wild animals transmitted trypanosomiasis to their livestock. Any conservation initiatives in the region need to acknowledge that conservation is as much about people as wildlife and recognize local communities as stakeholders in conserving this natural resource. There may be some potential in establishing community group ranches adjacent to the park that combine livestock production and conservation tourism. Ideally this would be combined under a carbon credit project like the [wildlife works](#) REDD + (Reducing Emissions from Deforestation and Degradation) initiative. The tourist sector could also provide a limited market for locally produced foods and traditional crafts. However the tourist industry is unlikely to grow until the security situation and infrastructure has vastly improved.

4.5.8 Maladaptions

A number of other important income earning activities exist in the study area although the sustainability or social and environmental impact of these would exclude them from being considered for promotion under the SUSTAIN project. Examples include traditional brewing, firewood collection and illegal hunting with the first two being important sources of income for many people in the area. Brickmaking as currently practiced could also be added to this list. Although these activities may be of little interest to the project they are worth some discussion because if ignored and not addressed, they have the potential to undermine any positive impact on

poverty and food insecurity that SUSTAIN might achieve. As such, the project should actively seek alternatives to these income sources for the poor.

Firewood collection and charcoal production are extremely common in the study areas and there is a substantial market for these products both in and outside of Karamoja. Unfortunately the returns on firewood sales in particular are very small and like brick production in its current form, the long-term impact this activity will have on the natural resource base and livelihoods is extremely worrying. Not only is the market for firewood and charcoal expanding, but also more and more people appear to be resorting to this income source due to frequent crop failures and the loss of livestock. Cutting down trees is now illegal in some areas close to Kidepo Park although study participants in this area admitted that they still cut down trees but not as much as they used to. These same people were also very aware of the benefits of trees/vegetation cover on soil moisture and crop yields although in the absence of alternative fuels they have little choice but to exploit the resources they have.

The SUSTAIN project is in a unique position to introduce new products that save on fuel and utilize or promote the use of alternative fuels such as methane and solar. Alternatively, targeted investments to expand truck and bus fleets under the projects Karamoja Innovation Fund (KIF) could bring down the cost of alternatives such as kerosene, propane and butane making these accessible at least for commercial utilization.²⁶ In some study areas fuel-efficient stoves were being used by a considerable number of households (Table 22). This was typically where an NGO had gone in and trained women on how to make these. The production of these could be expanded under the SUSTAIN project. The key however will be to reduce the demand for charcoal and firewood in the growing urban centers through the provision or promotion of alternative and renewable fuels.

Local alcohol made from grains (*quete*) provides an important source of income for many households with this activity being done exclusively by women. Participants suggested that it is mostly better-off households that are involved in the production of local brew as they have the surplus grains needed to do this.²⁷ Although the returns on this activity can be high other research suggests a probable correlation between alcohol consumption and domestic violence along with other negative social impacts (Gelsdorf *et al*, 2012; Howe, 2013). Increasing alcoholism in Karamoja is an extremely worrying trend that is arguably linked to poverty, conflict and a loss of cultural identity. For example the increase in alcohol consumption in the study areas has been attributed to ‘a lack of peace and a loss of pastoralism with young men now substituting alcohol for milk’ (Howe, 2013: NP). Similarly, Stites and Mitchard (2011:8) describe brewing as a harmful coping strategy brought about by the absence of livestock and the associated loss of income from milk sales. If there is indeed a correlation between a reduction in livestock/milk and an increase in alcohol brewing/consumption, probably the best way to indirectly address this problem would be to promote milk production in the area through restocking (livestock credit) and animal health interventions. Nonetheless, at present brewing provides an important source of income for women who are otherwise economically excluded in a pastoral community. Unfortunately, if the practice is discouraged it could potentially lead to an increase in the consumption of cheap commercially available alternatives such as *kicks* and *waragi* and represent a loss of income for women.

²⁶ It would be interesting to investigate why the propane supply chain doesn't appear to reach N. Karamoja (cost, lack of refilling stations?)

²⁷ Better off in terms of productive capacity (crop yields)

4.6 Access to Markets

4.6.1 Market networks

A complex and extensive marketing system exists in Karamoja and one that is extremely dynamic. This network operates at different levels with hubs like Kotido (Kanawet) and Kaabong representing important marketing centers that link their respective districts to other regional centers such as Lira, Gulu, Mbale, Soroti, Pader and Kitgum. Radiating out from these centers are different levels of formal and informal markets ranging in size and importance from tiny village markets, to parish centers to sub country markets with some of the latter such as Kapedo or Karenga being of similar size and importance to some of the district centers. The market network also extends into Northern Kenya and Southern Sudan although spatial variations occur over time both within and outside of the sub-region. For example, participants indicated that during times of food shortage they would travel to Kenya or Sudan to buy grains.

The system operates on a rotational basis whereby different markets are open on different days. In each study village assessed, participants would typically agree on the most important or two most important markets for them. Typically these would be the closest large to medium sized market. However, participants did not exclusively use one medium/large market and would often take advantage of different market days to go from market to market trying to sell their goods or get a better price for these. For obvious reasons the most frequently used markets are village and parish centers and these are mostly used for day-to-day purchases and small transactions. The larger market centers also offer a greater variety of products such as food items grown in other areas, veterinary drugs, shoes and clothes but the main commodities being sold and purchased across all markets are livestock and grains. In some cases, traders or middlemen will travel to parish centers to purchase goods, but mostly they keep to the larger market centers. A number of livestock markets also operate in the area, some of these are informal bush markets that more or less only sell livestock whereas others like Kanawet are multipurpose. Livestock traders also travel to the informal bush markets, even though these are often located some distance from larger urban centers.

A considerable number of the professional traders operate in the area although most of them appear to be from outside the region. These traders also take advantage of the rotational market system although their area of operation extends well beyond Karamoja. Turkana traders from Kenya also operate in the region selling manufactured cooking utensils, shukas, ochre (hair dye), jewelry, and gourds. Trade between the Turkana and Jie appeared to be quite common and is possibly more reciprocal than that with other external traders. For example participants from one village in Kotido mentioned that they also go to Turkana to buy donkeys or goats and sell groundnuts and sesame (*simsim*)²⁸.

4.6.2 Constraints

The main constraints to marketing in Karamoja are insecurity, the lack of basic infrastructure, the lack of basic services and seasonality. These constraints are interlinked and apply to both producers and traders. Although Karamoja has been neglected since the colonial period, insecurity has prevented development and investment in the area. Pertaining to this, the lack of infrastructure, most notably all weather roads, effectively cuts-off the sub-region from the rest of the country during the rainy season. If the security situation continues to improve, investments in all weather roads between Karamoja and other regions as well as within the sub-region would likely have a far greater impact on the local economy than all other development programs combined. At the

²⁸ Nyakwai village/Nakapelimoru sub-county

time of the assessment there was a considerable amount of grading and road improvement going on. This is encouraging but from a marketing perspective the study areas effectively remain strategically isolated, both in comparison to and in relation to other regions of the country.

Seasonal Access and Poor Roads

For external traders access during the wet season is limited due to poor road conditions (March to September) and all livestock traders interviewed said their biggest challenge was getting stuck or broken down on the road. Keeping in mind that livestock traders also take advantage of the rotating market system, they will go from one livestock market to the next until they have filled up their truck at which point they will return to a major town like Mbale to sell the live animals to an abattoir. During the wet season they will frequently get stuck on the road between markets. This not only increases the costs of feeding and housing the trade animals they have purchased, but often results in stress induced death of these animals. Furthermore, they might also miss the next market day further delaying the process of filling up their truck. Meanwhile the body condition of the purchased animals is deteriorating, as is their value.

One livestock trader at Kanawet market also maintained that the abattoirs in Mbale only purchase once or twice a week. In the past he got stuck and knew he would not make it back on time and had no choice but to sell his animals to local butchers on credit. Additional overheads for livestock traders include vehicle rental and fuel, accommodation, loading service charges, and kickbacks to the police at checkpoints. One trader also claimed that he had to pay the sub-county hoof tax and government tax on purchased animals although sellers also claimed they had to pay these taxes so it was unclear whether these taxes are split between the buyer and seller. Interestingly, most of the livestock traders interviewed hired vehicles to transport their animals, but none of them complained about the cost of transportation. Nonetheless, given these costs and challenges, there is little incentive for livestock traders to operate in the area.

The poor roads are a lose-lose situation for traders and producers/suppliers alike. Study participants and key informants claimed that the absence of livestock buyers during the wet season drives up the competition between livestock sellers bringing down the price (Figure 1). Key informants in three markets assessed estimated that less than one third of all livestock brought to the market during the 2012 rainy season were sold. Furthermore, people generally try to sell their livestock in order to purchase food during part of this period (March to June) as the last harvest has been consumed and the next one has yet to come in. Even after the harvest, many people are still keen to sell livestock to pay-off seed and food loans incurred during the hunger gap but the roads are still bad. Once the road condition improves the harvest has come in and people are less willing to sell their livestock as they no longer need the money for food and livestock prices are low. One key informant estimated that only about 40% of the cattle brought to Kanawet market in January 2012 were sold and claimed this was because people were unwilling to sell their cattle at such low prices.

The poor road conditions have also impacted internal trade. For example, a livestock market a few kilometers outside of Karenga used to attract livestock sellers from Kotido. The livestock were mostly transported by truck due to insecurity and theft along the road. However, the road between this market and Karenga effectively ends at a swamp right before Karenga town effectively cutting-off vehicle access to the town (Annex III). According to key informants, the market is no longer used, as the traders coming from Kotido no longer have access to the town's amenities. Key informants suggested that a sunken bridge (Irish Fort) would resolve this issue but road engineers working on the road between Kaabong and Karenga were not convinced that this was a good solution suggesting that these often get washed away during heavy floods. Nonetheless some sort of bridge could potentially re-open this market. However, caution should be applied as even though informants implied that road access was the problem, in most of the study villages in Kotido, participants maintained that they do not go to buy or sell in Kaabong due to fear of the Dodoth. Even though the security situation has improved, opportunistic theft and the fear of insecurity certainly represent a major constraint to trade in the area.

Limited Product Variety

Other constraints to market expansion and integration include the limited variety of locally produced commodities, which does little to attract investors and traders to the area. On the other hand, the region is fortunate to have a dominant economic sector (livestock), which has considerable potential for expansion.

Lack of Skills (Labor Market)

Similarly, the lack of education and skills outside of animal husbandry and crop production also represents a constraint to market expansion and specifically the labor market. The labor market at present is extremely weak, based on informal arrangements, with verbal agreements and no contracts (security) or stability. Consistent with this, the lack of basic services such as transport, education, financial services, training and extension represent barriers to market access and expansion.

Generally speaking, poor households have access to the market but the variety and value of transactions being carried out by them is limited particularly if we consider those with few or no livestock. As such, it would probably be fair to say that **the poor or possibly even the majority of households in Karamoja are not that well integrated into the market.** A good example is the labor market, as discussed there are few employment opportunities for local Karamojong and these are almost exclusively limited to temporary and menial work. They are also excluded from formal credit markets although this in part has to do with the lack of suitable financial products and services for the poor.

4.6.3: Functioning and non-functioning markets

Karenga and Kapedo Markets

As part of the study Mercy Corps requested the research team to investigate why two markets that had been constructed under the Horn Food Price Crisis Response program were not being utilized. The two markets, in Kapedo and Karenga were constructed with the specific objective of providing vegetable producers with a place to sell and safely store their produce. The markets are well constructed with shelter, about 24 stalls that can be locked, and toilet facilities (Annex IV). In Karenga, we were told that the stalls had been handed over to a group of vegetable producers who paid a small fee to rent the stalls. In Karenga, the market is centrally located along one of the main streets and in Kapedo the market is located a short distance from the town center. Bustling open-air markets selling a variety of agricultural products clothes and consumables operate about five to ten minutes walk away from each of these markets (Annex IV).

Informants gave the following reasons as to why the market in Karenga was not being utilized:

1. The supply from rain-fed production is seasonal so only periodic market utilization will occur.
2. Vegetables are perishable so any outlet, (kiosk, table in a well used market, teashop etc.) is more important to producers than a place with storage facilities to keep unsold vegetables for an extended period of time.
3. The location of the market away from the existing multipurpose market, which is near main roads and the police station with water and security. (And people selling beer).

Consistent with the last point, one informant suggested that the market was not utilized as it effectively belonged to an exclusive group of people and did not attract other traders selling other commodities and hence other customers. Essentially, the market was built in the wrong location, with the objective of selling the wrong commodity by a very limited number of people. Furthermore, the existing market system involves

traders from Kitgum who travel between several markets on a rotational basis selling their trade goods, mainly clothes and household utensils, and using Isuzu trucks. The monthly visit to the Karenga market is scheduled on the last Wednesday of the month and the market operates for 2-3 days. In this kind of system, any market infrastructure will be under utilized. According to these traders shelter from the rain, toilet facilities and a safe place to store their goods at night were the main things lacking from the functioning open air market suggesting that the concept behind the vegetable market was informed, just not the choice of location and selection of commodities.

Kaabong Market

In contrast to this, an identical market constructed by Mercy Corps under the same project in Kaabong town is functioning well. This market has been operating as a multipurpose vegetable, grain and consumables market and is different from the other vegetable markets constructed for two reasons: firstly, it is located at the center of the town with a much higher consumer population than any of the other vegetable markets. Secondly, the Kaabong market was transferred to the town municipality to be used by a variety of retailers unlike the vegetable markets handed over to a specific group of producers. The municipality normally charges 200 UGX per stall per day on average (300 - 500 UGX every two days), and this may decline to 100 UGX every three days depending on the volume of sale. This allows the stalls to be utilized by a greater number of people on an as needs basis.

There are still some issues with the Kaabong market (Annex IV) and things that could be improved. Although some vendors are using the actual market infrastructure (stalls/workstations), many have set up their own stalls around the building. Some female vendors explained that the workstations are too high forcing them to either stand or sit on top of them so they preferred their own stall where they can sit on the ground. Another vendor suggested that the height and width of the workstations provided hiding and a buffer for thieves to steal from him unless he sat on top of the workstation. A number of vendors also set up their stalls on the floor of the building and all those interviewed appreciated the shelter provided when it rained.

The water tanks in the market were also poorly installed resulting in a crack in the tank next to the faucet (Annex IV). The water tank is currently useless and a simple support would have prevented this from happening. There is also no waste management system in the market and the existing refuse pile is a major health hazard. Although the market is under the control of the municipality, perhaps Mercy Corps in partnership with a local traders association could influence them to use some of the money from stall rentals to hire cleaners and possibly even guards and repair the water tanks? One trader suggested putting a padlock on the water tank faucet and only people renting stalls would have access to the key.

Makilathin Livestock Market

External traders have also abandoned the once popular Makilathin Livestock market in Abim. From 1981 to 2005 the market was closed due to insecurity. However, since it was reopened in 2006 the volume of livestock supplied to the market has been too low to attract external traders. For example, when the team visited the market on February 8th 2013, there was only eight head of livestock being sold (4 cattle and 4 small ruminants), barely enough to supply butchers in Abim town. Informants suggested that most people are now using nearby bush markets such as Alarek and Batang due to a heightened fear of livestock theft along the road to Makilathin.

Kaabong Livestock Market

Similarly, near Kaabong informant's claimed that external traders had abandoned a popular livestock bush-market due to a decline in livestock supply volume and a dramatic increase in price. However, a key informant suggested that in part this had to do with the reopening of a gold mining site in 2012 providing people with an

alternative source of income so they no longer had to sell their livestock. The same informant suggested that local demand also increased as people started to purchase livestock (restock) using the income they earned from gold mining.

Probably the key lesson to be drawn from these case studies is that careful planning is needed for any kind of market intervention. Constructing a market that is either not needed/wanted is a basic mistake oft repeated by development organizations as is building one in the wrong location. In supporting livestock marketing the SUSTAIN project should not fall into the common trap of building physical market infrastructure. Although, the lack of infrastructure is often cited as a constraint to livestock marketing in pastoral areas, some commentators caution that there has been a 'fixation' with developing market infrastructure amongst donors and policy makers (Aklilu and Catley, 2009). There is a growing body of research that shows little, if any evidence of positive impact on poverty from large-scale investments in livestock markets since the 1970's (ibid). A recent livestock markets impact assessment from Ethiopia revealed that where new market facilities had been developed, less than a third of these were being utilized; the report went on to note that from forty years of experience in different countries, 'simple bush markets' work well' and can best be supported by improvements in roads and communications, specifically mobile phone networks (Bekele and Aklilu, 2010).

The supply issue relating to livestock marketing is at present clearly a challenge which could potential be addressed by increasing production and avoiding preventable losses (restocking/livestock credit and animal health). Transport and road infrastructure are also major constraints for trade and marketing in general. The projects implementing partners have already been supporting the construction of secondary roads under Food for Work (FFW) projects and should continue to do so under SUSTAIN. The expansion of the mobile phone network is already happening and the project can take advantage of this opportunity to raise awareness of simple market information systems (e.g. [FOODNET](#)) and explore the possibility of providing cell phone loans for community representatives or savings groups that can then be linked to transporters, traders or other service providers.

Ultimately, improved security, infrastructure and telecommunications along with improved services such as transport, animal health, agricultural extension and financial services for the poor will all have a positive impact on trade and markets as indeed they currently represent the main bottlenecks. The region is also strategically well positioned to take advantage of the growing urban markets in Uganda, Southern Sudan and Northern Kenya. The export livestock market is also growing and will continue to do so. Being exceptionally well suited to livestock production, the sub-region has enormous economic potential if the production and marketing constraints identified can be addressed.

4.7 Access to Products and Services

Many of the constraints pertaining to production and marketing relate to the absence of basic services such as transport, extension, animal health and credit. The study investigated the availability, access (affordability) and quality of various products and services in the study communities. This was done by assessing the utilization of these products and services with the objective of establishing a baseline estimate of the proportion of people using a given product or service in each of the study communities. The combined results across the three study areas show very low utilization for most of the products and services assessed (Figures 2-3). This mostly had to do with availability (or absence), cost, or lack of demand or a combination of these factors. However when disaggregated by district and village, the results are far more nuanced. For example, in one village an estimated 66% of the community had used motor vehicles as transport to the nearest town/market in the past year and in other villages nobody had (Table 22). In some communities this was simply due to the fact that no vehicles stopped there and in others it was because they were close enough to town to walk which is the cheaper option. In other words both distance and location in relationship to a major town or market appear to determine utilization but the correlation is not always linear.

4.7.1 Transport

The study looked at what proportion of people used motor vehicles, motorcycles (*bodabodas*), bicycle taxis and vehicles to transport goods as opposed to just people in the past year. In some villages a considerable amount of people have been using vehicles to travel into town. However, this was mostly in villages where there was relatively high traffic. For example, one parish center close to a study village receives at least one Isuzu truck a day. These trucks stop to buy and sell goods and then offer people a lift into Karenga town for a reasonable price. As mentioned in other villages few if any vehicles stop.

Very few people have been using vehicles to transport goods (Figure 2), However participants suggested that in the past, when people had more income from livestock sales, more people were using vehicles to travel to other regional centers to purchase food, seeds and tools. Participants from some villages suggested that truck owners are reluctant to stop in their villages because of the limited number of potential customers. However, that at times, for example after a good harvest there would be enough people with produce to sell to fill up a truck. Under the SUSTAIN project, there may be opportunities to identify such times and link villages to transporters. Although cellphone coverage is not that reliable, most parish centers have some coverage and there may be opportunities for community representatives to mobilize villages or farmers groups to bring their produce to the parish centers on pre-arranged days and share the cost of hiring a truck plus the airtime to call or text the truck owner.

In Kaabong district fewer people reported using motorcycles or bicycle taxis than in Abim and Kotido (Table 22). This probably has to do with the fact that many of the study villages are located a long way from major towns and in Kotido the population appears to be concentrated around the district centers. Abim also probably gets more traffic transiting from Lira to Kotido and this may explain greater utilization in this district. Motorcycle taxis are generally more expensive than vehicles (pickup trucks or canters) where both are available.

The project proposal identified transport constraints and specifically the lack of mechanics as a hindrance to business and trade in Karamoja. In order to address this constraint, the project might be able to secure a conditional loan for entrepreneurs to set up vehicle repair workshops that guarantee apprenticeships for a specified number of Karamojong youth. Opportunities for young Karamojong to obtain driving licenses for commercial and agricultural vehicles could also be explored, as the demand for these kinds of skills will most certainly increase over time.

4.7.2: Water

In most of the villages assessed, participants identified the lack of water for both human and animal consumption as a major problem. There are a variety of water sources in the study area including boreholes with hand pumps and windmills, dams and reservoirs. However many of these are broken or overcrowded. In some villages participants mentioned traveling well over an hour to fetch water, as the waiting time at a closer borehole was often longer than the combined travel and waiting time at the distant borehole. Some villages might have access to three boreholes but typically one might be broken and another only produces salty water. In some areas participants also complained that the closest borehole had been taken over by the barracks.

In 2010, it was estimated that there were only 257, 260 and 317 functioning boreholes in Kaabong, Abim and Kotido respectively (OCHA, 2010). The same survey also estimated that there were well over 100 broken or non-functioning boreholes in each district (ibid). The time and energy spent on water collection limits the time people can spend on productive activities. It may also force some people to collect water from open water sources such as dams and ponds with an increase risk of water borne disease. Any development strategy for the sub-region will require major investments in boreholes. Although there is plenty of wind, many of the wind-powered boreholes observed were broken (Annex V). Ideally, any wind or solar powered boreholes should have a manual (hand pump) override. Nonetheless, these energy saving options could also potentially provide jobs for installation and maintenance crews if the right training is provided. In the interim, animal carts or push carts filled with jerry cans could also potentially provide a small water fetching business for individuals in larger villages. Typically, one woman or girl in each household goes and collects one or two jerry cans which could take two to three hours. Over the course of a year, this activity alone takes up almost two and a half months of work²⁹. Multiply this by every household in the community and it represents a major constraint to productive capacity. One pushcart could potentially provide 10 families with the same amount of water per trip as one person collects at present³⁰.

4.7.3: Health and Education

The results show fairly low primary and secondary school attendance although attendance rates were much higher in Kotido than in Kaabong or Abim with Abim being the lowest (Table 22). Again this may also be due to the fact that in Kotido villages are concentrated around the district center giving people better access to schools. Participants suggested that many poorer households did not send their children to school as they were needed to help at home or on the farm or herding livestock. If accurate this might also suggest that attendance rates in Kotido are higher because there are fewer poor people in this district. This would support Levine's (2010) argument that people in the pastoral zones are better off than those in the agricultural zones.

The most common health issues reported were respiratory problems, eye disease (possibly from vitamin A deficiency), malaria, cholera and brucellosis. The team also frequently observed symptoms of edema (kwashiorkor) in young children. Most likely this has to do with the fact that these children now have limited access to milk from the cattle in the *kraals* (Stites and Mitchard, 2011).

People use both private and public clinics although most of the private clinics are subsidized clinics run by churches and NGO's as opposed to privately owned. The public clinics are free but participants suggested that the quality of the private clinics was better and that waiting times are shorter. Participants maintained that poor households would use the private clinics in the event that the public clinics had no drugs and this is often the case.

²⁹ Assuming a 10 hour workday

³⁰ These pushcarts can be seen transporting water around the larger towns like Kotido and can be easily constructed using basic welding equipment

Utilization of mosquito nets varied from village to village. Most participants claimed to have used mosquito nets in the past when they had been provided for free by UNICEF or NGO's, but this had not happened for some time and the nets have since worn out. However, participants said they would be willing to pay for mosquito nets if they were available in the local markets. In some of the villages assessed, people claimed that everyone had private latrines that had been built under Food for Work projects. However, the majority of people were not using these as they had collapsed having been constructed out of mud. They suggested that if they had been provided with concrete slabs for the base of the latrines that they would not have collapsed.

4.7.4: Animal health services

Although CAHWs are present in all the study villages and in the protected *kraals*, very few people are using them particularly in Kotido district (Table 22). Participants suggested that this was because only a few people now had livestock and the cost of veterinary drugs is prohibitive. Although veterinary drugs are available in most of the larger towns, people would have to pay the transport costs for the CAHW to go and purchase these. By enlarge participants agreed that the quality of service provided by CAHWs was good although this may have been exaggerated as CAHWs were present during many of the focus group discussions. The main problem however appeared to be drug supply or cost. Ultimately what's needed is to improve privatized veterinary drug supply by supporting or establishing local veterinary pharmacies in the larger towns and linking them to CAHWs. Annex VI provides a simple model for a privatized CAHW system. Another solution would be the provision of credit or starter kits for CAHWs. The government also carries out mass vaccination campaigns from time to time although participants suggested these were infrequent.

4.7.5: Agricultural extension

Very few study participants in Kaabong or Kotido have received training in crop production in the past three years. A greater proportion of study participants in Abim have received some training and this is understandable given that this district is better suited to crop production (Table 22).

As discussed, tillage services are available in some areas although these were not well utilized in the study villages (Figure 3). This partly had to do with cost and availability. However, in some villages participants claimed to have had a bad experience with tillage services where these had been piloted with poor management and implementation. However, in study villages close to Karenga, participants informed us that the cost of tillage services had come down in the past few years with the increase in the number of tractor owners in Karenga town. It was difficult to determine the demand for these services and this certainly varied from village to village. In some villages people liked the idea of tillage services as long as they were free stating that otherwise they could not afford them. Overall it appeared as though private tillage services were more effective than subsidized or free provision of tillage by development agencies. However, in all likelihood better-off households will mostly utilize these services unless groups of poorer households pool their resources to hire tractors. The problem with this approach is that it will require more management and coordination. There were also reports of theft and corruption where a similar approach had been applied in Kaabong district.

The use of plow oxen was also limited and people attributed this to the shortage of animals. The utilization of pesticides, herbicides, seed vouchers and post harvest preservation sacks was also found to be very limited although greater usage was found in Abim (Table 22).

4.7.6: Financial products and services

Formal Microfinance

A variety of credit and savings options are available in the larger towns and include banks and savings cooperatives (SACCOs). There is also the government Microfinance Support Center Ltd. (MSC) with an office in Moroto that serves all of Karamoja. MSC provides different financial products including small business loans and agricultural loans designed to support value addition. Interest rates range from 9% to 17% depending on the type of loan with the lower end mostly being channeled through SACCOs. Repayment periods range from monthly to quarterly with an initial 6 months grace period. In order to qualify for a loan from MSC one has to have a registered company or SACCO, collateral and have been in business for at least one year. A representative from MSC informed us that they were interested in supporting the livestock sector in Karamoja but this had not yet materialized.

Key informants suggested that there were other MFI's such as PLATINUM operating in Karamoja but they did not have permanent offices and interest rates were high. It is well documented that formal microfinance institutions are often unwilling to provide savings facilities for poor households (Amha, 2008). As Dercon *et al.*, (2008: 78) point out, "financial savings are not tailored to the poor, offer low or negative returns, and involve extremely high transaction costs imposed on the saver". Consistent with this, the utilization of formal microfinance was found to be limited and participants suggested that only wealthy people and urban dwellers used these (Figure 2). As Amha (2008) points out, poor households are often unwilling to accommodate the risk of borrowing from formal loan facilities for fear of defaulting on the loan and the penalties associated with this.

Participants were aware of savings cooperatives but did not trust these, as they are perceived to have political associations and a reputation for mismanagement and theft of group savings. Mostly people claimed to borrow money from traders and better off neighbors.

Informal Microfinance

In recent years local government and development agencies have been setting up Village Saving and Loan Associations (VSLA) and these appeared to be quite popular with a reasonable proportion of eligible study participants belonging to these groups (Figure 2). It seemed however, that most of these groups are concentrated around larger towns. A representative from Letshego informed us that his organization had helped to set up 80 VSLA groups in Kotido with between one and three in each parish. He acknowledged that they had experienced mixed results on the success of these groups. There were variations in how VSLA groups operated across the study area but the approach typically involves a group of between 20-30 members and group members use their own cash resources to lend funds to one another, charge an acceptable interest rate, and re-lend funds on a rotating basis. Other common features of VSLA groups in the study area are as follows:

- Groups typically meet every week and each member will contribute 1000 UGX to a savings pool and a 200 UGX to a social fund. After a certain amount of capital has accumulated in the savings fund members can take out loans, which they are obliged to repay at a 10% interest rate in one month. However, if the loan is repaid in a shorter time period only a 5% interest rate is applied. Group members that were interviewed said they use the loans to buy livestock, pay for schooling related expenses, and to buy food when they had visitors.
- In some cases, a group may also decide not to disburse loans on an individual basis, but to collectively invest their savings in a group business venture and then share the profits. For example, one group in Kotido used the funds to rent land for vegetable crop production.

- After a certain period, usually 12 months, the group will share the savings and any interest accrued with all the members. VSLA members can therefore earn dividends on their savings. However, in order to discourage people from just using the groups as an investment fund, which could potentially make the group unviable, the by-laws stipulate that each member must borrow a minimum amount during the 12-month cycle. The Letshego representative informed us that one group with 40 members managed to save and share 177,000,000 UGX the previous year.
- The social fund is typically meant to provide group members with insurance against idiosyncratic shocks such as illness, though it can also be utilized in other ways. No interest is applied to social fund disbursements and group members will collectively decide who receives this support. However some group members that were interviewed also claimed to use the regular loans to pay for food or medical bills.
- Each group selects a chairperson and a treasurer. A secretary is also selected to keep records on savings and loan transactions. The savings are kept in a wooden or metal box (Annex V), with either two or three padlocks. The keys for these locks are given to different members, selected by the group based on their honesty and standing within the community. The box cannot be opened by any individual group member and would only be opened in the presence of the entire group during the weekly or bi-monthly meetings.

Although these groups seem to be functioning fairly well and provide important savings and credit facilities for the poor, a number of challenges exist. For example the Letshego representative informed us that not all groups were successful and they faced problems with members not understanding the by-laws. He suggested that these groups initially require a considerable amount of support and training if they are to be successful. This is supported by the findings from an assessment of similar groups in the pastoral areas of Ethiopia that showed little to no impact largely due to poor management and implementation (Bekele, 2009).

Group members also complained about high interest rates and short repayment periods and suggested extending the repayment period or lowering the interest rates. However, the risk with this approach is that group savings could potentially not keep pace with inflation.

Another potential issue with savings groups is that that they often exclude the people they are intended to help. Although contextually different, a study on similar lending groups in South Africa highlights the risk of the poor being excluded from these groups. The study found that the people joining and remaining in these groups were actually the better off (Roper, 2003). The same study revealed not only that the microcredit program was not reaching the very poor, but that better-off group members were unwilling to risk guaranteeing loans to poorer members and even acted to prevent the participation of those poor they considered to be problematic (ibid).

The lack of business opportunities and competition between group members investing in the existing business opportunities can also be problematic for these groups, particularly for groups operating in remote villages. The sources of contributions can also be negative, with members engaging in activities such as firewood collection and charcoal production in order to generate income for their weekly contributions.

These challenges aside, when well implemented these groups have been shown to smooth consumption and protect people from selling their assets during times of food and income shortage (Burns and Bogale, 2012). Under the SUSTAIN project, VSLA groups could potentially be used as a vehicle for collective mobilization and the provision of different types of training activities (business skills, financial literacy, extension etc.) Collectively groups may also be able to save and invest in things like agro-processing equipment or hiring trucks to carry produce to markets that would normally be out of reach for individual group members. If VSLA's are to be promoted under the project, they need to be well implemented with training, coordination and oversight in the initial phase. This requires a big investment in management and supervision, and as problems crop up project staff will need to be there to address issues and help people find solutions. However, the benefit from this investment is that once a group has been established and is functioning well, other groups

in the same village have the pilot group as a resource for addressing these kinds of issues so less oversight is required.

Mobile Banking

Mobile banking also represents a significant opportunity for the provision of financial services in the sub region. However, few study participants currently own or use cell phones (Figure 2) and the mobile phone network in Karamoja is still fairly unreliable. Nonetheless, even in the most remote study villages there was some network coverage and solar cellphone recharging facilities were generally available at the closest school or parish center.

At the time of the assessment there were at least two Ugandan service providers offering mobile banking platforms. Recent innovations in neighboring Kenya include mobile credit and savings options as well as micro insurance and it has been estimated that mobile money transfers in 2012 were equivalent to almost one third of Kenya's GDP (Jacobs, 2013). **It is only a matter of time before the mobile banking revolution reaches Karamoja and the SUSTAIN project should anticipate this and build the capacity of project participants to fully utilize and take advantage of it when it does.** For example, the project might consider trying to link MTN agents to VSLA groups to provide demonstrations and training on mobile banking, even project staff could do this. Group members may start saving or taking out loans to purchase cell phones or to invest in solar phone chargers as an income generating activity. Any kind of financial literacy training provided under the project should at a minimum raise awareness of the existing mobile banking options.

The mobile technology trend will continue to expand and in addition to providing cheap, reliable and accessible financial services, it is already being used as an e-learning and market information platform. For example, [M-Farm](#) is a mobile app that provides farmers with nominal cost real time market information (ibid). Knowledge on how to use these mobile platforms and apps (*M-Literacy*) will soon become a valuable if not essential skill. If the SUSTAIN project can position itself to transfer these skills to project participants it could well be one of the projects defining legacies.

4.7.7: Other products

The results show low ownership/utilization of products such as wheelbarrows, solar lanterns and mobile phones (Figure 2). This partly had to do with the availability of these products but mostly has to do with the cost. The location of the project intervention area in concert with bad roads and poor seasonal access directly drives up the cost of bringing trade goods into Karamoja and during the wet season bus fares between Karamoja and other regional towns are amongst the highest in the country. Seeing as very little is produced locally, nearly all processed or manufactured products are imported into the region on local buses. Given the high transport costs, the Karamojong pay more for basic products and effectively have less purchasing power than Ugandans in neighboring regions. Essentially Karamoja needs all weather roads between all the major towns within the sub-region. It also needs tarmac roads linking the sub-region to other regional centers. Although the SUSTAIN project may support some road construction and repair under its Food for Work activities the scope of what's needed goes well beyond the project. However, as discussed, if the project can provide training for mechanics and promote the establishment of vehicle repair workshops in the sub-region this will contribute to bringing down the cost of transport and products in general. Also, if the project can encourage more transporters to operate in the area by linking them to suppliers and markets, this will also help bring down the cost of goods. But ultimately, investments in roads and transport will provide the foundation for economic development and service delivery in Karamoja.

5 Conclusions and Recommendations

One of the guiding principles of the SUSTAIN project is that people make their own choices and development organizations have no business interfering with the choices people make about their livelihoods (Mercy Corps, 2012). The research team agrees with this principle and does not assume to have all the right answers or solutions. The assessment findings highlight a number of constraints to production and marketing as well as some of the potential resources and opportunities in the project area. From these findings a number of areas of intervention have been suggested or proposed throughout this report and many of these mirror the ‘indicative’ activities presented in the projects technical proposal. These should not be seen as prescriptive but rather as contextual guidance to inform programming. The feasibility of these or any type of intervention will have to be carefully reviewed with project communities before implementation. Some interventions will be suitable in some areas and not in others. Similarly, some people will have the capacity and resources to take advantage of some interventions and others will not.

The main constraints to economic development include insecurity, a lack of basic infrastructure and services such as roads, water, communications and financial services. The major constraints to production include drought, rain-failure and animal disease. The lack of inputs and services also undermines production and marketing and in many ways these can be attributed to the economic and political marginalization of the region. In the past three years the security situation has improved following the disarmament campaigns, however the impact of protracted conflict and the poorly implemented response to the conflict along with misguided development policies and interventions has and will continue to hamper the regions economic potential. Karamoja desperately needs peace along with major investments in infrastructure and basic services such as health, education, credit, communications, roads, water and electricity. It also needs a long-term and pro-pastoralist development strategy designed to take advantage of existing resources, capacities, opportunities and trends. Some of the constraints to production and marketing (such as rain-failure) will never be addressed and may even become more pronounced over time. Others may be beyond the scope and capacity of the SUSTAIN project (such as the construction of tarmac roads). Nonetheless, many of the constraints that have been identified can be addressed within the project framework.

Although from a development perspective some of these constraints are formidable, so to are some of the opportunities and the study area has a wide range of natural resources and assets that can be utilized for commercial purposes, support livelihoods and build a vibrant local economy.

At present, the livestock sector represents the greatest economic potential for the region and the SUSTAIN project should focus on developing this sector above others. Demand for meat and livestock products along with a growing and relatively untapped export market in Africa, Asia and the Middle East will continue to fuel the growth of this sector for the foreseeable future. The region is comparatively much better suited to livestock than crops and the Karamojong are experts in livestock production. In recent years and through the loss or redistribution of livestock this knowledge is being wasted and perhaps to some extent it is even being lost. The active promotion of crop production at the expense of transhumant livestock production threatens this resource and could potentially cost the sub region tens of millions of dollars in lost revenue over the next decade or so. The SUSTAIN project can play a critical role in promoting and developing this sector through animal health service delivery, restocking and advocacy so ensuring that this resource is efficiently utilized for the benefit of the local economy and people. This being said, an increasing number of people will continue to exit the pastoral livelihoods system and the creation of alternative jobs and livelihood opportunities for these people represents an enormous challenge for development actors.

Agriculture will continue to provide jobs and livelihoods for people although drought and frequent rain-failure will continue to limit the potential of this sector and increased dependency on rain-fed crop production will only result in greater levels of poverty and vulnerability. However, improvements in input supply and

extension services will be needed to improve crop production. There is also some potential for promotion of certain cash crops particularly in the greenbelt zone of Abim and parts of Kaabong. However, this sector should only be promoted in areas where it has a proven comparative advantage over animal production or as a complementary activity to livestock production in agro-pastoral areas. There may also be opportunities for the production of fodder crops in some localities.

Karamoja has by far the lowest adult literacy in the country (UNDP, 2007) and this limits people's ability to take advantage of existing and future economic opportunities. Although the study results show less than encouraging primary and secondary school enrollment, study participants were invested in seeing their children complete school and many saw education as the only long-term solution to addressing poverty. In the short to medium term the project can play a role in actively trying to build the capacity of project participants to enable them to compete with outsiders for jobs and other economic opportunities. Future opportunities will likely concentrate around growing urban centers in the region.

As these towns grow so will the demand for products and services. This will include raw materials for construction, fuel for cooking, unprocessed, processed and cooked food items. The demand for labor and services such as water and transport will also increase providing employment opportunities for people. The demand for drivers, mechanics, seamstresses, cooks, butchers, masons, carpenters, metalworkers, electricians, storekeepers, guards and porters will all increase but will exclude those without the right skill set. If the Karamojong are to effectively compete for anything other than the most menial jobs, investments in training will be needed to fill in the existing knowledge gap and level the playing field. Examples might include training in business skills adult literacy and financial literacy and the ability to utilize new technologies such as mobile banking will also be an advantage. More specialized training in skilled trades could also provide an alternative livelihood for young Karamojong exiting pastoralism.

There are many potential livelihood options for people in the project area but as discussed people will make their own livelihoods choices and the project can only support them not define what these should be. There are also many different intervention areas but the SUSTAIN project cannot address all of these nor should it try to. One of the strengths of the SUSTAIN project is its innovative design which allows for considerable flexibility in implementation. However, this can also be risky given the complexity of the project (Objective 1) and the fact that the project lacks a clearly defined causal model. As discussed, there will be a need to identify and tailor activities and interventions to the characteristics of different households and different production zones. Once these activities and interventions become clearer, it will be important to define sub-objectives for each intervention articulating a clear causal pathway from objective to activity to anticipated impact.

Depending on the type of activities and the results, Objective # 1 could potentially impact anyone in the study area. On the other hand, there is a risk that attempting this kind of universal coverage could dilute the impact of the project. Realistically, sustainable results across all three districts will take much longer than five years to achieve. Nonetheless, if well designed and well implemented, the activities under the SUSTAIN project can have an impact well beyond the life of the project. For this to happen, a systematic and methodological approach to implementation is needed as opposed to just carpet bombing the region with ad hoc interventions and hoping for positive results. A better approach would be to focus on a few specific areas (sub-counties for example) once an intervention has been defined. Then implement the activities, test if they are working against a causal pathway, correct any mistakes and then scale up into new areas. The project approach for objective # 1 is new and offers exciting possibilities but it is largely untested. The health and nutrition interventions proposed under objective # 2 can be done at scale because they have been tried and tested. Therefore an emphasis on quality over quantity in the design, planning and implementation of the livelihoods component is essential if this opportunity is not to be wasted.

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