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FOOD SECURITY THROUGH AGRIBUSINESS IN SOUTH SUDAN

SOUTH SUDAN AGRIBUSINESS DEVELOPMENT PROGRAMME II (SSADP II)

FINAL BASELINE REPORT

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This report is a result of close collaboration between Cordaid South Sudan, Agriterra, SPARK and Pan African Research Service Limited (PARS). Special thanks go to all the stakeholders who enabled the success of this baseline study.

ACRONYMS AND ABBREVIATIONS

CAO	Change Agency Organization	Malwa	3.5 Kg
C&D	Church & Development	MFI	Microfinance Institution
CMDRR	Community Managed Disaster Risk Reduction	MSMEs	Micro- Small and Medium Enterprises
CRS	Catholic Relief Services	NGO	Non-Governmental Organization
CODEP	Catholic Organization for Justice and Peace	NPA	Norwegian People's Aid
DRR	Disaster Risk Reduction	NRC	Norwegian Refugee Council
EKN	Embassy of the Kingdom of the Netherlands	POC	Protection of Civilians
FAO	Food and Agriculture Organization	RDAA	Rural Development Action Aid
Feddan	0.42 Ha	RRC	Relief and Rehabilitation Commission
FGD	Focus Group Discussions	SILC	Savings and Internal Lending Communities
FFS	Farmer Field School	Shawal	50 Kg
FOCOS	Foundation for Community Support Systems	SLA	Sustainable Livelihoods Approach
GAM	Global Acute Malnutrition	SMEs	Small and Medium Enterprises
GAIS	Global Agriculture Innovation and Solutions	SSP	South Sudan Pounds (Exchange rate used is 1 USD equals 230 SSP)
HHs	Households	SSADP	South Sudan Agribusiness Development Programme
HEA	Household Economic Analysis	SSAPU	South Sudan Agricultural Producers Union
HDDS	Household Dietary Diversity Score	STO	Star Trust Organizations
IDP	Internally Displaced Person	UN	United Nations
IGAs	Income Generating Activities	USD	United States Dollar
ILO	International Labour Organization	VSFG	Vétérinaires Sans Frontières Germany
INGOs	International Non-Governmental Organization	VSLAs	Village Savings and Loans Associations
IPC	Integrated Phase Classification	WASH	Water Sanitation and Health
KII	Key Informant Interview	WOYE	Women and Youth Empowerment

INTRODUCTION

This report is a result of a baseline study conducted by PARS in collaboration with Cordaid South Sudan, Agriterra and SPARK for South Sudan Agribusiness Development Programme II (SSADP II). SSADP II is a 5 year programme will be implemented in the counties of Bor, Torit and Yambio, by a consortium of Cordaid South Sudan, Agriterra and SPARK as a follow up to SSADP 1. The aim of the programme is Improved food security and resilience for farmer households (men, women, youth) via enhanced sustainable climate smart food production, improved post-harvest storage, improved agribusiness marketing, improved performance of cooperatives, support with jobs, higher income, and better preparation for natural and conflict related hazards with specific attention for conflict sensitivity/ do no harm.

The baseline study adopted several frameworks such as Household Economy analysis (HEA), Sustainable Livelihood Approach (SLA), stakeholder analysis, Conflict sensitivity analysis and Value Chain analysis in its implementation. Household Economy Approach (HEA) helped analyze the way people obtain access to the things they need to survive and prosper while the sustainable livelihood approach was vital in analyzing and changing the lives of people experiencing poverty and disadvantage, thus the target group. The value chain analysis model was used to identify existing products and process flow, identifying primary and secondary activities as well as mapping the market. Stakeholder analysis helped identify other actors in the field of interest and their potential influence to the programme while the conflict sensitivity enabled the main security challenges

The study used a participatory and consultative approach, conducted in three main phases; inception phase, a field investigation phase and a synthesis and feedback phase. The inception phase largely involved desk review and field visits were done in the counties of Bor, Yambio and Torit. The filed visits included observation, face to face interviews with a wide range of stakeholders including: Households, community members, local leaders, and government officials, local and international NGOs, cooperatives, financial institutions, VSLAs, farmer groups, farmer field schools, media, processors and input suppliers among other stakeholders. The feedback and synthesis phase mainly involved the analysis and interpretation of findings from the field investigation and the preparation of this baseline report.

EXECUTIVE SUMMARY

This report presents a synthesis of findings from the baseline evaluation carried out for the South Sudan Agribusiness Development Programme II. This as programme funded by EKN and set to be implemented by a consortium of Cordaid, SPARK and Agriterra. The main purpose of this baseline evaluation was to establish the programme benchmarks and understanding food security, agricultural practices, potential and existing value chains, markets, cooperatives, access to finance, conflict analysis as well as stakeholder and governance analysis. The survey was conducted in the counties of Bor, Yambio and Torit of South Sudan. Key stakeholders in the programme, national and county governments were also interviewed to give insights on the study's objective.

The baseline employed a mixed methodology approach, combining both quantitative and qualitative approaches. The main sampling strategy relied on the probability sampling approach and was comprised of different selection techniques for different households. The baseline findings drew analysis from observation, secondary data and face to face interviews with a wide range of stakeholders including: farmers' households, traders, cooperatives, VSLAs, local and international NGOs, county and state government officials and the RRC among other stakeholders.

The socio-demographic characteristics of the households were as follows; 51% of the household members were female, the average age was 31 years and the average size of household was 6 members. 81% of the household heads were married and the education level at the household was very low. In terms of education levels, 56% had never attended school, 27% started but never completed primary school, 5% had completed primary school as the highest level, 4% went to secondary school but did not finish, 4% completed secondary education as the highest level of education and only 4% had reached the tertiary level. The disability prevalence within the households was 3%.

The evaluation observed that most households across the counties had an average of only one member engaging in income generating activities. The **MAIN** sources of livelihoods in these counties were agriculture (56%) and businesses (18%). 12% did not have any sources of livelihoods and depended on rations from NGOs and INGOs while 10% engaged in small scale activities. This trend was similar at the county level with agriculture being the main source of livelihood at 54%, 64% and 53% in Bor, Yambio and Torit respectively. Bor County had a higher number of households without income at 14% compared to 10% in Yambio and 7% in Torit. The level of household income was SSP 18,263 (USD 79.40) per month which was very low and could not sustain the household. Bor had the highest HH income at SSP 24,656(USD 107.2) followed by Torit at SSP 17,504 (USD 76.10) and Yambio at SSP 11,560 (USD 50.26) per month respectively. Household income for female headed households was significantly lower than that of male headed households. Male Headed households earned an average of SSP 22, 078 (USD 95.99) while female headed households earned SSP 7,959 (USD 34.60).

Agricultural practices in the counties highly influenced the level of household income and food security. Land was communally owned and total size of land cultivated per household was 1.4 Feddans (0.588 ha) which was very small and in turn resulted to lower production levels. Only HHs in Torit cultivated a marginally bigger piece of land at 1.5 Feddans (0.63 ha) compared to 1.4 Feddans (0.588 ha) in the other counties. Lack of capital was the main hindrance in land expansion. The cost of hiring tractors hindered uptake of mechanization services and in addition, in Yambio the forest cover limited the use of tractors. Farming was mainly by hand and in Bor, the sporadic use of oxen-pulled ploughs.

The main crops and potential value chains in the three counties were Sorghum, Maize and groundnuts. Cassava was also a staple food in both Yambio and Torit. Vegetables and fruits were also farmed in the counties but on a lower scale. The main fruits in the counties were mangoes, bananas and pawpaws. Pineapples were mainly planted in Yambio while lemons and guavas were planted in Bor. The main vegetables were okra with onions, kudhura, tomatoes and cabbages being planted in Bor while cereals such as sorghum and maize were the main agribusiness crops cultivated. Farming mainly depended on rainfall and the counties of Yambio and Torit enjoyed two rainfall seasons while Bor had only one long season. The season in Bor occurred from May to mid-November while the two seasons for Yambio occurred from March to June for the first season and from August to November for the second season. In Torit, season were from May to June and from July to December. Rainfall from these seasons was adequate for crop production.

The main agricultural inputs used were seeds and tools such as machetes and hoes and were mainly supplied by FAO and NGOs. This created an overdependence and ruined the market for the seed production and agro dealer sector. The farmers were sometimes affected by delays in the seeds and ended up planting low quality saved seeds. According to the ministry of agriculture, the fertile land in the counties led to a ban on using of fertilizers and pesticides by the government. However, traditional methods of dealing with the fall army worm such as spraying ash had failed among the farmers and required an immediate solution. The government was the main extension service provider in the counties. Other actors were SSAPU in Yambio. Farmer field schools existed in Bor and Torit but in Yambio, FFSs dissolved once the Programme that formed or supported them ended.

The production levels in all the three counties were very little and could not sustain the households during the dry season. Overall, households produced an average of 40.7 shawal (2,035 Kgs) of sorghum from 0.588 Ha of land cultivated and 7.8 shawals (390kg) of maize from 0.504 Ha land cultivated per season. The seasonal production of groundnuts as 23.5 shawals (1,175 Kg) and cassava 1.2 shawals (50 Kg). Vegetable production was generally very low in the counties.

One of the poorest agricultural practices was post-harvest handling where maize was shelled using hands which was deemed tedious. Drying of both maize and sorghum was done on open pallets or on the ground or on wooden stall exposed to wind and dust. This impacted negatively on the quality of the grain. Traditional jute bags were used to store the produce but were prone to attack by pests. Storage facilities were mainly traditional wooden granaries hoisted a few meters off the ground and grass-thatched. Produce stored in these facilities was attacked by pests such as rats and weevils. The farmers in the counties lost an average of 3.1shawals (155 kg) of sorghum, 0.6 shawals (30 Kg) of maize, 0.4 shawals (20 Kg) of cassava and 0.6 shawals (30 Kg) of groundnuts.

The farmers mainly sold their produce without any value addition and the main value addition done was shelling and transportation. The period of selling produce was mainly based on needs of the farmer and availability of the market. Processing of produce at the household level was elementary. Sorghum, maize and cassava were mainly ground buy stone or pound using pestle and mortar. However, there were maize mills in the local market centers who provided milling services.

The main market for cereals was WFP and the local markets. In Yambio, the physical markets were Yambio market, Nabiapai and Masia and were high characterized by concrete buildings and numerous wooden stalls. The main market in Bor was the Merol market while in Torit the main markets were Torit and Melekia markets. The market prices were always fluctuating due to the exchange rate of SSP to the dollar.

Market information such as the price fluctuations was only available to 56% of households. Market prices were the most accessed type of market information followed by market demand and new buyers. Such information affected the way farmers priced their commodities as well as when to sell and when not to sell. Lack of or poor storage facilities also made farmers sell their produce earlier.

The main impediments to higher levels of production in the counties were; small sizes of land cultivated, lack of capital, use of poor saved seeds, poor access to inputs, poor access to extension services, pests, poor postharvest handling, limited access to market information and generally poor markets of the products. In terms of access to finance, only 9% had applied for loans. The low rate of borrowing was attributed to the fact that most financial institutions were not lending due to currency fluctuations and inflation rate. Some MFIs were lending but low levels i.e. staring loan of SSP 3500 (USD 15.22), were not attractive. VSLAs were existing but were more women oriented. Torit had 30 VSLAs, Yambio had 12 and Bor had 107 VSLAs respectively.

Low level of production contributed to low income and food security. In terms of food security, the counties of Yambio and Torit were projected to be in the IPC level 2 which meant even with any existing humanitarian assistance at least one in five HHs had minimally adequate food consumption but were unable to afford some essential non-food expenditures without engaging in irreversible coping strategies. Bor on the other hand was classified under IPC level 3 which meant that even with any existing humanitarian assistance, one in five HHs were experiencing food consumption gaps with high or above usual acute malnutrition or they were marginally able to meet minimum food needs only with accelerated depletion of livelihood assets that eventually led to food consumption gaps.

Food access in the counties was assessed using the House the Household Dietary Diversity Score (HDDS) and out of the 12 food groups, households had access to only 5 out of the 12. The main consumed foods were cereals while the least were eggs. Levels of acute malnutrition as of September 2018 in Yambio and Torit were acceptable (GAM< 5%) while in Bor, the situation was critical (GAM>15%)[1]. However these situations were expected to improve during the seasonal availability of local food in October, November and December.

Business was also a main income generating activity in the counties and households that depended on business as the main source of income earned a monthly average of SSP 15,936 (USD 122.58). Majority of these traders engaged in small scale non-agricultural trade and agricultural produce trade. The main challenges the traders faced were lack of access to finance accompanied by lack of entrepreneurship and management skills.

In order to access services and assistance from humanitarian agencies in overcoming livelihood hurdles, community members usually join groups such as cooperatives and VSLAs. However in the areas of study, 85% of the respondents were not members of any groups. Conflicts had affected group membership as a majority had fled from their homes while others lacked funds to join. These groups were also highly affected by high levels of illiteracy among members, lack of financial and investment knowledge, lack of bank accounts and low levels of income. Cooperatives were popular in the three counties and their main business was aggregation and marketing of farmers produce. The education level in cooperatives was very

[1] IPC analysis Workshop - September 2018,Rumbek _____ Nutrition, FSL Cluster

low with 40% of the members failing to complete the primary level and 60% completing primary school and above.

The 2016 conflicts affected the lives of the households in the areas of this study in one way or another. However with the signed peace deal, calm was returning to the villages and the security level was termed as reasonably peaceful at the counties. The main areas of concern in the counties were the payams that were occupied by rebels. These were Ri-Rangu payam in Yambio, Jalle in Bor and Iyire in Torit. Bor and Torit were still prone to cattle raiding which led to inter community conflicts.

Generally, the most prevalent disasters in the households were droughts and floods. Half of the households had experienced a household shock within the year preceding the study and half of those did not know how to cope with the shock while others depended on well-wishers, humanitarian and government support.

The main institutional stakeholders in the agribusiness sector were the government through ministries and the RRC, WFP, FAO and NGOs. The government provided administration and extension services, the RRC was the coordinating body for NGOs and other humanitarian organizations, and WFP was the market for grain while FAO was active in the provision of inputs, seeds and early warning.

Conclusions

The main sources of livelihoods for households in the three counties were largely influenced by agriculture. Among other factors, one person per household engaging in IGAs contributed to the low level of household income of SSP 18,263 (USD 79.40) per month and negatively influenced food security within the counties.

Low levels of income among farmers were caused by the following challenges; Small sizes of land cultivated due to unavailability of capital, poor mindset regarding agriculture as commercial, low level use of mechanized services, lack of extension services, poor quality saved seeds and dependency on NGOs caused farmers to wait for delayed seed distribution, throwing of the growing season, limited access to farm inputs commercially, low levels of production, poor post-harvest handling practices, , limited markets and limited access to market information.

Farmer and savings group membership dwindled because of conflicts and low levels of income, with 85% of respondents were not members of any groups. The most affected groups were VSLAs. The cooperatives mainly focused on aggregation and marketing of farmers' produce and did not diversify activities due to high levels of illiteracy and lack of management skills by the boards. The main problems affecting cooperatives were lack of markets, low levels of education among members and the managing boards as well as access to finance.

Business was one of the sources of income and faced numerous challenges. The challenges were lack of access to finance accompanied by lack of entrepreneurship and management skills.

Bank account ownership was very low in the counties due to lack of trust as some banks had closed due to the 2016 conflicts and farmers were unable to access their funds. Others lacked awareness of the services offered by banks or were far from banks.

There was reasonable calm state in the counties that was attributed to the signed peace deals. However some parts of the counties could not be accessed as they were held by rebels. This limited humanitarian

access and may hinder undertakings of the programme. These areas were Ri-Rangu payam in Yambio, Iyire in Torit and Jalle in Bor. Bor and Torit were still prone to cattle raiding which led to conflicts.

Disasters such as droughts in the counties are mainly caused by lack of preparedness and awareness. Most of the people did not know how to mitigate such disasters due to lack of Community Managed Disaster Risk Reduction (CMDRR) committees within the communities. When the disasters occurred, they did not even know how to cope due to lack of preparedness.

The main stakeholders who could influence the programme were the government ministries and RRC, WFP and FAO. The government through ministries can help in data provision as well as in partnering in the programme activities while the RRC had the mandate to oversee the activities of the programme. WFP and FAO were the main market and input provider in the areas.

Recommendations

At the inception phase, the Programme must also get all the stakeholders on board. Thus the Programme partners, community, farmer groups, cooperatives, local NGOs, UN bodies, county and national government as well as the local leaders. Cohesion of all stakeholders will be vital in ensuring that the Programme objectives are met through partnerships and overall stakeholder oversight. This can be achieved through multi-stakeholder platforms and meetings as well as joining the stakeholder clusters existing in the counties, e.g. the food security cluster

The Programme's monitoring, evaluation and learning team should facilitate timely joint monitoring, learning and networking forums, document lessons learnt and develop effective systems of collecting and storing Programme data that will facilitate evaluation of the Programme. Risks such as Programme impact attrition, caused by other players in the development sector will be addressed easily through close monitoring, stakeholder analysis and effective dissemination of information. The consortium members should join food security clusters existing in the different counties.

(a) VALUE CHAINS RECOMMENDATIONS:

- Links to inputs: working with seed companies and input dealers develop a preferred distributors network at the Payam level; develop strong links with seed suppliers, especially for Sorghum, Maize and groundnuts, matching supply with demand from the farmer side to minimize risk of oversupply for the seed companies/seed distributors; and link agro-input dealers with one farmer in each farmer group, FFS or cooperative who can aggregate demand for the entire group, saving on transaction and transportation costs for farmers since the agro-dealer can deliver aggregated demand inputs in bulk to the farmers.

- Construction of small warehouses and provide subsidized hermetic bags to farmers through existing agro dealers.

Capacity Building on:

- Sorghum: production (seed capital, use of improved seed varieties, grades and standards for traded grains, using fertilizers and sprays, planting in rows, weeding, mulching, and proper spacing), input suppliers (packaging and storage of seeds); Processing (local millers in the market; grading, service

pricing, Milling technology for high flour yield and quality); Marketing (producers and agribusinesses traders; new market linkages, pricing, access to credit)

- Maize: production (seed varieties, seed capital, fall armyworm and the use of pesticides), input suppliers (packaging and storage of seeds, seed varieties, demonstration at the Payam level); post-harvest handling practices; Processing (local mills; grading, service pricing, Milling technology for high flour yield and quality); Marketing (producers and agribusinesses traders; new market linkages, pricing, access to credit)
- Groundnut: Production (seeds variety, production for the market); Processing (local millers; service pricing, milling technology and packaging); Marketing(producers and agribusinesses traders; new market linkages including export, pricing, access to credit)
- Cassava: Production (seeds variety, production for the market); Processing (local millers; service pricing, milling technology and packaging); Marketing(producers and agribusinesses traders; new market linkage, pricing, access to credit, record-keeping)
- Agricultural Input Policy: Collaboration with the government in policy development on the use of chemical, agricultural practices and risk reduction

(b) COOPERATIVE RECOMMENDATIONS:

Based on the rapid assessment of the cooperative, the following recommendations are made to support capacity development of the cooperatives:

- Membership mobilization: because most of the cooperatives had low memberships level
- Governance: capacity building on governance
- Financial management: (capacity building cooperatives boards)
- Marketing (train boards and develop new market links, WFP can purchase more grain)
- Internal capitalization

(c) MARKET DEVELOPMENT:

- Provide seed capital to develop market infrastructure, explore new markets for produce and provide agribusiness MSMEs capital.
- Links with buyers. Develop a preferred buyers' network in each of the counties for sorghum, maize, groundnuts and cassava; ensuring farmers are involved in market platforms in the counties; link buyers and farmers during the five years to build trust and transparency.
- Conduct market platforms where buyers and farmers can exchange market information and encourage transparent relationship based on trust.
- Develop radio shows that help disseminate market information in the three counties
- Develop agreements (MoUs) and contracts with buyers willing to offtake produce

(d) FINANCIAL PRODUCTS

- Mainstream VSLAs within the Payams and capacity build on record keeping and management. Provide grants to VSLAs and link them to MFIs to access affordable loans
- Capacity build MFIs in terms of new product development and offer them operating capital (loans or grants) to lend to agribusiness traders and farmers
- Monitor financing developed by the project closely to measure uptake and impact.

(e) CONFLICT ANALYSIS

- Use the Do No harm principle in all the activities of the project by ensuring genuine neutrality and compromise in conflict affected areas.
- Capacity building on community conflict management and resolution
- The project staff should avoid Payams held by rebels and should adhere to advise and recommendations from the security settings in the counties.

(f) DRR

- Establish CMDRR committees
- Capacity building the community and CMDRR committees on:
- Awareness of hazards and risks with emphasis on drought, floods and conflicts
- Disaster Preparedness, prevention, mitigation, response, rehabilitation and coping

(g) STAKEHOLDER ENGAGEMENT

- Potential partnership with WFP to purchase more produce, share modern warehouses/aggregation centers and use the aggregation centers for farmer training on storage technology. Partner with local NGOs to implement project activities.
- Partner with the ministry of agriculture in training of farmers on pesticides use in the control of fall armyworm and other pests

BACKGROUND

In 2013, due to the need to create employment and income in South Sudan, the Embassy of the Kingdom of the Netherlands (EKN) formulated the South Sudan Agribusiness Development Programme I. This was a four year Programme funded by EKN and implemented by Mott MacDonald BV in association with Rabobank international Advisory Services and the International Training Centre of the ILO. Following satisfactory performance over the first two years, the Programme was extended from Feb 2015 till January 2017. However, due to delays in implementation, the programme was further extended till January 2018.[2] The delays were highly attributed to political unrest, armed conflict and corresponding insecurity among other reasons. This meant the overall goals and objectives were only achieved to a limited extent.

SSADP II, supported by the Embassy of the Kingdom of the Netherlands (EKN) and implemented by the Consortium of Cordaid, Agriterra and SPARK is setup following the lessons learnt in SSADP I. The programme is set to be implemented in the counties of Bor, Yambio and Torit with a possibility of expanding to other counties. Yambio and Torit counties are located in the Equatorias – Eastern and Western Equatoria which are traditionally known as the Greenbelt zone that have the potential to be the country's "food basket" because of its climate and geography. Bor County is located in Jonglei state which forms part of greater Upper Nile region. Bor is an agriculture, pastoral, and fishing economy. The River Nile flows along the county's western border and is a major transport and natural asset. The riverine area provides essential pasture for cattle, vegetable cultivation and fishing which supplements livelihoods in the dry season.

Programme description

SSADP II is a holistic programme envisioning enhancement of grass-root level production and productivity, adding basic value to the existing agricultural activities and supporting the growth of existing agribusinesses that play a key function in local agricultural markets, thus supporting and creating space for growth at the grass-roots level. This is to contribute towards sustained increased HH income (buying power) and employment as well as improved food security.

SSADP II's main goal is Improved food security and resilience for farmer households (men, women, youth) via enhanced sustainable climate smart food production, improved post-harvest storage, improved agribusiness marketing, improved performance of cooperatives, support with jobs, higher income, and better preparation for natural and conflict related hazards with specific attention for conflict sensitivity/ do no harm. The food security definition being having adequate availability and access to food for all members of the household throughout the year.

In order to achieve the goals, the team plans to use Making Markets Work for the Poor (M4P) approach which usually seeks to change the way that markets work, so that poor people are included in the benefits of growth and economic development. This will involve access and availability of quality inputs and the development of the producers/ entrepreneurs' technical and business skills, which are all crucial elements to be addressed and are required to accelerate livelihood growth while poverty and food insecurity and thus creating enhanced livelihood and economic growth.

The programme aims to target 10,000 households through existing cooperatives, associations, farmer groups and agribusinesses. Principles of gender equality and inclusiveness as well as do-no-harm are

[2] South Sudan Agribusiness Development Programme (SSADP) Activity Report January - June 2018: 29 August 2018

proposed to be used during the implementation of the programme. Cross-cutting issues that should be observed for both women and men intended to benefit from the Programme in the farmers' and youth groups. Women-focused groups should be facilitated and promoted to work on agriculture-based economic opportunities (e.g. producing, processing and marketing vegetables) in order to promote women's development and empowerment.

Markets, which are crucial in improving the livelihoods of the target groups in the target areas, are foreseen to develop along with increased demand and supply which this Programme is to support, catalyse and facilitate. Thus, the private sector/traders will be key in developing and operating markets for agricultural inputs & output goods and services but at this point in time not yet capable – due to many different reasons to take on these roles. This Programme intends to support the creation of a conducive environment by reducing entrepreneurial risks and by enhancing and facilitating market opportunities, whilst capacitating businesses to sustain themselves and grow. When and where the lack of funds becomes an entrepreneurial constraint, the Programme will support innovative ways of financing both for the direct target HHs as well as larger market actors.

Through business hubs and spokes mechanisms, the Programme intends to also support physical facilities on
main market places where market visitors, entrepreneurs and service providers can meet and exchange information not only on technical matters but also on market developments e.g. access to finance.

Study Purpose and objectives

In November 2018, the consortium initiated a baseline survey in the Programme areas with the aim of setting baseline values for the outcome indicators against which the Programme progress will be monitored and evaluated.

The survey sought to generate adequate baseline information (quantitative and qualitative) on agricultural practices, production, productivity, the delivery of goods and services as well as on input/output markets, and the functioning of the target cooperatives and associations etc. Stakeholder and governance analysis was also done with an aim to obtain an up to-date picture of the situation, also with regard to the refugees and Internally Displaced Persons (IDP). The survey was conducted in the counties of Yambio, Bor and Torit. The main Payams visited were Gangura, Banzungua and Yambio in Yambio County, Makuach, Anyidi, Baidit, Bor Town and Kolnyang in Bor County and Nyong, Bur, Kiyala, Himadong, Imorok, Ifwotu, Ikotor in Torit County.

The baseline aimed to cover the following key content; socio demographics in the counties, food security/ nutrition status, overview of agricultural practices/ value chains/ extension services, cooperatives, markets, access of financial services and products, conflict disaster ,Disaster Risk Reduction (DRR) analysis, stakeholder and governance analysis as well as gender analysis.

The PARS team conducted both desk and field research in order to produce this report, which contains a baseline assessment, a synthesis of conclusions and lessons as well as recommendations emerging from the review.

METHODOLOGY

The approach to the baseline survey was both quantitative and qualitative in methodological application. The baseline survey adopted a combination of the Household Economy analysis (HEA), Sustainable Livelihood Approach (SLA), stakeholder analysis, Conflict sensitivity analysis and Value Chain analysis as well as guidelines for best practice in baseline evaluations.

Methodology

The design of the survey was founded upon the principles of: systematic inquiry; competency; integrity and honesty; participation; and respecting the interests of stakeholders, partners and the public. In line with this, the consultants employed participatory mixed methods for the assessment. This was attained through a multi-method design of face to face interviews, in-depth interviews, focus group discussions, direct observation and the review and analysis of Programme documents and other related secondary sources of information.

Data collection Methods

The assessment was implemented in three main phases: An inception phase, a field investigation phase and a synthesis and reporting phase.

Literature Review

This phase mainly involved **contextual research;** through thorough and systematic **document review and analysis** of qualitative and quantitative information, contained in but not limited to the following document sources: Programme documents, Livelihoods Zone Map and Descriptions for South Sudan, SSADP I Completion and progress reports, South Sudan Conflict Insight, Population projections for South Sudan by Payam From 2015 – 2020, CLIMIS Data warehouse among other relevant documents/sources to the study.

After approval of the tools, the PARS team undertook the field mission applying the plan developed during the inception phase. The plan was applied in a way that was flexible enough to accommodate any last-minute challenges in the field. The following methods were used.

Qualitative methods

To acquire valuable insights regarding people's subjective perceptions; expert information, their deep-rooted beliefs and feelings, 78 Key informant interviews and 23 Focus Group discussions were conducted. Key informant interviews were done with relevant government representatives, cooperative representatives, processors, producers, input suppliers, financial institutions, media as well as NGOs and INGOs. Focus group discussions were conducted with farmer groups, VSLAs, Farmer Field Schools (FFS) and some cooperatives. Observation was also done in the Programme areas and documented as photographs.

Quantitative Methods

Face to face interviews were conducted with households and traders in the Programme areas. Face to face interviews were done to document the current status of their livelihood and that of the community as well as agricultural practices in the areas. The sampling strategy relied on the probability sampling

approach. The households and traders were targeted using the following sampling method and later distributed proportionally with respect to the projected population of the 3 counties as shown below;

$n=Z^2*(P\ (1-P))/C^2$

Where; Z=Z score for 95% confidence level, P=Probability of picking a choice and C=Confidence Interval

Which comes to;

$1.96^2 * 0.5*0.5/0.05^2 =384.$

To cater for non-responses, an additional 4% of the calculated sample is added; 4%*384≈16. Thus 384 + 16 = 400.

Thus, at least 400 Households were targeted. The sample size was achieved and surpassed with a total of 500 household representatives being interviewed in the Programme areas. The table below contains a breakdown of sample achieved.

Total Sample	Bor	Yambio	Torit
500	177	154	169

Table 1 sample size

Data collection tools

Both quantitative and qualitative tools were used. The consultant used prior developed guidelines to collect information from all respondents. The main themes covered included: Overall demographics, food security and nutrition, Agricultural practices, value chains, extension services, cooperatives, markets, financial access, conflict and hazard analysis, stakeholder, governance and gender analysis.

Data entry and analysis

Data from the household, traders and cooperative interviews was analysed using SPSS and MS Excel. The consultant summarized the qualitative information collected from KIIs and organised groups. This information is anticipated to be useful as it will provide the implementing team relevant information to rapidly familiarise themselves with the context for each area. Most of the information collected has been incorporated in the main report, especially in generating the findings, conclusions and recommendations but the rest of the information which will largely be relevant to the implementers during the implementation of the Programme for background information on the groups and the Programme areas is annexed to this report.

Justification of methods and techniques used

The consultant determined the methodology based on information provided by the Programme implementers on the target areas and groups. The tools adopted are universally accepted in baseline data collection. The development of the guidelines was negotiated, discussed and agreed with the client prior to the field study to ensure data collected was relevant to the needs of the study. The selection of the areas to visit was based on the target areas of the Programme and the type of activities to be undertaken. Interviews were only conducted in counties where the Programme will be implemented. Guideline questions largely focused on collecting information that would be relevant to implementation of the activities. In this respect, the stakeholders interviewed were chosen based on their relevance and likely involvement during the Programme implementation.

Limitations of the Study

The methodology largely assumes that the information given is fairly accurate and given in good faith. However, it is generally known that some biases may arise during collection of information due to a number of factors. For example, an interviewee may want to only reflect the negative elements of their operation and hide any positive aspect and vice versa, depending on their perceived future expectations from the Programme. Also, at the time of the study, some of the main crops in Yambio and Torit had not been harvested yet, making it difficult to acquire production figures.

Considering the expansiveness of the Programme areas, poor roads and the timeframe of the baseline study, it was not possible to reach all corners of the Programme area. Due to security concerns, the consultancy team had to curtail data collection efforts in Ri-Rangu, Iyire and Jalle Payams in Yambio Torit and Bor respectively. Language barrier was also a limitation and use of translators may have led to possible loss of information in translation. It was also observed that some of the required information is not readily available from a single source and requires more time to reach various sources.

FINDINGS

Socio-demographic characteristics in the Programme areas

One of the main questions of this review was to determine the socio-demographic factors in the Programme areas and their influence in income generating activities. The table below summarizes the socio demographic characteristic of the population in the Programme areas.

Population Projections

County	Year	Male	Female	Total
Bor South	2018	165,306	150,366	315,672
	2019	170,247	155,644	325,891
Yambio	2018	103,825	99,282	203,107
	2019	106,542	101,960	208,502
Torit	2018	80,701	79,430	160,131
	2019	84,065	82,968	167,033

Table 2 Population Projections by SS National Bureau of Statistics

These were projections based on the 2008 census which may not be true given political interests at the time of the census, new and current administrative borders, and effects of the 2013 and 2016 conflicts as well as migration.

Demographically, 51% of the household members were female and the average age of household heads was 31 years across all target areas. The level of education which was affirmed by many stakeholders as a major contributor to poverty levels in the areas and that was clear as only a combined total of 4% had completed the tertiary level while 56% had never attended school. The average household size in the Programme areas was 6 and 3% of the households had at least one person with disability as shown below.

	Overall	Bor	Yambio	Torit
Household members' Gender				
Male	49%	48%	49%	43%
Female	51%	52%	51%	57%
Household Headship				
Male	73%	75%	68%	75%
Female	27%	25%	32%	25%
Average age for household heads (years)	31	31	33	29
Household Size	6	7	6	6
Marital status				
Married	83%	85%	81%	83%
Single	11%	11%	9%	13%
Widowed	3%	2%	5%	2%
Separated	3%	2%	5%	2%
Level of education				
Never went to school	56%	61%	62%	44%
Did not finish Primary school	27%	22%	25%	35%
Completed primary school	5%	4%	3%	7%

Did not complete secondary	4%	4%	4%	5%
Completed High/Secondary school	4%	4%	2%	6%
Tertiary level	4%	5%	4%	3%
Disability prevalence	3%	3%	2%	3%

Table 3 Demographics

Households' main sources of livelihoods

In the context of food security, livelihoods are defined as the means through which people access food and earn income to meet basic needs. Generally in the three counties, livelihood patterns were agriculture focused but supplemented by livestock, fishing, hunting, and gathering of a range of wild foods and bush products. Information sought from household heads on the main livelihoods patterns revealed that agriculture (56%) was the main source of livelihood in the Programme areas followed by businesses (18%) and wage employment at 4%. 10% were engaged in other small scale activities such as fishing, brewing local brews and burning of charcoal. Notably, 12% did not have any sources of livelihoods and depended on rations from NGOs and INGOs. This trend was similar at the county level with agriculture being the main source of livelihood at 54%, 64% and 53% in Bor, Yambio and Torit respectively. Bor County had a higher number of responding households without income at 14% compared to 10% in Yambio and 7% in Torit.

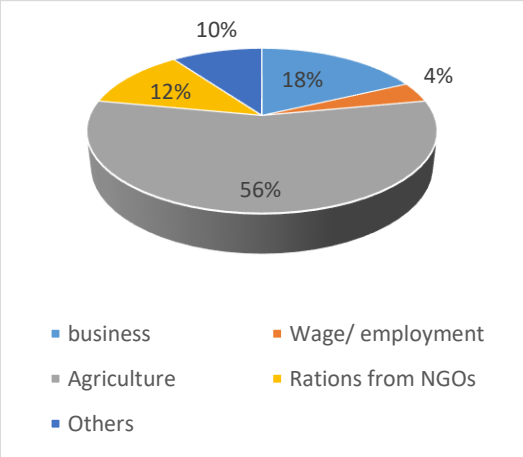


Figure 1 Sources of livelihoods

In Bor County, the livelihood zone was characterised by Nile fishing and agro pastoralism. Farming as the main source of livelihood is practiced by 54% of the households. The other 46% had resorted to other livelihood activities as their main activity. Sorghum is the primary staple grown. Other crops include maize, cowpeas, groundnuts, and vegetables such as okra and pumpkins.

Yambio County is largely found in the Greenbelt agro-ecological zone. It is characterised by fertile soils and is considered one of South Sudan's highest potential cereal producing areas. Crop farming was undertaken by 64% of the households as the main source of livelihood.

The main crops grown here are Maize, Groundnuts, Cassava, Sorghum, and Millet, Cowpeas and beans. Most fruits for example mangoes and guavas and root crops i.e. arrow roots grow naturally in the wild. However, bananas, pineapples are also grown. Maize is generally grown for both home consumption and sale purposes. Cassava is largely considered the food security crop due to it's year round occurrence and consumption of both leaves and roots.

Torit County is an agricultural zone with negligible dependency on livestock and is characterised by relatively fertile soils and suitable for crop production. In Torit, 53% of the households depended on crop production. Complementary sources of livelihoods include exploitation of forest products for example timber and firewood, labor and trade activities. The main crops grown in the county include Sorghum, maize, millet, sweet potatoes, cowpeas and groundnuts.

Household Income

Per capita income of a household can be considered as a measure of its welfare. Information was sought from household heads on the members of the household providing income and the total income combined of all members of the household. On average, only one household member out of six was engaged in income generating activities across the counties and the overall average income per household was SSP 18,263 (USD 140.48) per month. However, income per household differed among the individual counties with Bor having the highest income at SSP 24,656 (USD 107.2) followed by Torit at SSP 17,504 (USD 76.10) and Yambio at SSP 11,560(USD 50.26) per month respectively as shown in the table below.

	Overall	**Bor**	**Yambio**	**Torit**	**Male Headed HH**	**Female Headed HH**
Average HH Income per month (SSP)	18,263 (USD 79.40)	24,656(USD 107.2)	11,560 (USD 50.26)	17,504 (USD 76.10)	22, 078 (USD 95.99)	7,959 (USD 34.60)

Table 4 income levels

Male headed households earned more than the female headed households across the three counties. Male Headed households earned an average of SSP 22, 078 (USD 95.99) while female headed households earned SSP 7,959 (USD 34.60).

Notably, income varied with the sources of income, and the main sources of income were agriculture and business. Households engaged in agriculture earned SSP 3, 655 (USD 15.89) more than those engaged in business while those engaged in wage/salary employment earned more than twice of those engaged in agriculture. However, only 20 household heads out of the 500 sampled had wage employment and they were employed in NGOs and Government which meant they had a guaranteed monthly income than the farmer. This influenced the level of income stated and thus despite wage employment attracting higher income rates per month, it was not the main source of income for the people in these three counties.

sources of income	**Average Income per month (SSP)**
Agriculture	19,591(USD 85.18)
Business	15,936(USD 69.28)
Wage/salary employment	58,760(USD 255.49)
Others	7,181(USD 31.22)

Table 5 Level of income against source of income

Agricultural production

Agriculture was the main sources of income for the households in the three counties. However, majority of the stakeholders deemed the production levels to be way below the potential of the 3 counties. Agriculture was not commercialized and was mainly for consumption. Production levels were highly influenced by factors such as land tenure/ownership, seasonal calendars, existing crop value chains, accessibility of inputs, extension services, storage facilities, and markets among others.

Land cultivated and ownership

Rural land is mainly communal in the three counties with the county governments controlling land in the urban areas. Land reserved for cultivation is generally available and the chiefs are responsible to allocate the land to community members. Land reserved for cultivation is generally available and commonly held

by the local community and managed within traditional social structures[3]. Land, once possessed by an adult male in accordance with existing rules, can be inherited by his son. Women have access to land only through male relatives.

"The land is owned by the people but managed by the government. Urban land belongs to the County government and private owners whereas rural land is mostly communal and the Chief is in charge of land division and allocation. The land act of 2013 states the chief has that mandate." – Director of Physical Infrastructure, Gbudue State - Yambio.

Despite availability of the land, household land cultivated is very minimal, averaging at 1.4 Feddans (0.588Ha) as shown below.

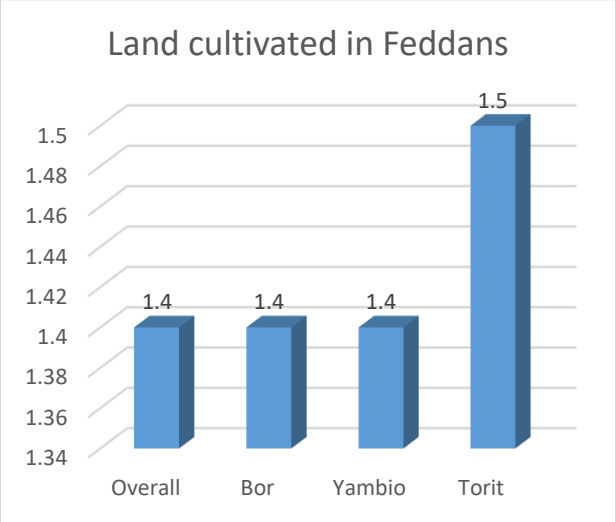


Figure 2 Land holding

Cultivation, labour and mechanization

Most cultivation is performed by hand in the counties. The poor primarily use their own labor to cultivate their land. Farmers in groups cultivate collectively each members land. In most cases of farmer groups, each owns one feddan. The use of own labour was a main hindrance to cultivating more land and sometimes results in ill-timed sowing. The low level of land cultivated contributed majorly the levels of production as well as food insecurity. Most of the food produced depleted before the next harvest season hence creating a gap. Cultivation of less land was mainly due to the limited availability of labor and resources.

"Land is available and communally owned. And you can cultivate provided you belong to that community. There is no limit to the size of land one can cultivate. The access to land is an issue only at the riverside during the vegetable growing season. This is because the river is very narrow and each and every farmer needs to be closer to water and thus to avoid conflict, the government had to come up with a policy, one farmer one Feddan you cannot have more than one Feddan. The land is not owned but for temporary production during the dry season." –Bor County (KII, NRC)

Mechanized farming is very low in all the three counties. Most cultivation is done by hand although better off households in Yambio and Torit counties can employ labor and hire tractors for larger landholdings. In Bor, the use of hand held tools is the main mode of cultivation, however ploughs are also used. In Yambio County, the low level use of tractors was associated with the vast forest cover that posed a challenge in clearing of land. The cost of hiring mechanized services was the main challenge of using tractors in Torit and Bor counties.

"Majority of the land is not tilled. We are now planning to introduce mechanization but we need the equipment. We have some tractors outside but due to the terrain and huge trees, they are not used. We plan to bulldoze some of the trees to pave way to the farming of tractors. 90% of farmers in Yambio County at the moment is

[3] LIVELIHOODS **ZONE MAP AND DESCRIPTIONS** FOR **THE REPUBLIC OF SOUTH SUDAN (UPDATED), 2018, FEWSNET**

traditional and most use hoes and human labour." – State Minister of Agriculture Forestry & Fisheries, Gbudue State – Yambio.

Types of crops planted

The most common crop grown both for consumption and as a cash crop in the three counties was maize and sorghum. The main crops grown in the counties were as follows;

Bor	Yambio	Torit
Main crops: *Sorghum, maize, groundnuts and cowpeas*	**Main crops:** maize, Cassava and groundnuts	**Main crops:** Sorghum, maize, groundnuts and cassava
Other crops and vegetables: *Okra, Kudhura, onions, tomatoes, cabbages, kales and eggplant* ***Fruits include:*** *Mangoes, lemons, bananas, guavas and pawpaw.*	**Other crops and vegetables:** Okra, cassava leaves, and eggplants (small scale) **Fruits include:** Mangoes, pineapples, bananas and pawpaw**.**	**Other crops and vegetables:** Okra **Fruits include:** Mangoes and pawpaw.

Table 6 Main types of crops grown

For agribusiness purposes, households produced cereals (74%), vegetables and fruits (20%), groundnuts (4%) and cassava (2%) for sale as shown below.

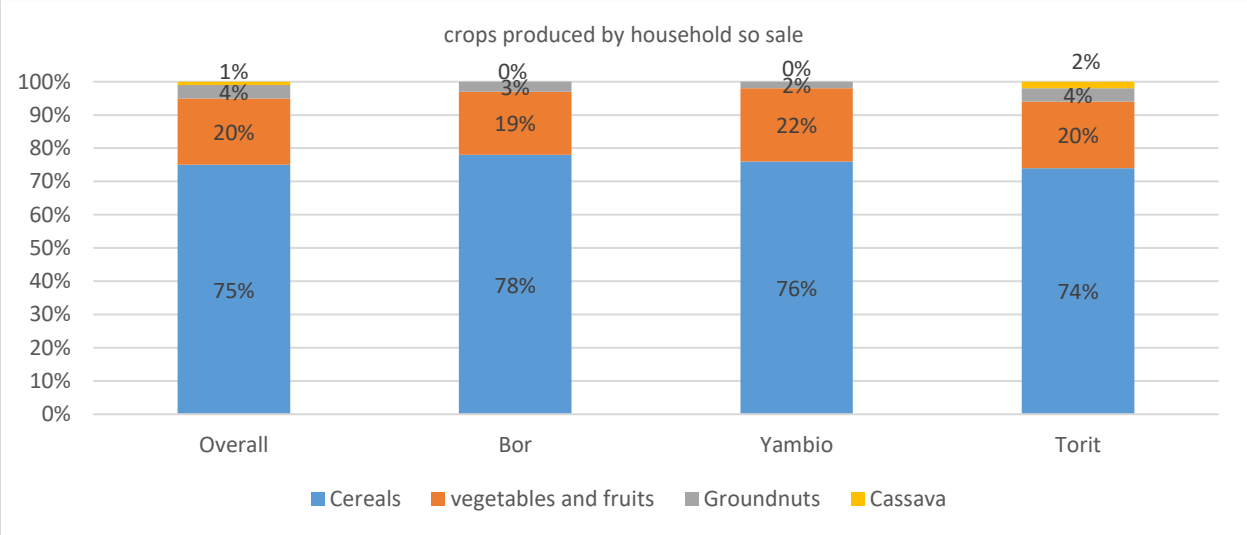


Figure 3 Crops grown for agribusiness purposes

Seasonal calendars

In Bor County, the rainy season starts in April and ends in October. Thus, land preparation is done in January and February, sowing/planting follows between April and June while weeding is usually done in from June to August. Harvesting of all crops happens between August and November.

	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Rainy season												
Sorghum												
Maize												
Groundnuts												
Cow peas												
Agricultural labor peak												
Lean season												
key	Land preparation		Sowing		Weeding		Green Consumption		Harvesting			

Table 7 Bor seasonal Calendar

In Yambio County, the rains typically start in March to June with a break in late June then restart in August o November. The county has two rain seasons with the first season occurring from March to June and the second season one from August to November. Agricultural activities start with land preparation from January to March, followed by planting in mid-March to May, weeding in May and harvesting of cereals from July to August for the first season and November to December for the second season. The seasonal calendar in Yambio was as depicted below.

	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Rain Season												
Maize												
Cassava												
Groundnuts												
Agricultural and labor peak												
Lean season												
	Land prep			Sowing		Weeding		Green Consumption		Harvesting		

Table 8 Yambio seasonal calendar

In Torit county, the first rainy season starts from June to December and a short dry season from December to March. With the second rain starting in April, the agricultural activities start from March with clearing, sowing, followed by weeding from April to June. Harvesting is usually done in August but the common dry spell occurs between June and July. Main Crops planted in the two seasons include cowpeas, groundnuts, and sesame. The lean season was normally from June to August, when green crops were still not ready for consumption.

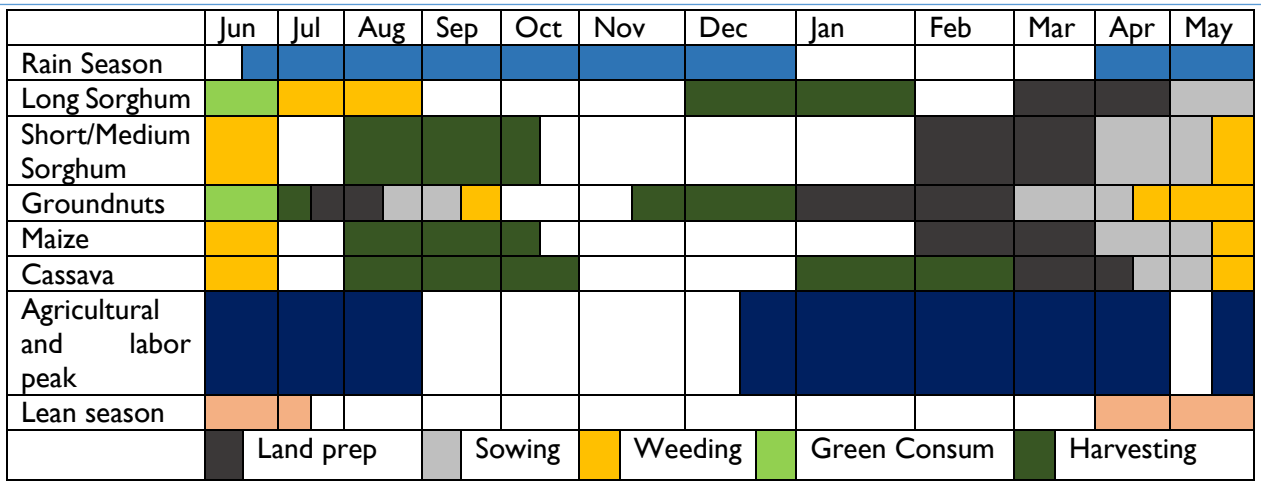


Table 9 Torit seasonal calendar

Production levels

The main production levels of the main crops were as follows; Sorghum averaged 40.7 shawals (2035 kg) in the first season of 2018, maize 7.8 shawals (390 kg), groundnuts 23.5 Shawals (1,175 Kg) and 1.7 shawals (85 kg) of cassava. . Others had not been harvested and were still in the farms during the survey.

	Maize	**Sorghum**	**Groundnuts**	**Cassava**
size of land (Feddans)	1.2 (0.504 Ha)	1.4 (0.588 Ha)	1.5 (0.63 Ha)	1.2 (0.504 Ha)
Total Harvest season 1 (Shawals, 50KG bags)	7.8 (390 kg)	40.7 (2035 kg)	23.5 (1175 Kg)	1.7 (85 kg)

Table 10 Farm production levels

Production per county was as follows;

	Production levels in Shawals (50 Kg)			
County	Sorghum(0.588 ha)	Maize (0. 504 ha)	Groundnuts(0.63ha)	Cassava(0.504 ha)
Bor	37.5 (1875 Kg)	6.5 (325 Kg)	22.4 (1120 kg)	1.5 (75 Kg)
Yambio	39.1(1955 Kg)	7.8(390 Kg)	23.5 (1125 kg)	1.4 (70Kg)
Torit	45.5(2275 Kg)	9.1 (455 Kg)	24.5(1225 Kg)	2.2 (110kg)

Table: Agricultural production per county

Production in terms of gender was as follows:

	Sorghum(0.59 Ha)	**Maize (0.5 Ha)**	**Groundnuts(0.63ha)**	**Cassava(0.5 ha)**
Male headed Household	43.8 (2415 kg)	7.8 (390 kg)	26.2 (1310 kg)	1.8 (90kg)
Female headed household	31.9 (1595 kg)	4.5 (225 kg)	12.3 (615 kg)	1.8 (90kg)

Vegetable and fruits production

Vegetable and fruit farming was undertaken in all the three counties but on a lower scale than food and cash crops. The main fruit farmed were bananas, pineapples and oranges while the main vegetables farmed were Okra, Dodo (amaranth) and Cassava leaves as shown in the table below. The others in Bor were Kudhura and Onions.

	Bor	Yambio	Torit	Male Headed Household	Female Headed Household
Cassava leaves	16%	14%	21%	17%	17%
Banana	5%	7%	0%	5%	0%
Pineapples	0%	21%	7%	15%	17%
Egg plant	15%	7%	14%	7%	0%
Dodo (amaranth)	14%	16%	9%	12%	0%
Hibiscus	5%	0%	0%	0%	17%
Okra	18%	14%	21%	17%	17%
Orange	0%	0%	14%	5%	0%
Spinach	0%	7%	0%	1%	0%
Pumpkin	0%	7%	7%	5%	0%
Tomatoes	0%	7%	0%	2%	0%
Sweet potatoes	7%	0%	0%	7%	15%
Others	20%	0%	7%	7%	17%

Table 11 Fruits and vegetables farmed

Production levels for the fruits and vegetables were as follows:

	Cassava (leaves)	Okra	Banana	Pineapple	Dodo (Amaranth)	Eggplant
Size of land (Feddans)	0.9 (0.378 Ha)	0.7(0.294 Ha)	1.1(0.462 Ha)	0.6 (0.252 Ha)	0.6 (0.252 Ha)	0.8 (0.336 Ha)
Quantity produced(Shawal, 50kg bag)	6.3	2.4	16.5	26.2	15	16.5
Male headed HH	6.625	2.75	16.5	19.25	15	16.5
Female Headed HH	5	1	-	40	-	-

Table 12 Fruits and vegetables farm production

Agricultural practices and Potential Value chains

The main value chains in Bor County were Sorghum, maize and groundnuts; maize groundnuts and cassava in Yambio and Sorghum, maize and groundnuts in Torit. The approach in this analysis focused on pre-production, production and post-harvest handling, processing and markets.

Sources of seeds

The main sources of seeds for the farmers were saved seeds, UN agencies/NGOs, seeds purchase from the market and from family and friends as shown below.

	Overall	Male headed Households	Female headed households
Purchase from the market	26%	27%	26%
NGOs	24%	24%	23%
Saved seeds	34%	35%	23%
FAO	9%	6%	21%
From friends and family, Neighbours	7%	8%	7%

Maize value chain

Maize is among the major staple food crops in the three counties. The main drivers of maize demand was the growing population in South Sudan. The population in South Sudan was growing at a projected rate[4] of 2.73%. On the other hand, the view of maize as both staple and cash crop also led to a vast majority of households engaging in maize production.

Pre-production

The main inputs in maize production were land, water, labour and farm inputs. The land in the three counties was communal and maize cultivation per household was at least 1.2 Feddans. Clearing of the land required intense labour and the main tools used were machetes and slashers sourced from local hardware stores. Practice of shift cultivation by some of the farmers attracted high costs due to clearing of new land. Land preparation is done by hand and most of the labour was sourced from family members. The cost of hiring farm labour per day in Yambio was SSP 600 (USD 2.61) as of December 2018, SSP 500 (USD 2.17) in Torit and approximately SSP 820 (USD 6.31) in Bor. The main source of seeds in the three counties were UN agencies/NGOs such as FAO, World Vision and CRS. Farmers who did not receive seeds from the NGOs mostly used saved seeds or local ones saved and sold in local stores. Inputs such fertilizers and chemicals were restricted in the counties by the ministry of agriculture. Access to improved seeds was also limited with only one agro dealer in Yambio, three in Torit and two in Bor. There was little mechanization as tractors were deem expensive and could be used only by producer groups in Bor while in Yambio the large trees in the farm areas limited the use of tractors. In Torit, the farmers cited lack of funds to access the tractor services.

Production and post-harvest handling

The main obstacles during maize production were weeds and the FALLARMY worm. The fall army worm reduced the production capacity significantly and the methods of controlling worm were futile. The farmers had been trained by the ministry of agriculture in conjunction with NGOs on spraying ash and leaf extracts (neem plant) on the affected maize plants but the farmers termed them as ineffective. The drying of maize was done on the ground or in open stall that exposed the grain to dust, rain and pests.

[4] http://www.worldometers.info/world-population/south-sudan-population/

Exposure to dust and rain lowered the quality of the grain and was likely to fetch a low price if not rejected by the market. Shelling was done manually by hand which was tedious and time consuming. Some were still using other methods of shelling such as beating using sticks which damaged the grain leading to a loss. Storage of maize was done in traditional jute bags which were prone to weevils but WFP was planning on introducing hermetic bags to the farmers. Hermetic bags were available in Torit via an agro dealer (Afroganics Limited) while WFP was promoting their use in Yambio. The main storage facilities in the counties were traditional and prone to attack by pests such as rats, weevils, termites as well as rain and dust. They were wooden stores constructed five feet above the ground, supported by wooden masts and covered by grass as shown below.

Figure 4 Storage facilities in Torit and Yambio

Processing

Processing of maize in the counties was largely elementary at the household level and was usually sold after drying and shelling. Mortar and pestle were used at the household level while local maize mills were available within the market centres. The local maize mills were mainly diesel grade 3 machines. In Yambio, the only grade one processing plant and at the time of the survey was non-operational due to pending maintenance.

Transport and Marketing

Maize transportation to the market was done via bicycles as motorcycles and vehicles were considered expensive given the prices of maize. In Yambio, WFP was in the process of preparing a three-wheeled motorcycle to be dispatched at their aggregation centres which would enable farmers to transport their maize to the aggregation centres at a low cost. The main maize markets for the counties were WFP and were purchasing maize via local NGOs such as STO in Yambio County and the farmers were being paid via banks. Other players in the market were local traders in the local markets. Potential exists in other markets within other counties and states in South Sudan as well as neighbouring countries.

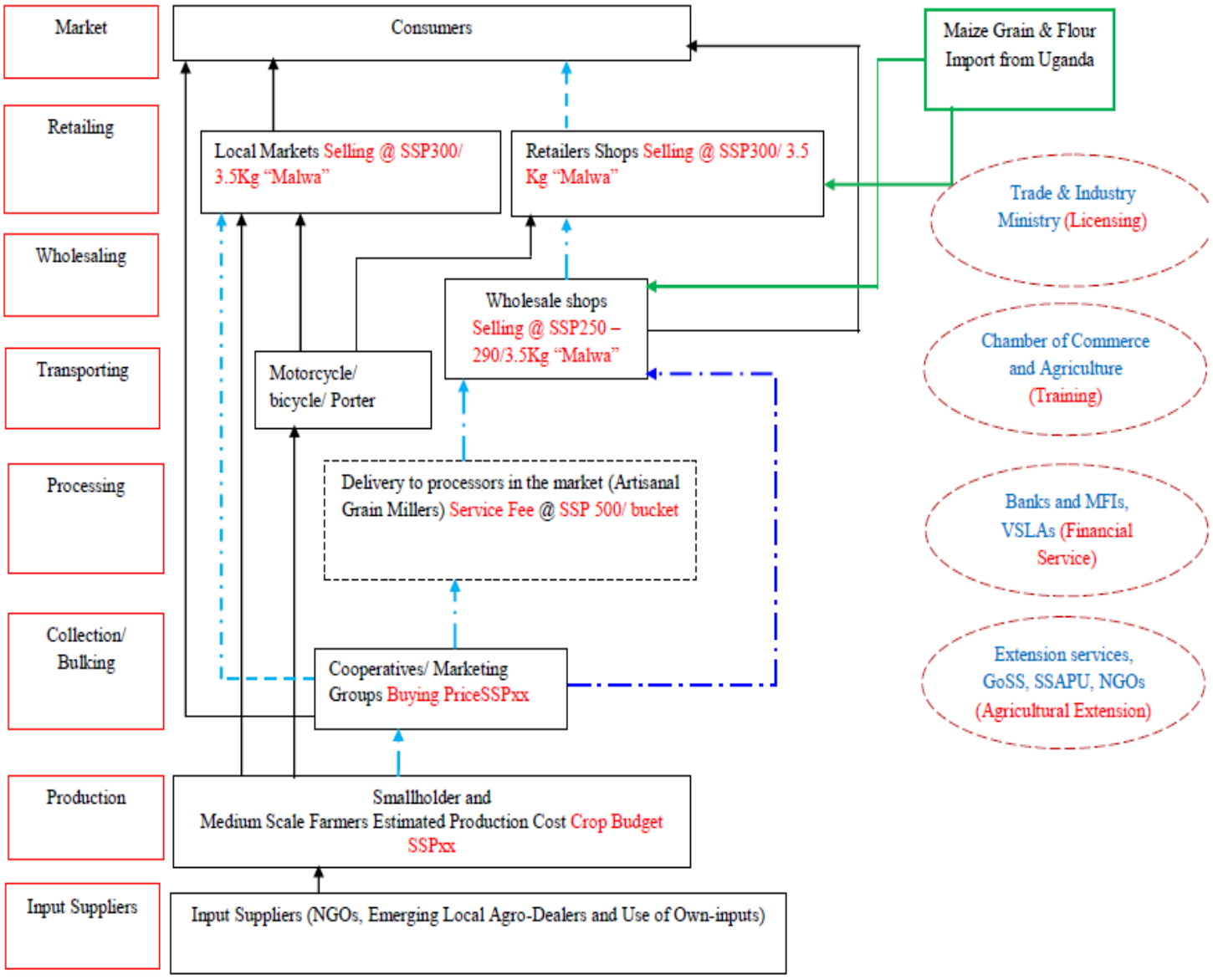
Impediments in the maize value chain

Farmers could expand their profits from these multiple potential markets if solutions were found for value chain issues such as:

1. Low quality seeds
2. Lack of capital needed to cultivate more feddans

3. Low level of mechanization
4. Fall Armyworm and other pests
5. Poor storage materials and facilities
6. High transport costs and poor transport systems
7. Lack of knowledge in best practices for farming maize
8. Market for produce

Maize value chain map



Sorghum value chain

Sorghum was mainly grown in Bor and Torit counties. Sorghum has multiple end uses, including as porridge, flour, snacks, couscous and other products for human consumption; inputs for beer production; and feed for poultry and animals. However, sorghum was mainly used for human consumption and faced several obstacles in the value chains. The sorghum value chain included several key agents; seed multipliers and suppliers, producers, NGOS, middlemen and small traders, grain millers (on a small scale) and retailers. Mostly, seeds, hoes, malodas were provided by FAO through local NGOs. Sorghum was planted on average 1.4 Feddans (0.588 Ha) by households in Bor and Torit. Most of the seeds used by farmers were saved seeds and the labour was undertaken by household members and mostly by women in Bor. Land preparation was done manually using hand held tools. Farmers in producer groups were able to pull their resources together and hire tractors for ploughing. The main challenge was that the tractors were not readily available and they were expensive to hire. Pests such as the "quelea quelea" birds attached sorghum reducing the production levels significantly. "Quelea quelea" birds occurred and in large numbers and on average a "quelea quelea" bird eats around 10 grams of grain per day - roughly half its body weight - so a flock of two million can devour as much as 20 tons of grain in a single day.[5]

Drying of sorghum was done on open pallets as well as woven mats that exposed them to wind and dust traditional storage bags were being used and some producer groups in Bor had been introduced to hermetic bags by C&D and ZOA. Processing was not developed as most processors had grinders that turned Sorghum into flour but at a very small scale. At the household level, traditional Mortar and pestle as well as the grinding stone were used to make flour. The main markets of sorghum were WFP and local traders.

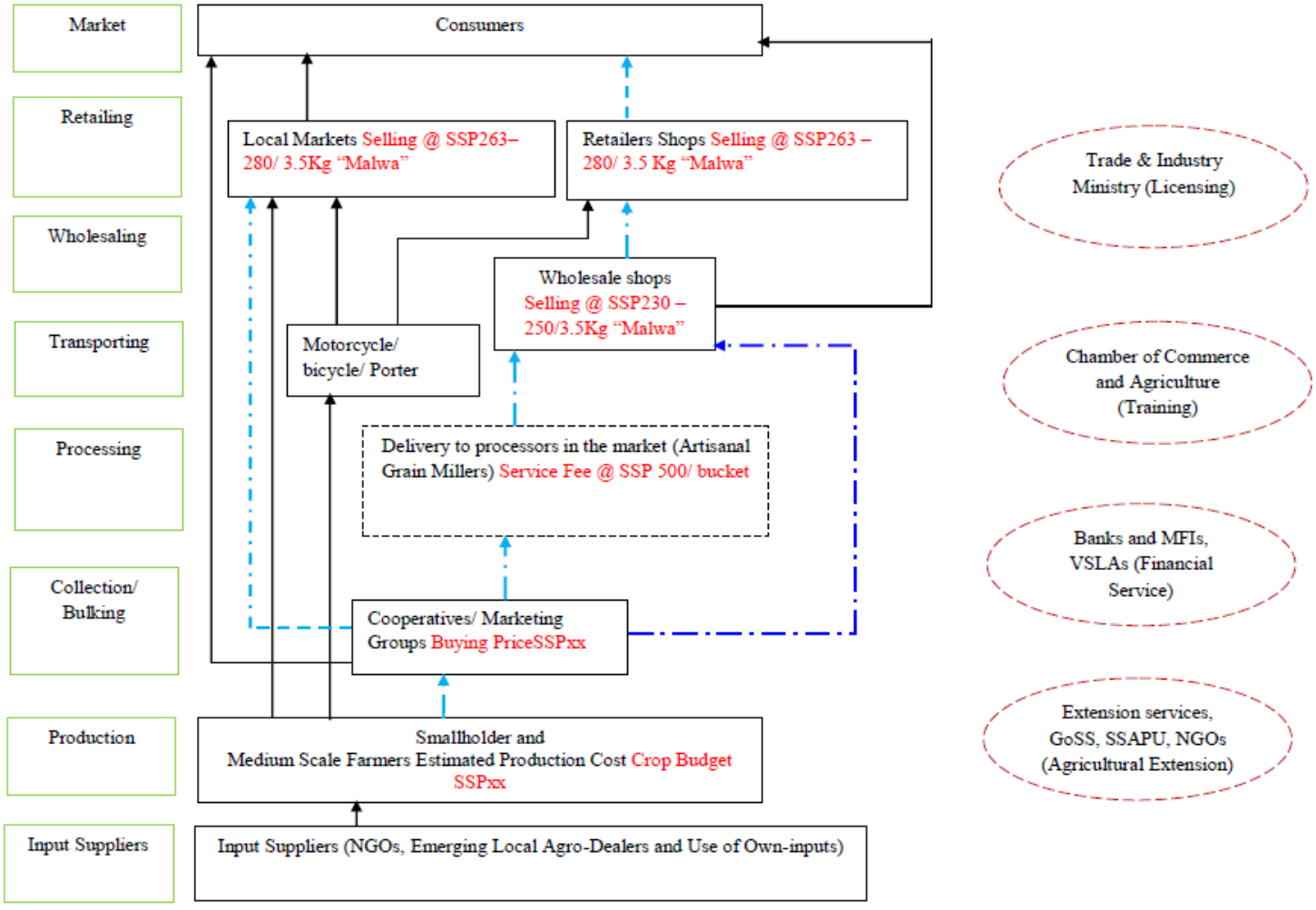
Sorghum production and income had the potential to grow if solutions were found for value chain issues such as:

1. Poor quality of seeds and varieties inappropriate for the various uses.
2. Poor quality of product at harvest, with grains of inconsistent size and coloration.
3. Inadequate threshing techniques and post-harvest drying and storage, which reduce quantity and market quality.
4. Pests such as the "quelea quelea" bird
5. Insufficient market development and communication with markets regarding varieties and quality of sorghum desired.
6. Insufficient training and finance for improved production and post-harvest management.

[5] Quelea-Africa's most hated bird. http://www.irinnews.org/news/2009/08/19

Figure 5 Sorghum drying on a pallet in Bor

Sorghum value chain map



Groundnuts value chain

Groundnuts were largely grown in the three counties. Groundnuts play an important role both as oil and food crop. Most meals in the counties included groundnuts. The main sources of seed were saved seeds and groundnuts were planted manually by hand with the main source of labor being family members. Harvesting was also done by hand and the processing level was very low and most of the farmers sold unshelled groundnuts. After shelling, the groundnuts were ground with a stone and turned into paste as the highest level of processing in the households.

"those who are involved in groundnuts, they are dealing with production so because traditionally you find some people selling unshelled groundnuts, so for those ones we are encouraging them to not only sell shelled ones but there are some who are also processing their groundnuts and making groundnut paste. So we have some groups that have grinding tools not just for groundnuts but also for sorghum. So processing happens at the level like turning groundnuts to groundnut paste and grinding sorghum." (KII NRC)

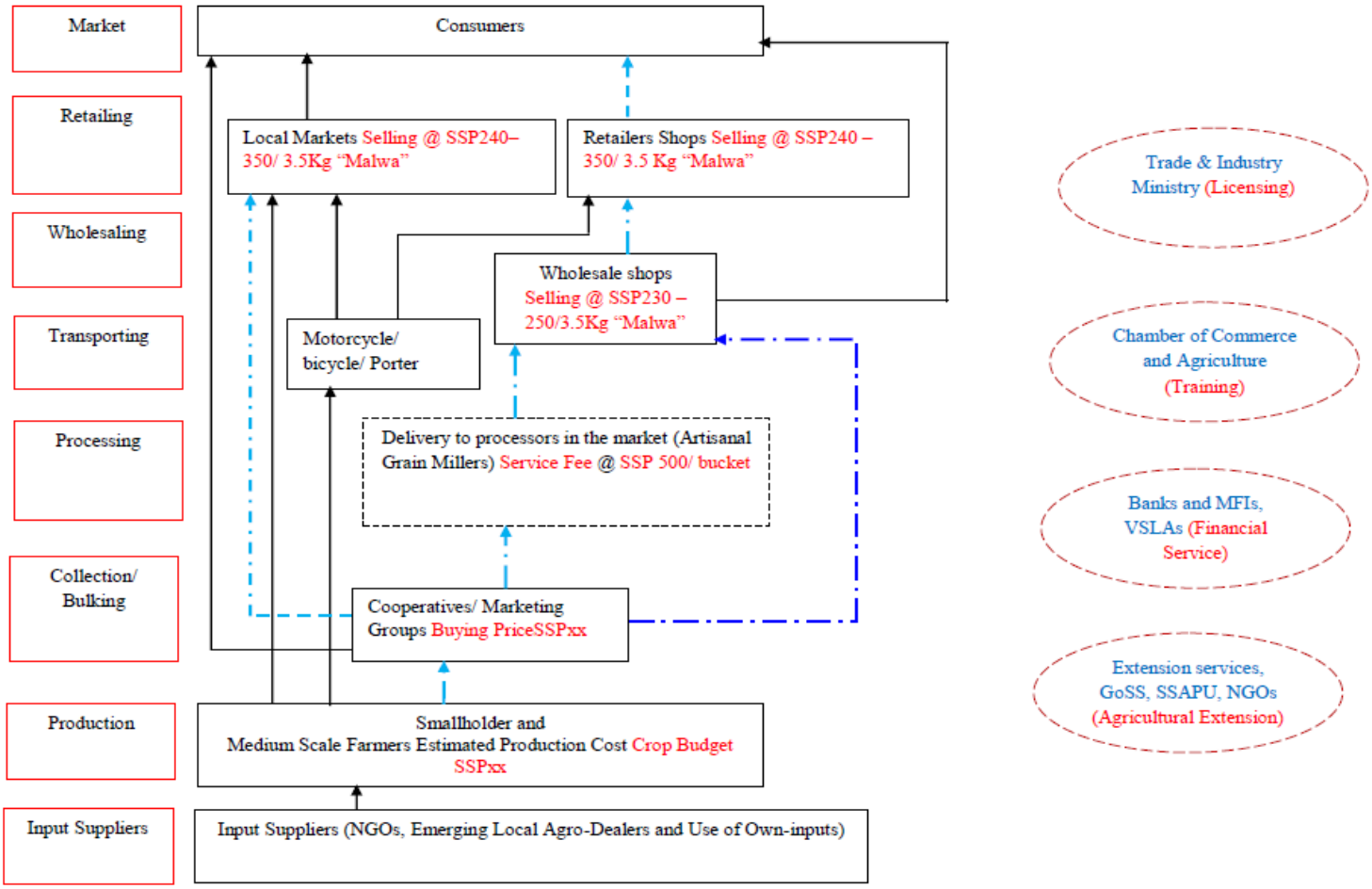
The main markets were the local traders in the local markets. Given the value of groundnut as food and making oil and paste, the potential was there in the counties but lacked market linkage and training on value addition.

Figure 6 Groundnuts grinding in Yambio

"…Also groundnuts, they produce very good quality groundnuts and they may also need to add value to it in order for them to get more money by making paste or making oil out of it." (KII C&D) Bor.

The main obstacles in the groundnut value chain were lack market linkages, lack of training on value addition and agribusiness, lack of access to credit to enable higher production levels and limited or lack of extension services.

Groundnuts value chain map



Cassava value chain

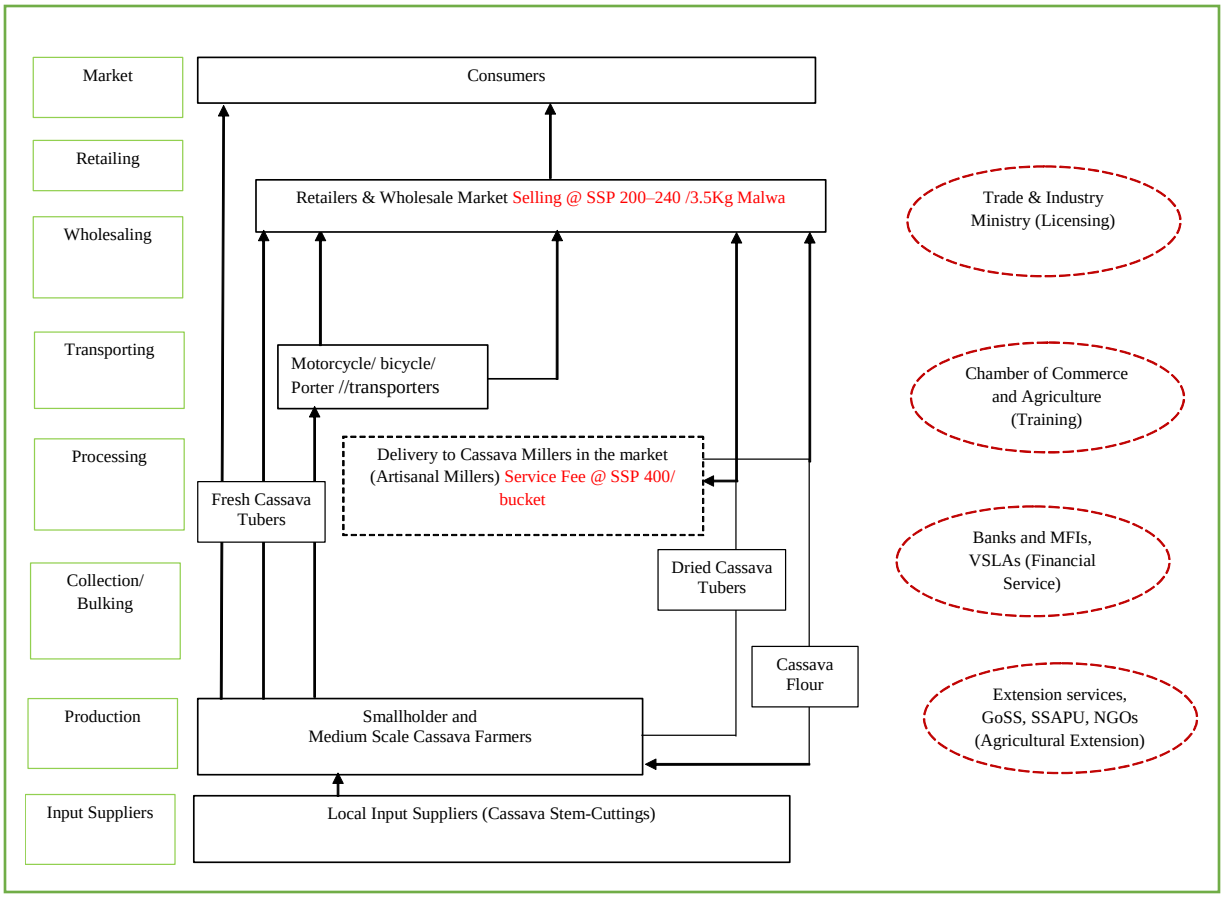
Cassava was an important source of food and income in both Torit and Yambio counties. Cassava was considered an important food crop in the two counties. The prominent feature of cassava, which made it much preferred as the main food security crop, was its diverse uses. The roots could be boiled, ground to flour, fermented and brewed into alcoholic products. The leaves were normally cooked into a favorite vegetable food among the community members. Other prominent features included tolerance to drought and the ability to grow in the wild. Other end products of cassava were fresh roots and chips.

Most of the planting and harvesting was done by the farmers and their household and the variety planted was the traditional one. After harvesting the farmer either dried them or sold them as fresh roots to traders. Dry or fresh cassava was processed by grinding using stones at the household level or through a diesel powered mill at the market centers. There were several cassava processing mills in both Yambio and Torit markets but were inaccessible to the rural households. This is due to the long distance and poor roads as well as the high cost of transport.

The main markets for cassava were the local markets where the traders traded it as flour, chips, boiled, steamed or deep fried using palm oil. The main challenges in the value chain included lack of business

training, rural inaccessibility and lack of capital to commercialize production. Below is a schematic representation of the cassava value chain.

Cassava value chain map



Farmer field schools

The farmer field school approach is an innovative, participatory and interactive learning approach that emphasizes problem solving and discovery based learning. FFS aims to build farmers' capacity to analyze their production systems, identify problems, test possible solutions, and eventually encourage the participants to adopt the practices most suitable to their farming systems (FAO)[6]. FFS can also provide an opportunity for farmers to practice and test or introduce new technologies through comparing their conventional technologies developed with their own tradition and culture.

Farmer field schools existed in Bor and Torit counties. There were 33 FFS in Torit and 4 in Bor. Members of the FFS learned through physical participation, discussion and observation. Training took place on demonstration plots, and once back on their fields, participants were advised by extension workers from

[6] http://www.fao.org/docrep/016/i2561e/i2561e01.pdf

government institutions and non-state actors. Agricultural inputs such as seeds, hoes, barbed wire, nails for fencing and watering cans were normally distributed for free to these farmers.

In Yambio, World vision had implemented the Fortifying Equality and Economic Diversification (*FEED*) program which involved establishing 20 Farmer field schools in the county. However, after the Programme ended the FFS also ended and the demonstration plots turned into bushes. In a Programme that ended in December 2018, World Vision had established 3 FFS in Gitikiri, Asanza and Ngindo but were expected to succumb to a similar fate as the previous one.

Extension services

Agricultural extension plays a crucial role in promoting agricultural productivity, increasing food security, improving rural livelihoods, and promoting agriculture as an engine of pro-poor economic growth. Generally, extension services were mainly provided by the government under the ministry of agriculture and a few NGOs.

In Bor, the main facilitator of extension services was the government and provided at least two extension officers per payam. The government's work was supplemented by NGOs working with producer groups since they offer extension services to groups of farmers. However Government extension services were limited, since the staff were not well facilitated in terms of salaries and transport.

"We have our own extension officers and we employ them per payam and each payam has an extension agent meaning that they are working with the people at the grassroots."- (KII C&D), Bor

In Torit, the government was also the main facilitator of extension services and offered 2 extension officers per Payam as well. The government also offered tractors that were had broken down during the study period and lacked spare parts and manpower to operate.

"We are experiencing challenges in terms of man power and finances for our workers. For example I talked about us having tractors to work on the farms for the community. And especially in our office here because we established it recently, we are not even able to employ people here to working on the different agricultural related areas and the sectors. Another big challenge is that the government is not partnering with any organization in making sure that the agricultural sector is progressing as much as we are having NGOs working in the agricultural sector here" Key Informant Ministry of Agriculture, Torit.

In Yambio, the government also provided extension services but were limited by the manpower. There were only two extension officers in the entire county. Other providers were SSAPU and NGOs. The ministry had tractors but were not using them due to the perceived forest cover that made using of the tractors to cultivate difficulty.

"After the new administration blocks were formed, we were left with very little resources including manpower. We only have 2 extension officers in the entire county and this leads to poor production."- KII, Ministry of Agriculture, Yambio.

Markets

The main market for grain produce was WFP through local NGOs and the local markets. Most of the farmers sold their produce to WFP (20%) and local market (34%), directly to the consumers (35%) through Traders (6%), to millers (4%), cooperatives (2%) and others (12%).

	Overall	Bor	Yambio	Torit
Processor/Miller	4%	2%	4%	5%
Cooperative	2%	2%	2%	2%
Traders	6%	8%	6%	6%
Consumer	35%	40%	30%	35%
Local market	34%	32%	34%	37%
WFP	20%	18%	25%	16%
Others	12%	7%	16%	12%

Table 13 Market preferences

The time taken to pay farmers and price offered as well as the mode of payment influenced where farmers traded their produce. Most grain farmers preferred WFP due to better prices and low transport cost enabled by the set up aggregation centres. The time taken to pay farmers and mode of payment were as shown below.

Duration	Processor/Miller	Cooperative	Traders	Consumer	local market	WFP
One month	13%	17%	0%	2%	0%	100%
Once in a week	20%	63%	19%	7%	20%	0%
Cash immediately/ Cash on delivery	65%	8%	79%	91%	80%	0%
More than a month	2%	12%	2%	0%	0%	
mode of payment						
Cash	100%	75%	100%	100%	100%	0%
Cheque	0%	25%	0%	0%	0%	60%
Bank Transfer	0%	8%	0%	0%	14%	40%

Table 14 Duration and mode of payment to the farmer

Thus most processors/millers, traders and consumers paid cash or immediately, most cooperatives on a weekly basis and local market both immediately or after once a week. Most utilized mode of payment was cash even when processed through banks as most farmers did not hold bank accounts.

"We work with STO to pay farmers and sometimes we have to take cash in the villages to the farmers especially who do not hold accounts." – KUSH bank manager, Yambio.

Physical markets

The main commodities in markets located within the three counties were food items sourced locally. Merol market in Bor town was the major market and had access to Juba and Malakal via the River Nile

and main roads. It was four hours' drive from Juba which enabled transport of items from Juba to Bor. The market comprised of a mixture of concrete stores and iron sheets. It was characterized by wholesale and retail trading of both agricultural and non-agricultural products. Wholesale trade was largely associated with foreigners while retail trade and vending was mainly occupied by the locals. The main supply of commodities was from Juba and Uganda. Wheat flour, maize, beans and sugar were particularly sourced from Juba. Sorghum was locally produced but at times sourced from Malakal while Vegetables were sold on the main market or on the road side markets. In Baidit payam market basic commodities such as salt, sugar, soap, vegetables and cereals can be found. The market was deemed easily accessible by local people within the payam.

In Yambio County, the main markets were Yambio market, Nabiapai located at the Congo border and Masia market located about 1.5 Kilometers from Yambio market. The structure in Yambio and Masia were mainly concrete buildings mixed with wooden stall while the market facilities in Nabiapai were mainly wooden stalls. Yambio and Masia markets operated on a daily basis while the main market day in Nabiapai was on Saturday. The items sold in the markets were agricultural items sourced locally while non-agricultural items were mainly from Uganda through the Congo border. The main goods sold in these markets were; maize, cassava, groundnuts, sesame, cassava leaves, meat, bush meat, honey, fruits, electronics, clothes, shoes, farming equipment and inputs, Market information in Yambio market was quickly shared among the traders especially nonfood traders. The main information exchanged was on prices and the exchange fluctuations of SSP to USD. Information on the SSP to USD exchange rate enabled traders to adjust prices accordingly especially on imported goods.

Figure 7 Nabiapai Market, Yambio County (left) and Torit market (right)

"The main activities in the markets here are wholesale and retail levels and 90% of the non-agricultural products come from Uganda. This is because Juba is inaccessible from here. Both agricultural and non-agricultural are sold in both wholesale and retail. We even have whole sale shops, juice processors, bakeries and so many shops. Counting most of the SMEs is difficult as majority don't have permanent operating spaces." – **KII, *Min. of commerce and industry***

The markets available in Torit County were Torit and Melekia markets. Other small markets that operated once a week were Kudo Payam market and Imadong Payam market. Torit and Melekia markets were characterized by concrete buildings and wooden stalls while the Payam markets were mainly wooden stalls. The two Payam markets only operated once a week due to limited demand of commodities. A modern market was constructed in Torit but is non-functional due to it being far and the community preferring the older market. The markets in Torit County sold domestic food items that were sourced locally. The demand of the food items was reasonably high as the community in Torit did not produce enough to sustain themselves for a whole season at the household level calling for outsourcing from the markets. In that case, potential for agribusiness was high though there was a need to change attitude and mentality of the community.

"There is the Torit Modern Market that was built by NCA, there is one at Juba road and the one at Kuku. The Torit Modern Market is however not functional but the structures are just there because it has not been opened and it's a bit far and again the people here regard the old market as the one that is near." **Key informant Chamber of Commerce, Torit County**

"We haven't had alternatives as far as the markets are concerned for a very long time but with the peace here and the hotel industry coming up in Torit, the colleges being built and the schools that is actually something to say that we are headed the right way. There is also a strong demand for local produce in the local markets just the way I mentioned that some people come from as far as Juba to purchase farm produce from Torit." **Key Informant FOCOS**

Accessibility of market information

One of the key challenges faced by agribusiness market development is that of information asymmetries. Information asymmetries is a situation where consumers lack information on the products and services available as well as their prices, while investors, service and product suppliers lack information about demand for their product, particularly among poor populations. This can lead to exploitative situations that tend to benefit the relatively rich and powerful and do not adequately serve the poor.

In terms of accessing information on products sold, only 56% of the population accessed it. At the county level, access to information on products sold was highest in Bor (62%), followed by Torit at 58% and Yambio at 48%. Overall, the main information accessed were market prices (68%), Market demand for agricultural commodities (17%), new buyers (13%) and source & price of farm input. This trend followed suit in the respective counties as shown below.

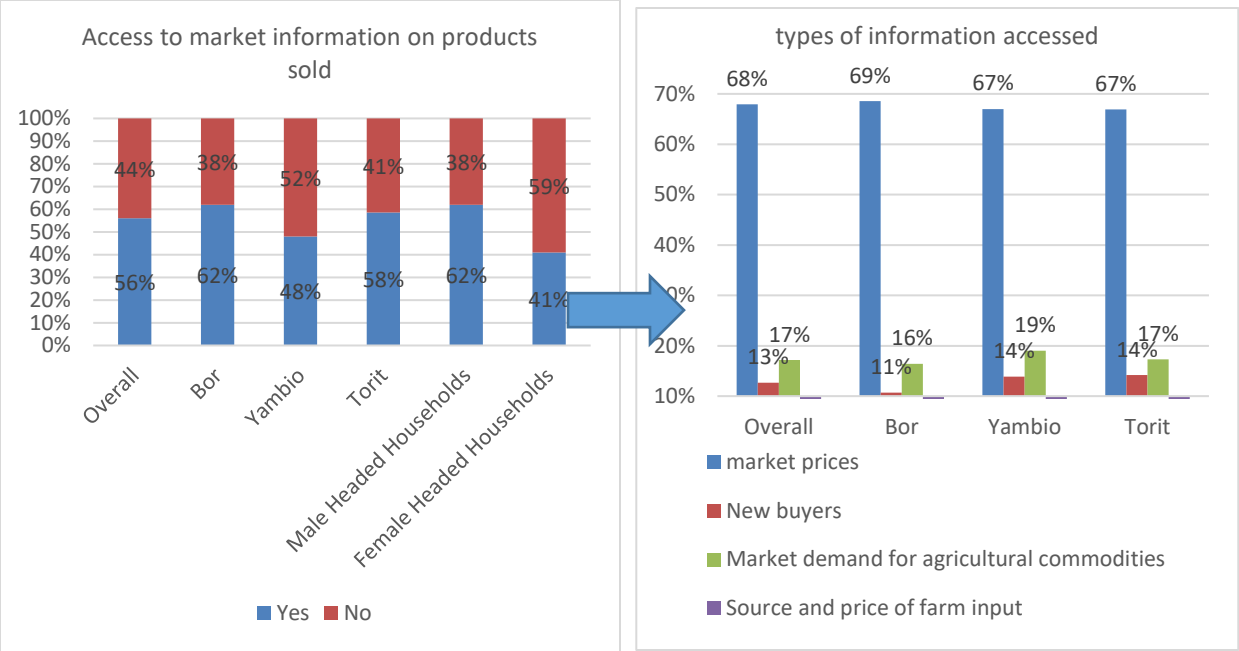


Figure 8 Access to market information and type of information accessed.

The main sources of the information were radio stations (52%), local leaders (24%), traders at the market place (12%), friends and neighbours (8%), extension officers (2%), televisions (2%) and newspapers at 1%. Generally, 62% of Male headed households accessed market information compared to 41% of Female headed household. Most accessed market information for both households was market prices. Access to market information via radio for both the male and female headed households was almost at par; 54% of the male headed households accessed market information through the radio compared to 51% of the female headed households. At the county level, radio stations popularity was highest in Bor (56%) compared to Torit (52%) and Yambio (48%) as shown below.

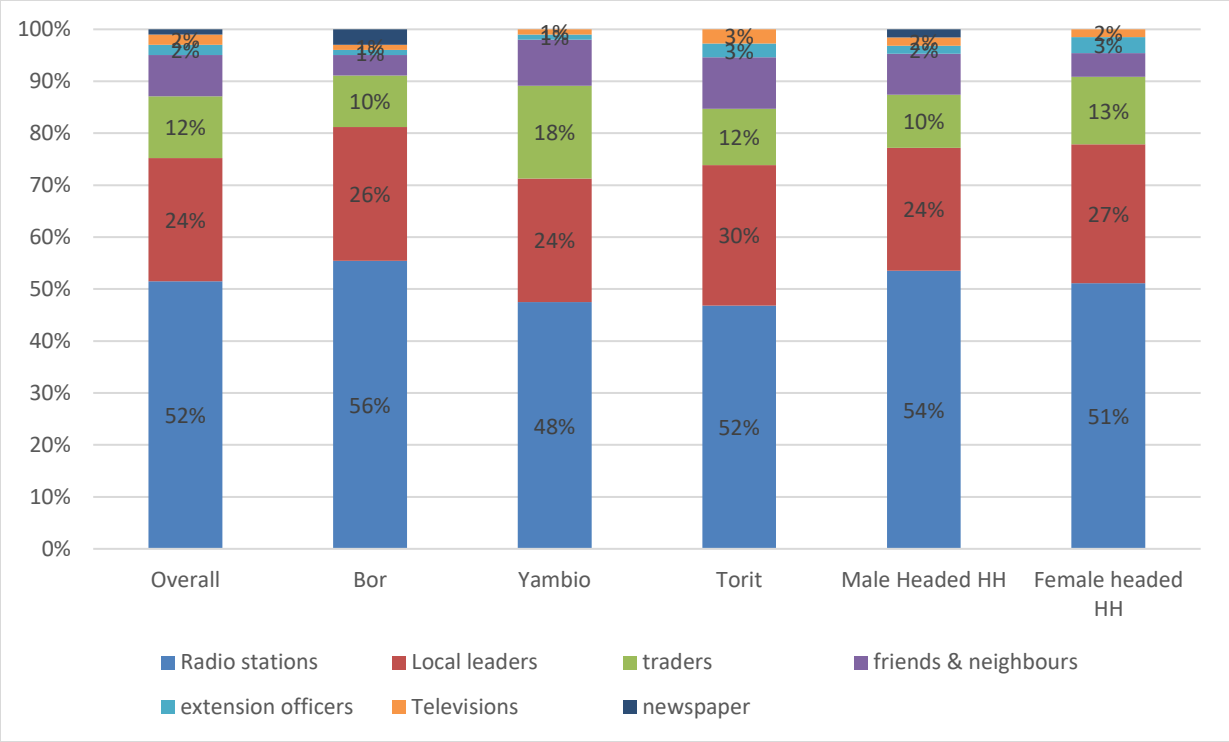


Figure 9 sources of market information.

The main radio station in Yambio were Yambio FM and Anisa FM. However, the latter was not operational after being struck by lightning while the former operated 3 hours in the morning and 5 hours in the afternoon due to lack of power. In Bor, the most popular radio was Radio Jonglei while the most popular radio station in Torit was Radio Emmanuel.

"We have agribusiness shows from 3 to 5 pm conducted in conjunction with NGOs such as world vision but mostly focus on agriculture. We lack the facilities and right now we are only using generators which are expensive and limit our on air time. We cover the whole of Yambio County and even to some parts of Gbudue state." – KII, manager, Yambio FM.

Market prices for agricultural products

Inflation affected food commodity prices and thus the prices kept on fluctuating. However, tracking within a one year period helped understand the trend. Apart from the price fluctuations, harvest periods and consumption patterns of different crops in the different counties affected the markets prices due to demand and availability. Data for Bor County was largely unavailable. The prices of the main agricultural products were as follows.

Sorghum

Red Sorghum was produced and sold in the local markets in Yambio and Torit counties and the prices were as follows. A Malwa (3.5kg) of Red Sorghum being sold at SSP 280 in Torit and SSP 263 in Yambio as of December 2018[7]. Data on red sorghum in Bor was also unavailable.

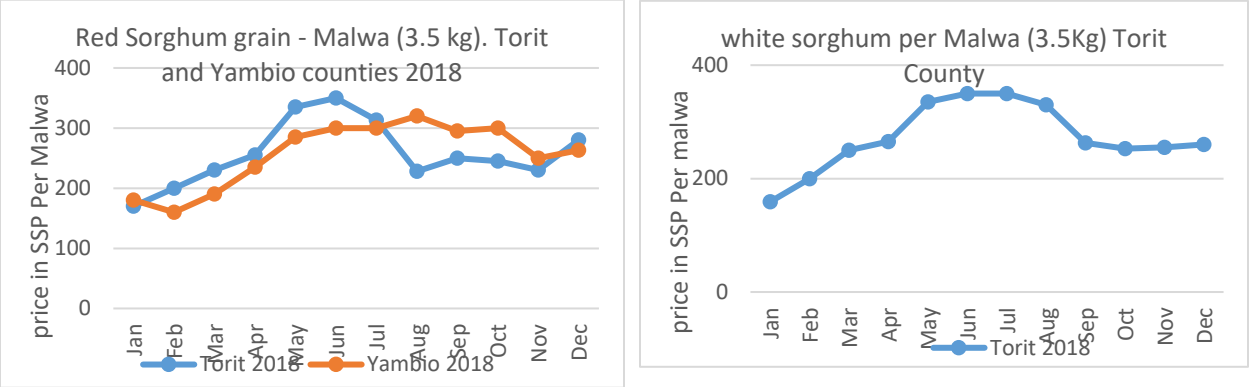


Figure 10 Red and white sorghum prices

Maize

Maize was the most produced agricultural product in the three counties and the prices in the market were as follows. The main market was WFP and as of November 2018, WFP was purchasing maize at SSP 3500 per 50kg bag. However, according to reports by Climis South Sudan[8] , as of December 2018, the market prices in Yambio and Torit as at December 2018, were at SSP 300 per Malwa (3.5 kg), thus SSP 4,285 per 50 kg. A Kilogram of maize flour fetched a price of SSP 313 in Yambio and SSP 255 in Torit as at December 2018. The data for Bor was unavailable.

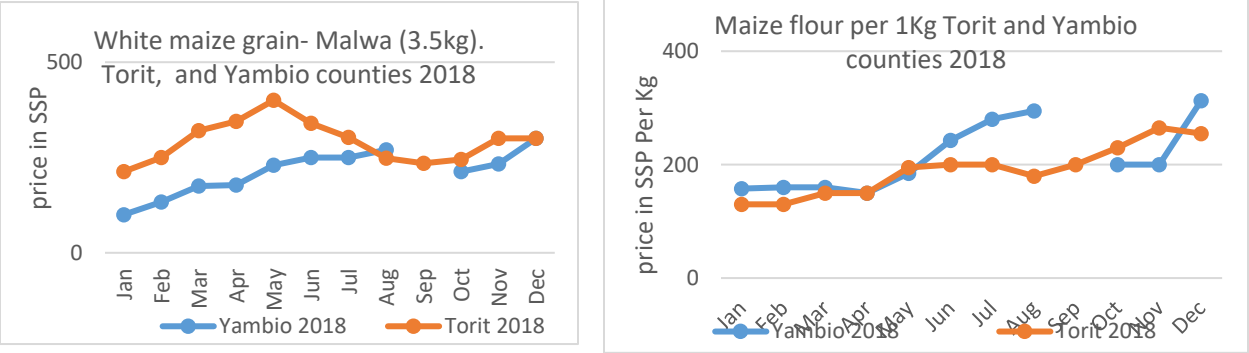


Figure 11maize and maize flour prices

[7] http://climis-southsudan.org/markets
[8] http://climis-southsudan.org/markets

Groundnuts

One of the main foods consumed in both Yambio and Torit was groundnuts and shelled groundnuts fetched a market price of SSP 350 in Torit and SSP 240 in Yambio respectively within the month of December[9]. The prices for shelled groundnuts were higher in Torit compared to Yambio over the course of 2018. The data for Bor was unavailable.

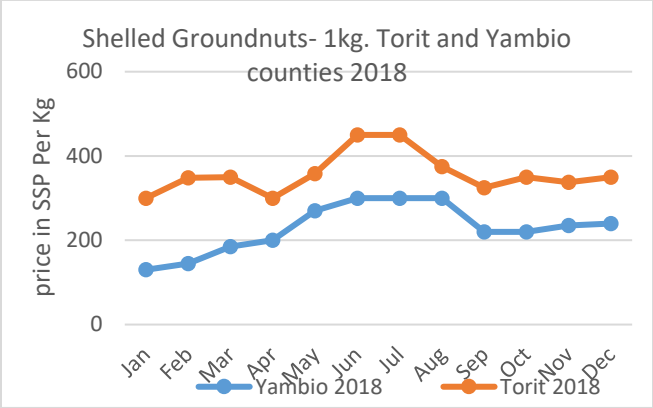


Figure 12 Groundnuts market prices

Cassava

Cassava prices[10] in Yambio were steadier compared to Torit in 2018. However, within the months of November and December, a Malwa (3.5 kg) of dried cassava in both counties fetched a market price of SSP 200 (USD 0.87). In Bor, 3.5 Kgs of dried cassava was sold at SSP 270(USD 1.17) in the month of September. Cassava was consumed throughout the year in Yambio and most households depended on own production. This may have lowered the prices compared to other counties. The data for Bor was unavailable.

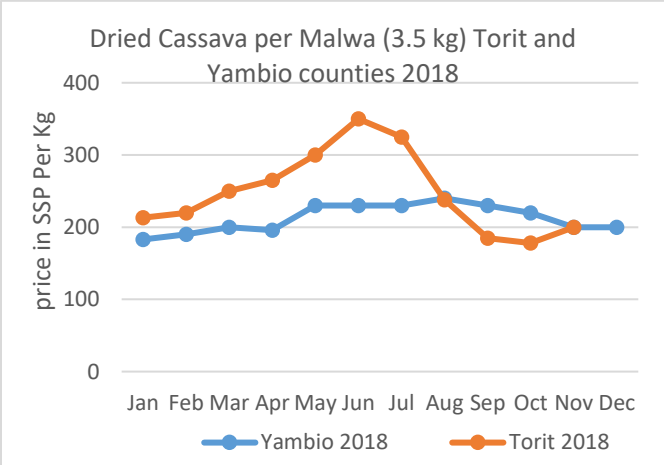


Figure 13 Cassava market prices

Business as a source of household income

Businesses accounted for 18% of the sources of livelihoods and earned households an average monthly income of SSP 15, 936. The most popular business undertaking were trading of agricultural products, non-agricultural products on a small scale, service industry (hotels, hairdressing, etc), transport of farm produce and supply of farm inputs. The main businesses undertaken were as follows:

[9] http://climis-southsudan.org/markets
[10] http://climis-southsudan.org/markets

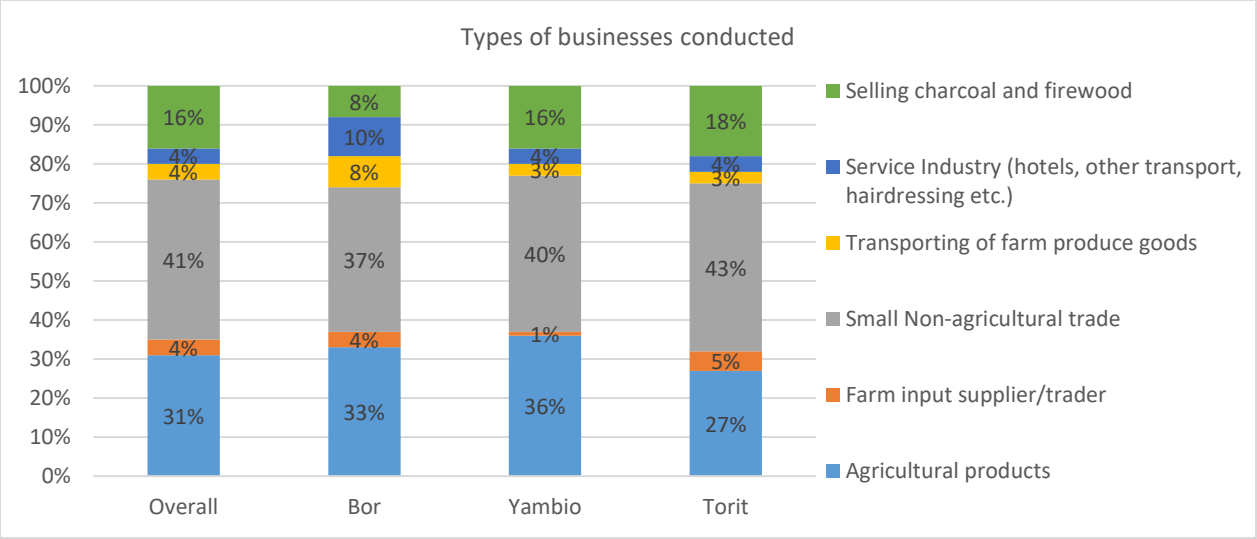


Figure 14 Types of business undertaken

In terms of gender, only 22% of the business were female owned. Most females were engaged in the trade of agricultural products, charcoal and firewood and farm inputs while males were mostly engaged in the trade of agricultural products, small scale non-agricultural products, and selling charcoal & firewood as shown below.

Type of business	**Male**	**Female**
Agricultural products	38%	40%
Farm input supplier/trader	9%	20%
Small Non-agricultural trade	26%	10%
Transporting of farm produce goods	5%	5%
Service Industry (hotels, other transport, hair dressing etc.)	5%	5%
Selling charcoal and firewood	17%	20%

Table types of business undertaken by gender

Most of these businesses had operated for more than 4 years (33%), between one and two years (31%) and the rest between two and four years. Despite most existing for more than two years, only 14% of the traders had ever developed a business plan. The main sources of start-up capital were own savings (56%), loans and grants from family and friends (15%), loans from VSLAs (3%), from sale of agricultural produce and trees (21%) among others (5%). The businesses operated from the market place or roadsides (36%), from home (35%), temporary facilities (16%), and permanent facilities (9%) while others were hawkers (4%).

Thus, the main business were small non-agricultural trade (41%) such as clothes, soaps, small electronics and electrical appliances and sale of agricultural products (31%) such as maize, groundnuts, sorghum and vegetables. The average income from businesses was SSP. 18,263 (USD 79.40) per Month but as per individual businesses, it was as below.

	Agricultural products	Farm input supplier/trader	Small Non-agricultural trade	Transporting of farm produce goods and other goods	Selling charcoal and firewood
Average income per month (SSP)	21,826 (USD 94.90)	13,575 (USD 59.02)	17,033 (USD 74.10)	35,750 (USD 155.43)	15,454 (USD 67.19)

Table 15 Monthly income from business

Transportation using vehicles and motorcycles was deemed very expensive by the farmers but was in turn beneficial to those who undertook the business. Transporters earned an average of SSP 35, 750 (USD 155.43) per month compared to farm input suppliers who earned SSP 13,575(USD 154.67). This was associated with the low uptake of inputs and the presence of NGOs and INGOs who were supplying inputs for free. Agricultural products were seen as profitable business fetching an average of SSP 21,826 (USD 94.9) while small non agriculture traders earned SSP 17,033 (USD 74.10) per month. The cost of operating the non-agricultural was cited to be high, given most of the products were imported.

Agricultural traders were mainly engaged in retail trade where they sourced their products directly from the farmers and sold them directly to the consumers while those engaged in non-agricultural trade transported their products from the nearest main markets (43%) or as in the case of Yambio, import from Uganda, while others were supplied by distributors, transporters or farmers (26%). Charcoal and firewood's source were the forests (24%) while other products were self-processed (7%). These included juice processors located in the main towns as well as hotel operators.

Value addition, price determination and creation of employment

In terms of value addition, 85% of the traders did not add any value and sold them as received from the supply. The 15% who added value basically cleaned of the product (31%), sorted farm harvests (23%), packaged (15%), transported (15%), ground to make flour (8%) and stored (8%). Price determination process was basic for the traders as 66% estimated based on the demand supply, 43% based on production/ procurement cost and 1% based on existing market information. Restocking was mainly done weekly (40%), daily (28%), monthly (16%) and as need arose (16%).

Overall, the businesses only employed an average of one person per business. However, in Torit the average was 2 people per business while in Yambio and Bor most businesses were operated by owners or family members and thus did not employ other people.

Business Skills and knowledge assessment

One of the main reasons for the low levels of income and business failure is the lack of knowledge and skills. It is in this regard that the study sought to understand the levels of knowledge and skills in the three counties. In order to assess the current level of skills, respondents were asked to gauge themselves in terms of business and knowledge skills. Each skill factor was composed of attributes that informed the general skill level. They rated themselves on a scale of 1 to 5, where 5 was very strong and 1 very weak. ***Generally, a rating of 1 to 1.9 was considered very weak, 2 to 2.9 weak, 3 to 3.9 average, 4 to 4.9 strong and 5 was considered as the strongest.***

Business Skills and Knowledge	Total average rating	Bor	Yambio	Torit	Male	Female
a) Business experience	2.6	2.6	2.5	2.7	2.7	2.4
b) Business Plan development	**2.5**	2.6	**2.3**	2.5	2.6	2.3
c) Obtaining business finance	2.6	2.7	2.5	2.6	2.7	2.4
d) Ability to access business support	2.6	2.7	2.5	2.5	2.6	2.4
e) Marketing skills	2.8	3.0	2.7	2.7	2.8	2.7
f) Management skills	2.8	2.9	2.7	2.9	2.9	2.7
g) New product development	**2.5**	2.5	2.3	2.5	2.5	2.4
h) Information technology	**2.2**	**2.2**	**2.1**	**2.2**	2.2	2.1
i) Business registration	**2.4**	2.4	**2.3**	2.5	2.5	2.3
j) Financial Management	2.9	2.9	2.8	3.0	3	2.6
k) Quality management skills	2.8	2.9	2.6	2.9	2.9	2.6
l) Business opportunity requirement	2.7	2.8	2.5	2.7	2.7	2.4
Overall rating	2.6	2.7	2.5	2.6	2.7	2.4

Table 16 Business and entrepreneurship skills levels

Generally, the population rated themselves as weak (2.6) in terms of business skills. There was minimal variance in the counties. The main gaps existed in information technology (production, storage and communication using computers), business registration, business plan development, new product development, and business experience, obtaining business finance, ability to access business support and business opportunity requirement. This gaps existed across the three counties.

Financial Services Knowledge, Access and practices

In terms of financial services offered by banks, 59% of the respondents were not aware of any while the most known services were savings (20%) and loan facilities (9%). 55% in Bor county, 56% in Yambio County and 69% in Torit county were not aware of any services offered by banks.

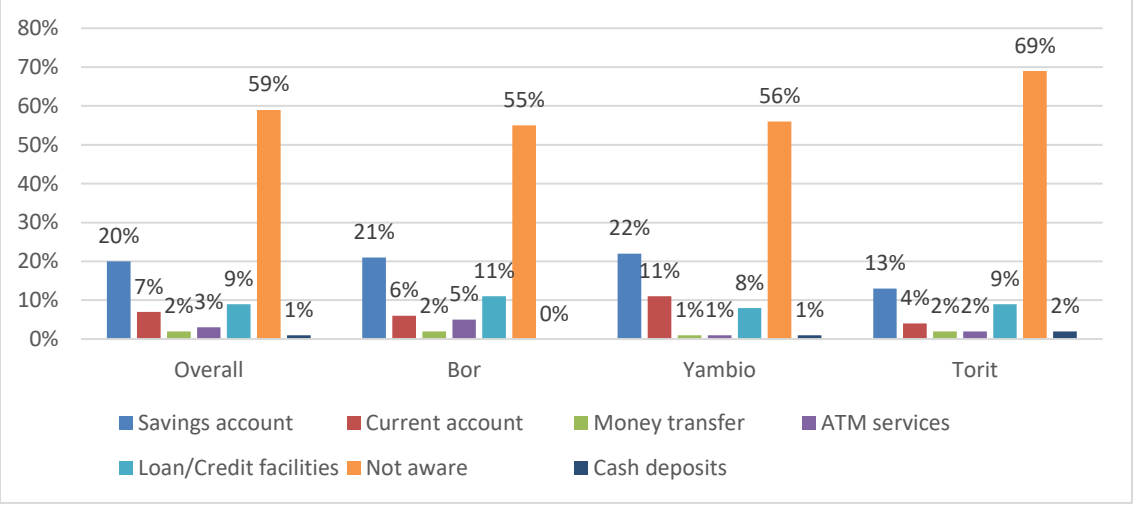


Figure 15 Awareness of services offered by banks

Slightly more male (60%) were unaware of services offered by banks compared to females (56%) as shown below.

	Male	Female
Savings account	18%	22%
Current account	5%	12%
Money transfer	3%	3%
ATM Card	4%	1%
Loan/Credit	11%	6%
No idea	60%	56%

Table awareness of services offered by banks in terms of gender

Access to financial services

The economies of the three counties could be termed as cash economies with minimal support from financial institutions. In Bor County, Kush and liberty banks were the main financial institutions and their customers operated savings and current accounts only. Most people opted to keep their money in their homes with only a few having bank accounts. In Yambio County, Kush and Ivory bank as well as Women and Youth Empowerment (WOYE) Microfinance Institution were the main financial institutions whilst in Torit County, the main financial players were banks Ivory Bank, Eden Bank and Nile commercial Bank. High and volatile inflation rates rendered lending by financial institutions impossible. Only WOYE in Yambio was lending but their products were unpopular due to the low amounts offered. Despite their efforts, they lacked the financial capacity to offer meaningful products having lost a lot of capital through defaulters during the conflict period. Kenya Commercial Bank (KCB) and Equity banks had branches in both Torit and Yambio but closed down in 2016 due to conflicts. The closing down of these banks had a negative psychological impact on the perception of banks in general among the residents of the counties.

"At least for Kush bank, we are not lending due to the rates of inflation currently. The cost of living is very high currently. Back in 2013, about 3 million SSP was equivalent to 1 million USD, but now, the same is almost worth only 19 000 USD. That is a very high inflation rate and additionally, it is not static. It is in this regard the bank has withheld lending services. This situation is Programmeed to last up to February 2019 and then it will start coming down. Our current activities are savings and cash transfer for NGOs. STO is buying maize on behalf of WFP and we transfer the money to farmers. Sometimes we even take it to them in cash if they are far and don't have bank accounts." – Branch manager, Kush Bank Yambio

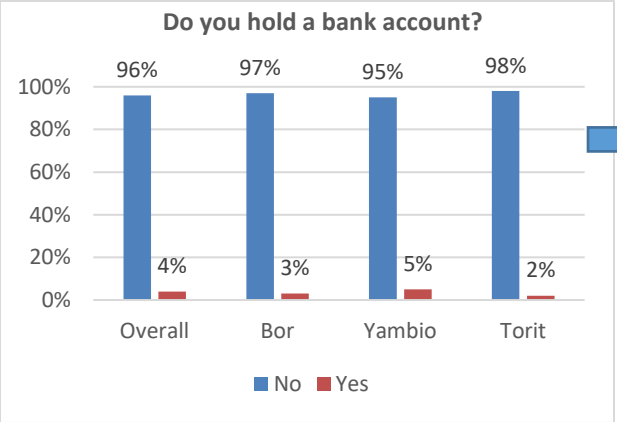
"People don't trust banks here. When KCB and Equity closed they informed us to go for the money we had previously banked with them in Juba. The cost of flight to Juba is more than what I have in my bank account. So going for the money is a loss. We just forgot about that money." – FGD, Yambio.

"We do not give loans to the farmers because what they can give as security is just the cows or goats. You understand that they don't own land here, most of our customers are NGOs and the small business" Branch Manager Nile Commercial Bank, Torit

Financial Practices

Bank account ownership in the Programme areas was very low as 96% did not hold bank accounts. Singly, 97%, 95% and 98% did not hold bank accounts in Bor, Yambio and Torit counties respectively.

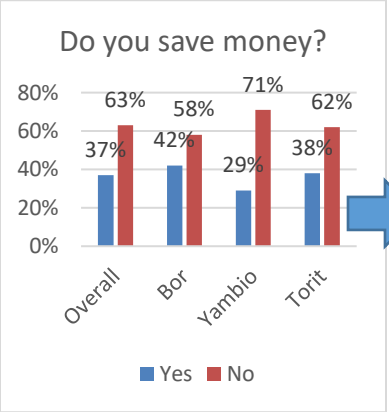
The main reasons cited for lack of bank accounts were poverty/low incomes mainly dedicated to household consumption (51%), lack of awareness (33%), complicated procedures/requirements and perceived high ledger fees (8%), lack of trust (2%), among others (6%). The others included conflicts/insecurity and poor roads.



Reasons for lack of Bank accounts	
poverty/low incomes mainly dedicated to household consumption	51%
lack of awareness	33%
complicated procedures/requirements and high interest rates	8%
lack of trust	2%
Others	6%

Figure 16 Bank account holding and reasons for lack of bank accounts

In terms of savings, only 37% had savings at the time of the survey and out of these 95% saved in informal platforms mainly at home, VSLAs/SILC and Rotating savings and credit association (ROSCAs). The overall average savings per month were SSP. 6,754(USD 29.37). More male headed households (42%) saved money compared to female headed households (21%). Female headed households saved SSP 6,857 (USD 29.81) while male headed HHs saved SSP 6,782(USD 29.49) . The rate of savings, saving platforms and average saving per month were as shown below.



	Overall	Bor	Yambio	Torit
Formal non-mobile (e.g. bank, SACCO)	5%	2%	7%	5%
Informal (e.g. ROSCAs, VSLAs/SILC, at home,)	95%	98%	93%	95%
Average savings per month (SSP)	6,754 (USD 29.37)	6,735(USD 29.28)	5,428(USD 23.6)	7,479(USD 32.52)

Figure 17 savings, where they save and the average savings per month

Access to Credit

In the year 2018, only 9% had applied loans in the Programme areas. More male headed households (11%) had access to loans compared to female headed households (5%). More people applied for loans in Yambio

County at 11% compared to Bor's 9% and Torit's 8%. Out of those who had applied for the loans, 77% were successful while 23% were not. Despite Yambio County having the highest number of people who had applied loans, only 59% received the loans. 88% in Bor County and 86% in Torit County successfully received loans they had applied for. Out of the 5% female headed households who had applied for loans, only half received of them received the loan they had applied for.

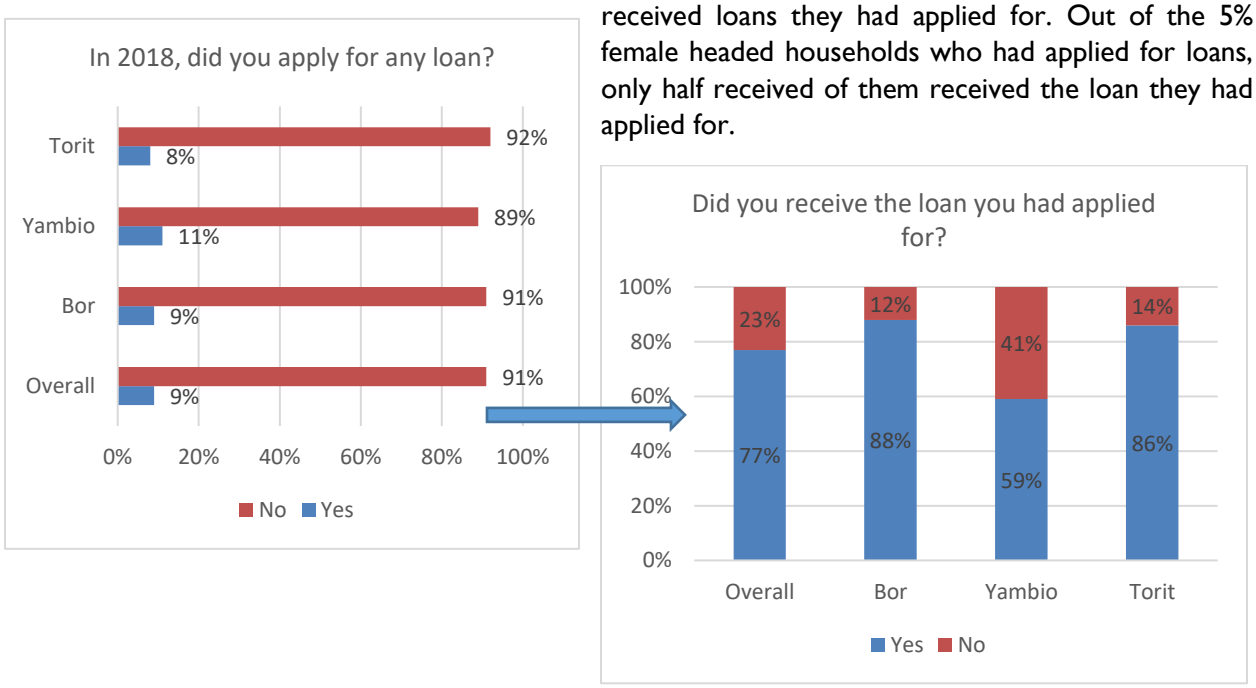


Figure 18 Loan application and approval

The main sources of loans were individual/friends or relatives (56%), VSLAs (28%), Banks (8%), SACCOs (6%), others (2%). Others included Merry go round s and businesses. Borrowing from family members and individuals was popular due to lack of other channels. In Bor and Yambio, the trend was similar with borrowing from individuals and relatives being most popular at 71% and 70% respectively. However, in Torit, VSLAs were the most popular sources. The main sources of loans were as shown below.

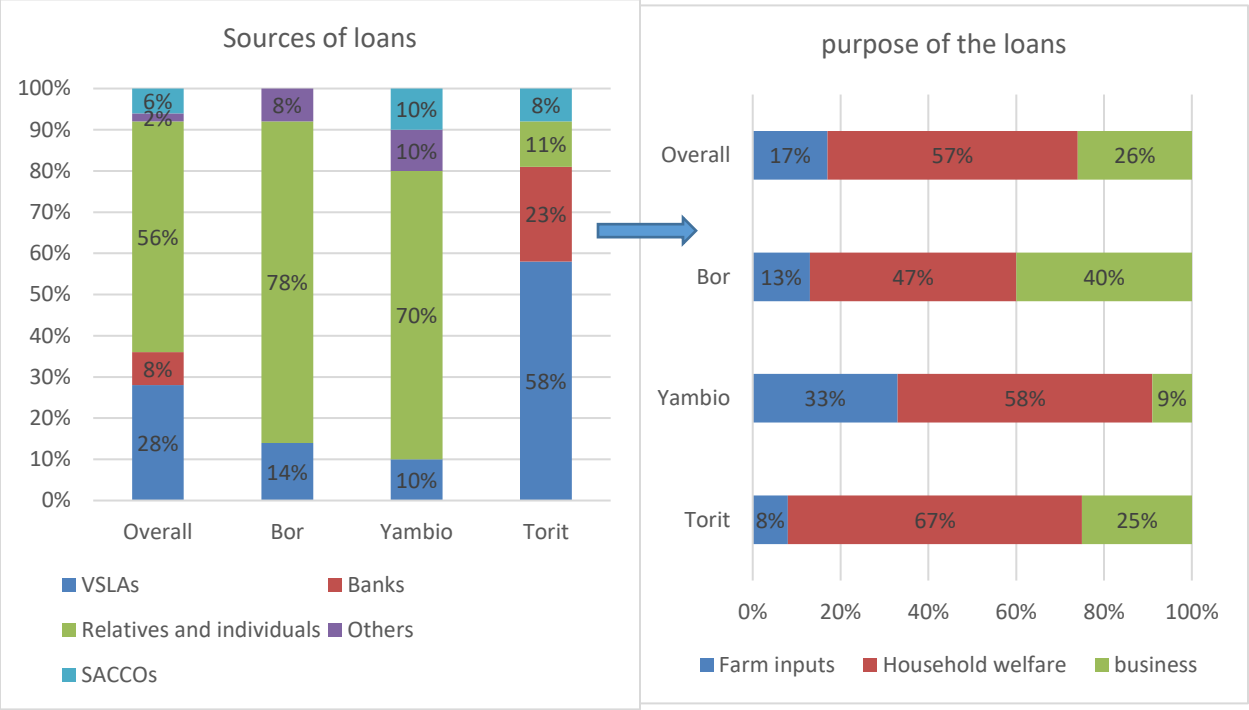


Figure 19 Sources of loans and purpose of the loans.

As shown above, most of the loans borrowed were mainly to enhance household welfare (57%) followed by business purposes (26%) and for the purchase of farm inputs (17%). The household welfare upkeep included food, shelter, education and health. The tendency for borrowing was similar in all the respective counties. However, borrowing for business was highest in Bor (40%), for farm inputs highest in Yambio (33%) and for household welfare was highest in Torit (67%). Noteworthy, only 53% of the population received enough to meet the cited needs.

Further analysis showed that loans from banks were mainly for business purposes (67%), 80% of the loans from VSLAs were for household welfare, 57% of the loans from individuals were also for household upkeep. Interestingly, as most cooperatives were either agriculture or business based, all the loans from cooperatives were for household upkeep while loans for farm inputs were mainly from individuals (36%) and VSLAs (10%). The mismatch of the borrowing sources and uses alluded to the lack of proper borrowing channels as well as lack of financial knowledge for both the population and the personnel at the lending sources.

"We don't offer loans nearing the end of the year starting from November as most people are borrowing for the festivities and not business. Thus we are afraid they won't be able to pay back." – WOYE MFI, Yambio

VSLAs/SILC

Village Savings and Loan Associations (VSLAs)/ Savings and Internal Lending Communities (SILC) were seen mainly as sources for business loans. If a member wanted a loan, they needed to defend a business plan in front of the VSLA committee. The plans presented were not fully formulated but rather business ideas and guesstimated revenues. Most VSLAs also had a social insurance box to cover social events, occasions, and emergencies such as funerals. While members paid approximately 10% interest rate over loans from the VSLA savings box, no interest was paid over loans from the social insurance box. Loans were restricted to members only.

VSLAs had management committees consisting of the Chair, Deputy Chair, secretary, information officer and 3 key holders. The committee members were elected during annual meetings. The members met once a month, gave out contributions, and issuance of loans.

The number of VSLAs per county were as follows:

County	Number of VSLAs/SILC	Membership		
		Male	Female	Total
Bor	107	510	1620	2130
Yambio	12	0	300	300
Torit	30	324	461	785

Table 17 VSLAs/SILC and membership

In Yambio, the 12 active VSLAs are under two umbrella bodies for the women VSLAs. They were formed through a Programme funded by UN women and implemented by Change Agency Organization in 2017. There were numerous other VSLAs but were not active due to lack of funds while others were disorganized by the conflicts. The 12 were deemed not enough by many stakeholders and thus needed formation of new ones as well as revamping inactive ones which were still viable especially ones that would include men and youth.

"VSLAs here should be the main access to finance as many institutions are not lending but they are not enough and most of them are women oriented. Establishment of more with women, men and youth would help the people in the villages and those doing business have access to finance." – Director, Industry and Mining, Yambio.

In Torit, the uptake of loans was mainly by individual members, however, group investments were also increasing popularity. Programmes run by a group of VSLA members were deemed to have more potential to increase profits for each member of that group and, as such, needed to be encouraged. Additionally, such loans had important implications in increasing livelihood beyond the individual/household levels.

"VSLAs here in Torit are more or less women oriented. However it is important to note that empowering the woman in the household empowers the entire household. Men also need to be encouraged to join especially farmers so that they can get loans for their farm activities and pay back after harvest." – KII, CARE, Torit.

Savings and loans among VSLA members

Overall, 27% of the VSLAs members applied for loans and the rate of savings per members was SSP 4,744 (USD 20.63). The rates of savings per month was as shown below.

	Applied for a loan	Rate of savings per month (SSP)
VSLA members	27%	4,744 (USD 20.63)

Table 18 Loan application and savings for VSLA members

Challenges facing VSLAs

Across the three counties, the main challenges that faced VSLAs were:

- Conflicts were the main reasons for many of the VSLAs dissolving due to displacement of members
- The lack of investment skills and business plan formulation
- Lack of financial and management skills by both members and committee members
- Limited money movement since money was kept in a box.
- Lack of bank accounts.
- Most VSLA members were engaged in small IGAs, which reduced the amount of money they can contribute and the amount of loan they can take.

There is an opportunity to grow VSLAs into lending institutions through capacity building and introduction of IGAs to increase their capital and reduce loan repayment periods.

Cooperatives

According to the ministries of cooperatives, the three counties had a combined 344 registered cooperatives. However, only 4% of the household heads interviewed were members of cooperatives. In Yambio, the number of registered cooperatives was 170 with only a few with growth potential. In Torit, there were 63 cooperatives while in Bor there were 111 registered cooperatives. Out of the 111 cooperatives in Bor, only 29 were active. Most cooperatives in the 3 counties were agricultural based. Average membership per cooperative was as follows;

County	Number of Cooperatives	Average Membership per cooperative		
		Male	Female	Total
Bor	111	20	30	50
Yambio	170	22	10	32
Torit	63	27	26	53

Table 19 Cooperatives and membership

The average membership per cooperative 50, 32 and 53 in Bor, Yambio and Torit respectively. These were mainly the active members. The low numbers were due to conflicts and displacement of members. *"The conflicts affected our groups so much. I was a member of a cooperative but all members dispersed and thus the group died. The same happened to the loan groups and farmers groups that were existing before we moved. We are currently trying to build new groups but people are still afraid."* – FGD, Yambio.

Main Business of cooperatives

The main activities of the cooperatives were production and marketing of agricultural produce. In Torit, the primary business activities of the cooperatives were production of maize, groundnuts, sorghum, simsim and vegetables. In Bor, the cooperatives operations were similar to producer groups and their main activities included collective cultivation and collective marketing. The main crops cultivated are sorghum, Maize, Ground nuts, Sesame. In Yambio, the main activities of cooperatives were production, primary processing and aggregation of grains and pulses such as maize, groundnuts, cowpeas and sorghum. The main sources of cooperative funds was membership fees and service charges after the members' aggregated maize is sold. The service charges were mainly for the marketing services. In Yambio, cooperatives were mainly engaged in production, aggregation and marketing of agricultural produce. Aggregation had a few challenges for the cooperatives in Yambio as the main market for the aggregated maize, WFP, had opted out of purchasing from cooperatives to purchasing directly from the farmers. WFP cited lack of proper accounting structures and transparency in the cooperatives' activities. Cooperatives' transactions were recorded by the treasurers in registry books and share ownership was not applied in and dividends were distributed according to produce levels.

"We opted out of purchasing through cooperatives due to some challenges. Some farmers could not access the funds despites payments to cooperatives being done. We also wanted to ensure all farmers were assisted including those who even produced one or two bags." – KII, WFP.

In terms of loans, 37% of cooperative members had applied for loans in 2018 and the average rate of savings was SSP 4,763 (USD 36.64) as shown below. The main sources of loans for cooperative members were individuals and relatives.

	Applied for a loan	**Rate of savings per month (SSP)**
Cooperative members	37%	4,763 (USD 20.71)

Table 20 Application of loans and savings by cooperative members

Management of cooperatives

In the three counties, there was no separate management that worked on behalf of the board. The board members descended from their positions and volunteered in management positions to support the cooperative. All the cooperatives were registered, had existing bylaws and boards. The bylaws were not fully implemented especially in terms of management, share ownership and acquisition of physical offices. The board structure included at least Chairperson, Treasurer, deputy chairperson, secretary, and information officers. Most of the boards were structured as follows:

County	**Average Board Membership per cooperative**			
	Male	Female	Youth	Total
Bor	3	3	4	6
Yambio	5	4	4	9
Torit	5	3	6	8

Table 21 Cooperatives management

Thus, the average board members in Bor was 6, 9 for Yambio and 8 in Torit. The board representation was almost equal between male and female members. The youths were well represented in the boards and this could be attributed to the youthful population of South Sudan[11].

The education levels for board members in the cooperative were inadequate. 40% had not completed the primary level while 37% had reached the secondary level as shown below.

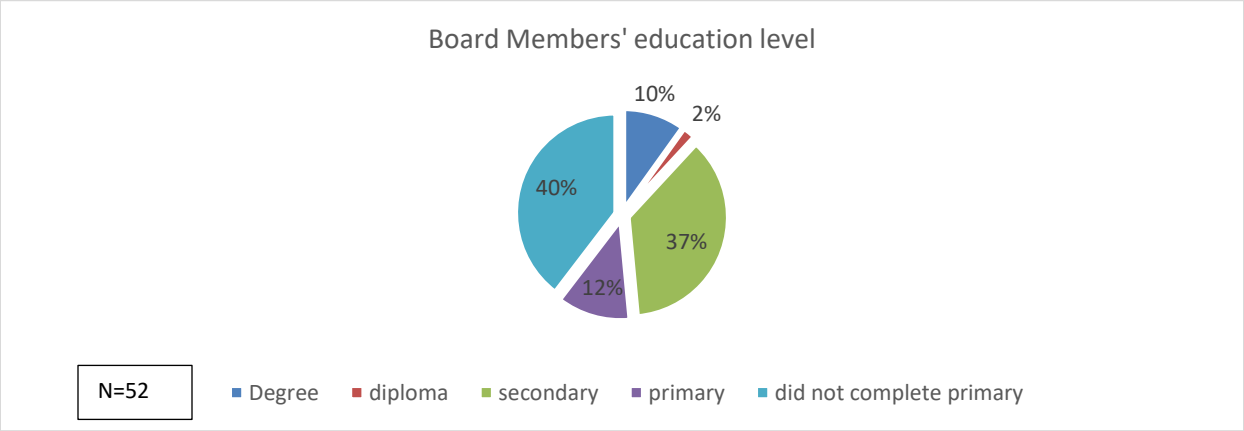


Figure 20 Cooperative board members' education level.

Challenges facing cooperatives

Generally, the challenges facing the cooperatives in the three counties were:

- Market for members' produce
- High level of illiteracy among cooperative members
- Lack of capacity by cooperative officers in terms of management, logistics and trainings
- Most cooperatives officials do not understand business development
- Lack of mechanization
- Fall Armyworm and striga weed infestation on members' farms meant low business for cooperatives
- Lack of fund to upscale operations

Food Security and Nutrition

Overview of Food security and nutrition

Food security in the Programme areas is largely influenced by harvest seasons, the availabiliy of own crop production, in-kind agricultural labor payments as well as availability wild foods. Despite most of the stakeholders considering the three counties food security, the widely accepted Integrated Phase Classification Version 2.0 (IPC 2.0) for the fight against food insecurity ranked Yambio and Torit at level 2 (stressed) and Bor at level 3 (Crisis) for the months of November 2018 to January 2019[12]. This means that in Yambio and Torit, even with any humanitarian assistance at least one in five HHs had minimally adequate food consumption but were unable to afford some essential non food expenditures without

[11] http://www.worldometers.info/world-population/south-sudan-population/
[12] http://fews.net/east-africa/south-sudan

engaging in irreversible coping strategies. In Bor, the level 3 classification meant that even with any humanitarian assistance, one in five HHs was experiencing food consumption gaps with high or above usual acute malnutrition or they were marginally able to meet minimum food needs only with accelerated depletion of livelihood assets that eventually led to food consumption gaps.

Consumption patterns

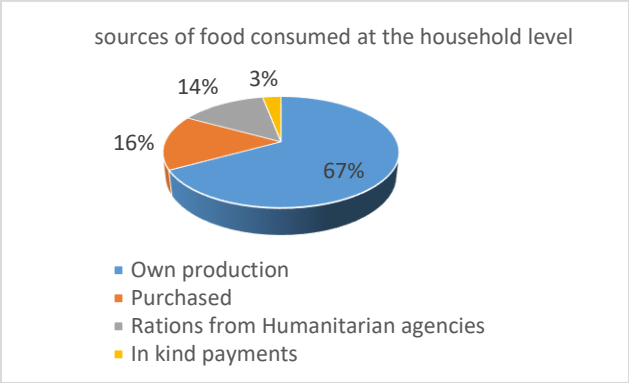


Figure 21Sources of food consumed at the household level

One of the key factors in food security is the consumption patterns. Overall, the main sources of the food consumed at the household was own production (67%). Other key sources were purchase from the market (16%), rations from humanitarian agencies (14%) and in-kind payments (3%). This trend was similar in all 3 counties. The main food consumed in Yambio county included, maize, sorghum, groundnuts and cassava. Cassava's all year round availability and consumption of both roots and leaves was a major coping strategy.

In Torit, sorghum from own production was consumed between the months of September to April while purchase was only undertaken after depletion in the months of May, June, July and August. Maize produced by farmers only lasted them 7 months and they had to purchase in the remaining 5 months as shown below.

Staple foods	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***	***Jan***	***Feb***	***Mar***	***Apr***	***May***
Sorghum												
Maize												
Key		Market purchase				Own production						

Table 22 Torit consumption calendar

"The Sorghum and maize we produce is little to last an entire household. This is not just because of the production but since we also sell some of it to cater for other expenses such as health and education." – FGD, Torit.

In Yambio, the staple foods were maize sorghum, groundnut and cassava. Maize from own production was mainly consumed in 8 months of July to February and purchased only in April, May and June. Household produced sorghum was mainly consumed for 7 months from December to June while groundnuts were consumed within 9 months from July to March. Cassava's availability all year round meant households were able to consume own production for the whole year. The consumption calendar was as shown below.

Staple foods	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**
Maize												
Sorghum												

Groundnuts												
Cassava												
Key		Market purchase					Own production					

Table 23 Yambio consumption calendar

"Cassava is consumed all year round and is readily available within households."– KII, Min. of Agric. Yambio

In Bor, the main staple food was sorghum and was mainly consumed throughout the year. However, own production lasted 9 months from August to April while the purchase period was the three months of May June and July.

Staple foods	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***	***Jan***	***Feb***	***Mar***	***Apr***	***May***
Sorghum												
Key		Market purchase					Own production					

Table 24 Bor consumption calendar

Household Dietary Diversity Score

Household food access is defined as the ability to acquire a sufficient quality and quantity of food to meet all household members' nutritional requirements for productive lives. Household dietary diversity, defined as the number of unique foods consumed by household members over a given period, has been validated to be a useful approach for measuring household food access. In the 3 counties, following a set of tabulation for household dietary score was calculated using the following tabulation method:

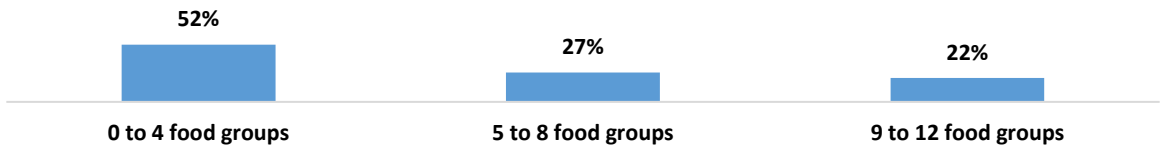
HDDS (0-12)	Total number of food groups consumed by members of the household. Values for A through L will be either "0" or "1". Sum (A + B + C + D + E + F + G + H + I + J + K + L)

Second, the average HDDS indicator is calculated for the sample population.

Average HDDS	$\frac{\text{Sum (HDDS)}}{\text{Total Number of Households}}$

A food index was generated with 12 defined groups. A count was then made of the number of food groups consumed in a household.[13] About a half (52%) of households reported having limited access to diverse types of food - i.e. consuming from less than 5 of the 12 defined food groups.

Figure 22 Diversity of Food consumed



[13] Based on the UN FAO household dietary diversity score.

As shown by the table below, the average number of food groups that were consumed was 5.30. The findings further indicates that there was no difference in the diversity of food consumed across the 3 counties, although Yambio County had a slightly higher HDDS as compared to the rest.

Table: HDDS

	HDDS score
Overall	5.30
Bor	4.94
Yambio	5.61
Torit	5.50

Table 25 Household dietary score

As illustrated by the figure below, further analysis indicates that majority (86%) of the households consumed cereals. The least diet consumed by households living in the 3 counties were eggs. Nearly two thirds (63%) of the households consumed vegetables. Less than a third of respondents mentioned having consumed pulses/legumes and milk/milk products

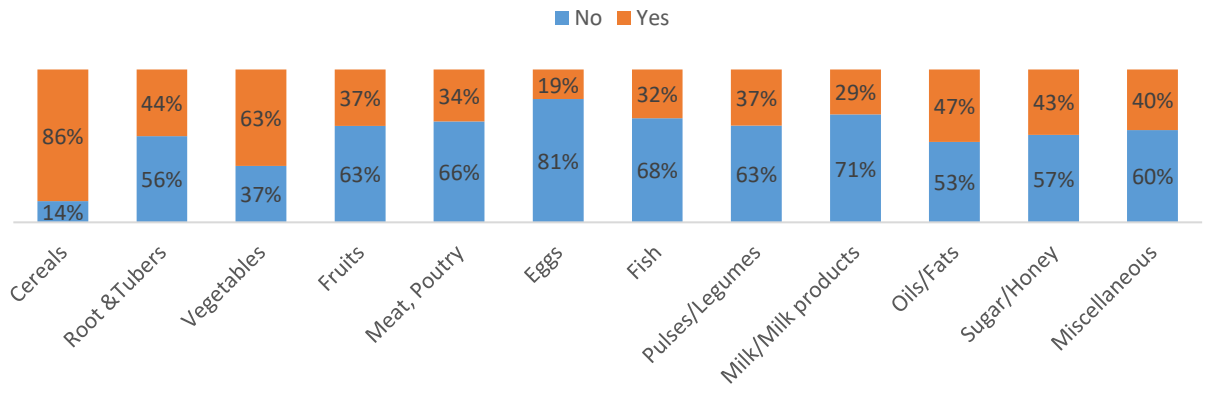


Figure 23 food categories consumed

Generally OCHA Programmes the number of people in need for the year 2019 in the food security sector as follows:

Bor	Yambio	Torit
163,700	20,000	40,200

Table 26 number of people in need in the food security sector

This means approximately 23,386 HHs in Bor, 3,333 HHs in Yambio and 6,700 HHs in Torit were expected to be food insecure.

Nutrition

The level of acute malnutrition is attributed to severe food insecurity, poor access to health and nutrition services, high morbidity, extremely poor diets and poor sanitation and hygiene. Overall, levels of acute

malnutrition were expected to improve marginally between October and December 2018 due to the seasonal availability of local production, increased availability of fish and milk, and relatively better access to markets and key services. As of September 2018, Yambio and Torit reported GAM rates of 2.5% and 9.5% respectively. This meant the severity of malnutrition in Yambio was acceptable (below 5%) while that of Torit was poor (5% to 9.9%). The situation was critical (GAM>15%) in Bor County where the reported GAM rates were 18.2%. The IPC classification for the 3 counties were as shown below.

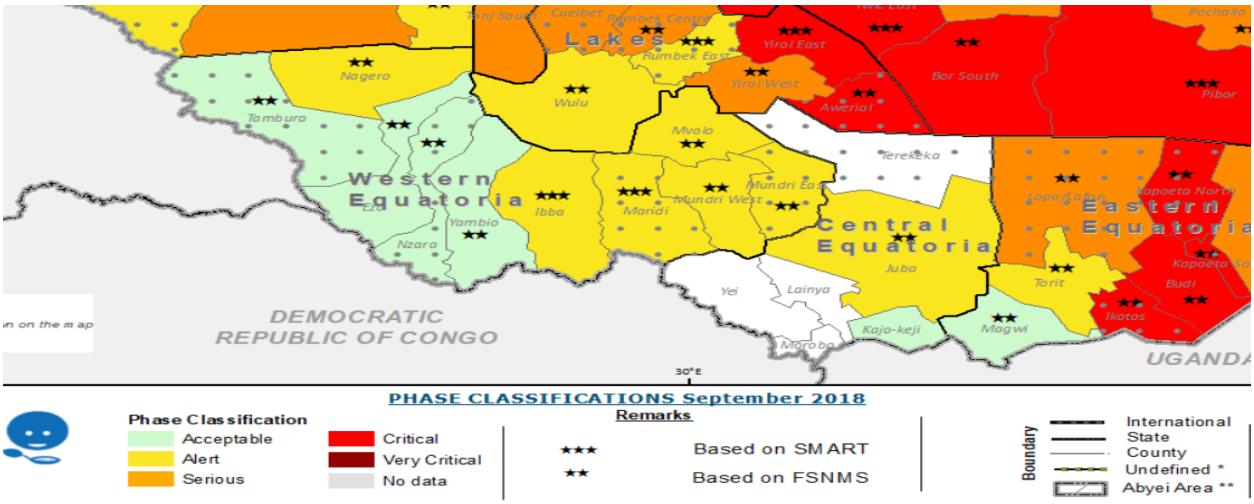


Figure 24 IPC Classification

OCHA estimates the number of people in need in the nutrition sector for the year 2019[14] as follows:

Bor	Yambio	Torit
38,300	13,200	21,300

Table 27 No. of people in need of humanitarian assistance in the nutrition sector

Disaster prevalence and preparedness

According to majority of the stakeholders interviewed, the most prevalent disaster in all the three counties was droughts or floods. Overall, 53% of the households had experienced shocks within the 12 months preceding the study. The occurrence of household shocks was highest in Bor (59%) followed by Torit (52%) and was lowest in Yambio (48%). Generally, 59% of the male headed households experienced shocks and 34% of the female headed. In terms of coping with the shocks, 62% of the female headed households were unaware of how to cope compared to 51% of the male headed households.

At the household level, droughts and floods, 23%, was the most rampant shock that had occurred in the counties within 12 months preceding the study. Other extensive disasters were death of a household member, 17%, conflicts, 16%, crop disease, 14%, Livestock died/stolen, 12% and Sickness in the family/Death of family members, 3% among others as shown below.

[14] 2019 Humanitarian Needs Overview in South Sudan

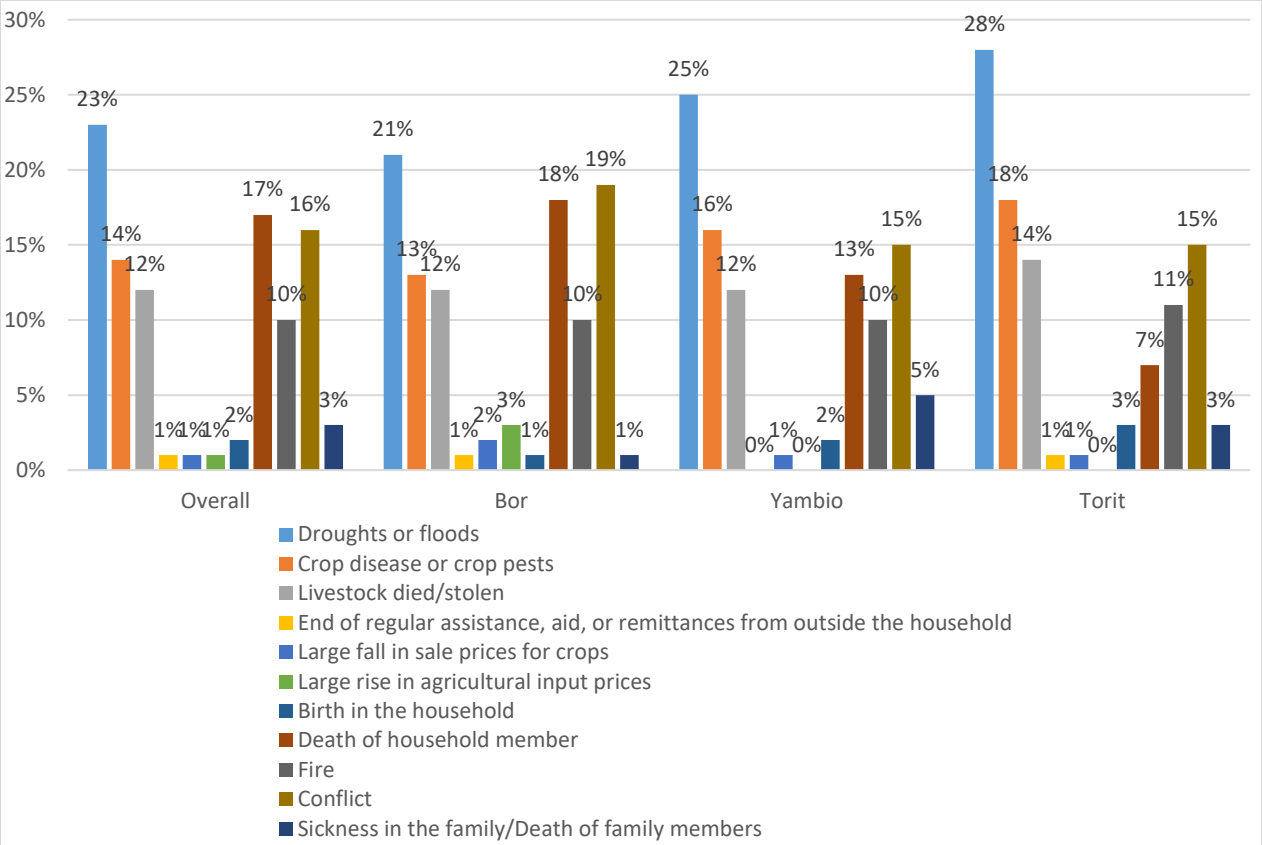


Figure 26 shocks experienced by households

The community managed risk reduction (CMDRR) plan in the counties were somewhat vague. 90% were unaware of any community managed risk reduction (CMDRR) plans in the counties. This trend was similar in the counties with 95% in Yambio, 93% in Torit and 83% in Bor being unaware of any existing CMDRR plans. The rate was lower in Bor due to peace committees that had been recently formed. Community members were not aware of how to deal with shocks and disasters and some even caused them in their activities. Fire was mainly caused by farmers clearing the lands during the dry season while conflicts were based on ethnic clashes. In Bor, floods, droughts and conflict were the main hazards as they limited fishing activities and reduced crop production, livestock, and wild foods production. Additionally, cattle raids, livestock diseases, crop pests and drought were hazards affecting livelihoods.

"The main disasters here are conflicts, fire but only during the dry season when people are preparing land and drought in July." – FGD, Yambio

"Drought is the norm of the day here, this has affected both crop farming and animal farming that each household in this community is living in a way that they are not able to get enough from the livestock or even to get enough produce from the farms. There is no particular preparation with these communities, and the people in these communities do not know much about disaster preparedness. The only thing they do after being stricken by such disasters is either they move to the nearer water sources or sell their livestock to cope." Key Informant Ministry of Agriculture, Torit

The main coping mechanisms for the residents of the counties included doing nothing, migration to POC camps or other areas including neighbouring counties, assistance from humanitarian organizations. In most cases of the shocks suffered, the households were not aware how to cope and thus did nothing. During droughts, households also reduced the number of meals taken and started relying of kinship support. In Bor, during droughts households sold livestock to survive or moved animals along the riparian land as well as cultivating vegetables along the riverine lands. The summary of coping strategies were as follows;

Coping strategies	
Government support	6%
Did nothing	53%
Used better agriculture practices i.e. pesticides, irrigation, veterinary services, changed planting calendar	10%
Help from religion and faith based organizations	4%
By providing good security for those who faced insecurity	1%
Contributions from well wishers	13%
Visited health centers	3%
Stopped uncontrolled burning of weeds and grass	3%
Kept the environment clean	2%
Migrated	5%

Table 28 Household coping strategies.

In Yambio, peace committees were non-existent while in Bor they had been recently formed but lacked capacity building on peace building as well as strategies of convincing residents to surrender guns to the government.

"There are committees of peace and they were recently formed by partners who are supporting the peace at the payam level and county level and they are talking to issues relating peace. There are some politicians within the government that support war. And there are some politicians in the government and the government itself who are advocating for peace. So you find that people can meet and discuss on this and agree but tomorrow you find there have changed. This is the situation now. So peace can only come from the government." –KII, RRC, Bor County.

Conflict analysis

The conflict in 2018 drew in a lot of different actors. While some of these actors proclaimed a national agenda, many were motivated by local concerns rather than questions of national political leadership or vengeance for atrocities in 2013 or 2014. The Violence deemed increasingly rural, rather than focused on big towns. These clashes were seen as potential drivers to tensions and potentially violence between different ethnic groups. Unlike the male-dominated conflicts of the past, some localized conflict had increasing numbers of women fighting with opposition forces especially among Arrow Boys in Western Equatoria state.[15]

The security level in Torit County was considered by many stakeholder as reasonably peaceful but the county and payam borders remained unclear and prone to unrest. Cattle raiding and child abduction was still a common practice in the county. The cattle raiding was frequent especially during migrations in the

[15] Conflict in South Sudan, CSRF 2018

dry season; there was also high incidences of land disputes among the communities living along the river banks.

"Cattle raiding, once a practice carried out along communal tribal lines, has become a means of personal wealth acquisition for criminal gangs. The prevailing culture of violence and easy access to small arms has made this an increasingly dangerous activity. Instead of the normal non- performing wealth accumulation herding of cattle, it has now become an attractive way for criminals to generate profit by selling the animals for slaughter." Key Informant Radio Emmanuel

Bor County could be divided into three risk areas: high, medium and low, in terms of risks associated with conflict. The boundary line along Bor and Pibor counties was deemed the high risk part of the county while Konyang, Anyidi, the eastern part of Makuac, Baidit and Jalle were medium risk and the western part of Makuac and Bor Town could be labelled as low risk areas.

In terms of accessibility, natural calamity and conflict were the two major factors affecting accessibility in Bor County. The June to November rainy season seriously affected accessibility of Makuac Payam. The county had swampland across its northern border, which made the area generally less accessible over the entire year, becoming even more inaccessible during the rainy season.

"Recurrent inter communal fighting in Kolnyang, Anyidi and Baidit payams – resulted to displacement, most of the population lives in the periphery of Bor town, Cattle raids / child abductions, lower cultivation and grazing land access." ***(KII, county RRC)***

"Security here is something that is unpredictable but especially in the villages, what is so common here is cattle raiding and it normally happens outside towns so usually the youth, the women and the old age are always at risk. But the staff or maybe let's say the aid workers, when you work especially late evening or during the early morning hours you will find yourself in the red line because most of the cattle raids happen in the late evening hours or early morning so you might be abused. But afternoons are fine. If you go within the recommended hours like the late mornings and early afternoons that is okay. But mostly children, women and the youth who look after cattle are always at risk." ***(KII CRS)***

Conflict in Yambio County had reduced significantly by the end of 2018 and the curfews that had been placed in Yambio market starting from 7 pm curtailed to 9 pm. Operations within Yambio and Masia markets continued past 9 pm but walking around was not advisable. It was advisable for visitors and non-locals to notify the security personnel as well as the RRC of their activities before commencement. Despite the progress, Ri-rangu Payam was still inaccessible as it was held by rebels. This highly restricted humanitarian interventions and was deemed dangerous to visit. Ri-rangu was viewed as one of the most productive Payams in the county.

Internally Displaced Persons (IDPs)

The number of IDPs has increased as a result of the persistent conflicts over the years. As of June 2018, approximately 1.88 million people were internally displaced in South Sudan, including nearly 200,000 in UNMISS Protection of Civilian (PoC) sites, 78,000 in collective centers, and 27,000 in informal settlements. IDP levels were highest in the former states of Greater Upper Nile: Upper Nile, Unity, and Jonglei and most IDPS were children. According to OCHA, IDPS were located in the following areas.

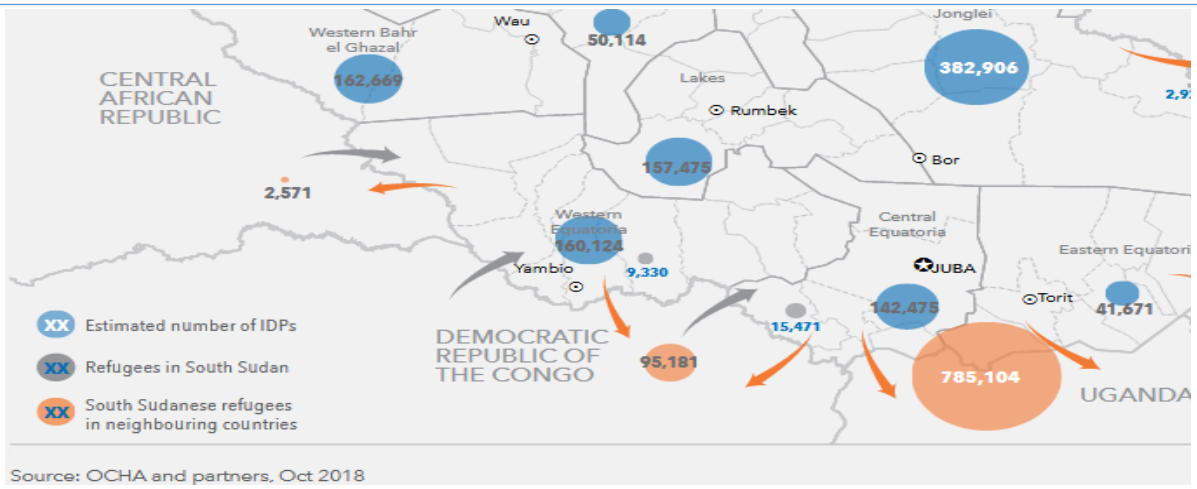


Figure 27 Projected number of IDPs

The displacement affected livelihoods negatively due to loss of property, productive assets, income, and access to services, and contributed to limited coping capacity and increased reliance on humanitarian assistance where available. Bor and Yambio had higher number of IDPs compared to Torit. IDPs who moved to within their own communities were allocated land by the chiefs to farm and build houses but faced challenges settling due to deteriorated livelihoods.

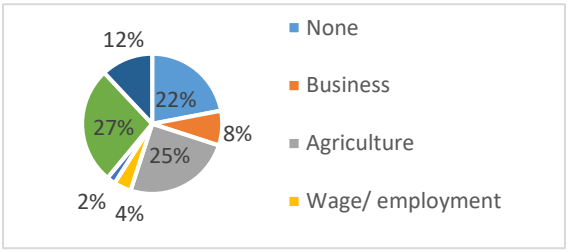


Figure 258 Income generating activities undertaken by IDPs

This survey sampled a total 52 IDPs living with the host community. 36 of the IDPs were from Bor, 15 from Yambio and only 1 from Torit. The number of IDPs in the counties follows a similar trend.

In the target counties, IDPs mainly depended on rations from NGOs (27%) and others did not have any IGAs (22%). The rest engaged in agriculture (25%), fishing (12%), Business (8%), wage employment (4%) and collecting of firewood (2%).

IDPs' households who had income generating activities earned an average of SSP 12,886 (USD 56.03) per month.

In terms of household shocks, 56% of the IDPs had experienced HH shock within 12 months before the survey. The main shocks suffered were Conflicts, eviction and destruction of houses (41%), death of family member (18%), stolen/ dead livestock (14%), crop diseases (12%), droughts and floods (6%) among others (8%). This clearly indicates the negative impact of conflict to the lives of the IDPs. In coping with the shocks, most were helpless (55%), 26% migrated, 10% depended on contributions among others as shown below.

Coping strategy	%
Moved to another community	26%
Nothing	55%
Dug trenches to drain water	3%
Contributions	10%
improved security	3%
Depended on religion	3%

Table 29 Coping strategies of IDPs

Stakeholder analysis

The main actors in the agribusiness sector in the three counties were the government through ministries, the UN, INGOs and local NGOs was well as enterprises. In the three counties, WFP and FAO were the main UN bodies. FAO was mainly involved with provision of agricultural inputs and dissemination of early warning systems through local NGOs. WFP was involved in the purchase of grain production from the farmers through aggregation and local NGOs. Below is the stakeholder analysis matrix.

Stakeholder	Main Activities	Influence
National, State and County Government	Administration	High
Ministry of Agriculture forestry and fisheries	Provision of extension services and supervision of agricultural activities in the counties	High
Ministry of cooperatives	Registration and regulation of cooperatives and associations	High
Ministry of Commerce and industries	Regulation of trade and business enterprises in the counties as well as keeping market and industry data	High
RRC	Registration, regulation and coordination of humanitarian aid	High
WFP	Purchase of grain produce	High
FAO	Distribution of farm inputs	High
Bor County		
C&D	All crop production and support of VSLAs	Medium
CRS	Cereal production and support of savings and loans	Low
NPA	Agricultural input supply	Low
NRC	Vegetable inputs supply	Low
VSF G	Seed and cereal production	Low
Yambio County		
World Vision	Farmer field schools and provision of extension services	Low
CODEP	Sustainable livelihoods and food security Programmes	Low
RDAA	Local NGO undertaking food security and livelihood, WASH and Education Programmes.	Medium
Change Agency Organization (CAO)	Local NGO undertaking women empowerment Programmes, food security and livelihoods.	Medium
CARITAS Austria	Funding of agricultural Programmes	Low
Yambio FM	Dissemination of information	High
INTERSOS	Education and Wash programmes	Low

STO (Star Trust Organization)	Implementing the SAMS Programme with WFP.	Medium
Yambio Women Resource center	Umbrella body for women associations and VSLAs	High
GAIS	Seed production	Low
WOYE Microfinance	Provisions of credit facilities	Medium
Kush bank	Payment platform for farmers and banking services for farmers	Medium
SSAPU	Provision of extension services	High
Torit County		
Caritas Torit	Livelihoods and food security Programmes	High
Ark for Humanity Torit	Food security and working with cooperatives and VSLAs	Medium
FOCOSS –Torit	Works with cooperatives in food security Programmes	Medium
GLOBAL AIM –Torit	Works with both VSLAs and cooperatives in food security Programmes	Medium
Care international	Women empowerment, education and food security	Medium
Plan international	Child protection and gender, food security.	Medium

Table 30 Stakeholder analysis matrix

Local NGOs whose influence was low were either not implementing Programmes at the time of study or implemented on a low scale.

CONCLUSIONS AND RECOMMENDATION

Conclusions

The baseline status

The Programme's log frame was populated with the baseline information and annexed in Annex 1.

Conclusions on other findings

The baseline concludes that the main sources of livelihoods for households in the three counties were largely influenced by agriculture. The main livelihood sources in the areas were agriculture and businesses. The average household had six members but only one of them engaged in income generating activities. This contributed to the low level of household income of SSP 18,263(USD 79.40) and negatively influenced food security within the counties. Yambio County had the lowest income while Bor had the highest income.

Low levels of income among farmers were caused by the following challenges:

- Small sizes of land cultivated due to unavailability of capital
- Poor mindset in regarding agriculture as commercial
- Low level of uptake of mechanized services
- Lack of extension services
- Poor quality saved seeds and dependency on NGOs caused main delays
- Limited access to farm inputs due to lack of a strong private sector supplying seeds which was caused by supply of free inputs by mainly from FAO through NGOs
- Low levels of production attributed to size of land limited by the labour to clear up more land, poor quality seeds and mistimed planting seasons
- Poor post handling practices. I.e. shelling by hand was tedious and time consuming, drying on the ground or on exposed pallets lowered the quality of the product, traditional granaries and jute bags were prone to attack by pests such as rats and weevils. All these lowered the production level
- Elementary level of production and form of produce during sale. Grinding using stones or pounding using pestle and mortar or selling in raw form meant fetching lower prices as opposed to advanced processed goods
- Limited markets. The market for produce was not diverse due to high transportation cost,and this meant low prices as farmers couldn't bargain
- Limited access to market information. Lack of market information meant farmers could not sale at best price and thus fetched low prices

In terms of food security, Yambio and Torit were projected to be in the IPC level 2 which meant even with any of the existing humanitarian assistance at least one in five HHs had minimally adequate food consumption but were unable to afford some essential non-food expenditures without engaging in irreversible coping strategies. Bor on the other hand was classified under PC level 3 which meant that even with any of the existing humanitarian assistance, one in five HHs was experiencing food consumption

gaps with high or above usual acute malnutrition or they were marginally able to meet minimum food needs only with accelerated depletion of livelihood assets that eventually led to food consumption gaps.

Food access in the counties was below average with a house dietary score of 5.3 and Bor having the lowest score of 4.9 out of 12. Levels of acute malnutrition as of September 2018 in Yambio and Torit were acceptable (GAM< 5%) while in Bor, the situation was critical (GAM>15%). However these situations were expected to improve during the seasonal availability of local food in October and December. The low levels of food access and high GAM rates in Bor were mainly cause by poor level of food production especially with one rainfall season in a year.

Group membership dwindled because of conflicts and low levels of income as 85% were not members of any groups. The most affected groups were VSLAs. The cooperatives mainly focused on aggregation and marketing of farmers' produce and did not diversify activities due to high levels of illiteracy and lack of management skills by the boards.

Bank account holding was very low in the counties due to lack of trust as some banks had closed due to the 2016 conflicts and farmers were unable to access their funds. Others lacked awareness of the services offered by banks or were far from banks.

The current reasonable calm state in the counties was attributed to the signed peace deals. However some parts of the counties could not be accessed as they were held by rebels. This limited humanitarian access. These areas were Ri-Rangu payam in Yambio and Jalle in Bor. Bor and Torit were still prone to cattle raiding which led to conflicts.

The prevalence of disaster such as droughts and floods was mainly due to lack of preparedness and awareness. Most of the people did not know how to mitigate such disasters due to lack of CMDRR committees within the communities. When the disasters occurred, they did not even know how to cope due to lack of preparedness.

The main stakeholders who could influence Programmes were the government, RRC, WFP and FAO. The government through ministries can help in data provision as well as in partnering in the Programme activities while the RRC had the mandate to oversee the activities of the Programme. WFP and FAO were the main market and input provider in the areas. The Programme could collaborate with them in terms of developing the input supply sector, access and dissemination of information and creating market linkages.

Recommendations

At the inception phase, the Programme must also get all the stakeholders on board. Thus the Programme partners, community, farmer groups, cooperatives, local NGOs, UN bodies, county and national government as well as the local leaders. Cohesion of all stakeholders will be vital in ensuring that the Programme objectives are met through partnerships and overall stakeholder oversight. This can be achieved through multi-stakeholder platforms and meetings as well as joining the stakeholder clusters existing in the counties, e.g. the food security cluster

The Programme's monitoring, evaluation and learning team should facilitate timely joint monitoring, learning and networking forums, document lessons learnt and develop effective systems of collecting and storing Programme data that will facilitate evaluation of the Programme. Risks such as Programme impact

attrition, caused by other players in the development sector will be addressed easily through close monitoring, stakeholder analysis and effective dissemination of information. The consortium members should join food security clusters existing in the different counties.

(c) VALUE CHAINS RECOMMENDATIONS:

- Links to inputs: working with seed companies and input dealers develop a preferred distributors network at the Payam level; develop strong links with seed suppliers, especially for Sorghum, Maize and groundnuts, matching supply with demand from the farmer side to minimize risk of oversupply for the seed companies/seed distributors; and link agro-input dealers with one farmer in each farmer group, FFS or cooperative who can aggregate demand for the entire group, saving on transaction and transportation costs for farmers since the agro-dealer can deliver aggregated demand inputs in bulk to the farmers.
- Construction of small warehouses and provide subsidized hermetic bags to farmers through existing agro dealers.

Capacity Building on:

- Sorghum: production (seed capital, use of improved seed varieties, grades and standards for traded grains, using fertilizers and sprays, planting in rows, weeding, mulching, and proper spacing), input suppliers (packaging and storage of seeds); Processing (local millers in the market; grading, service pricing, Milling technology for high flour yield and quality); Marketing (producers and agribusinesses traders; new market linkages, pricing, access to credit)

- Maize: production (seed varieties, seed capital, fall armyworm and the use of pesticides), input suppliers (packaging and storage of seeds, seed varieties, demonstration at the Payam level); post-harvest handling practices; Processing (local mills; grading, service pricing, Milling technology for high flour yield and quality); Marketing (producers and agribusinesses traders; new market linkages, pricing, access to credit)

- Groundnut: Production (seeds variety, production for the market); Processing (local millers; service pricing, milling technology and packaging); Marketing(producers and agribusinesses traders; new market linkages including export, pricing, access to credit)

- Cassava: Production (seeds variety, production for the market); Processing (local millers; service pricing, milling technology and packaging); Marketing(producers and agribusinesses traders; new market linkage, pricing, access to credit, record-keeping)

- Agricultural Input Policy: Collaboration with the government in policy development on the use of chemical, agricultural practices and risk reduction

(d) COOPERATIVE RECOMMENDATIONS:

Based on the rapid assessment of the cooperative, the following recommendations are made to support capacity development of the cooperatives:

- Membership mobilization: because most of the cooperatives had low memberships level

- Governance: capacity building on governance
- Financial management: (capacity building cooperatives boards)
- Marketing (train boards and develop new market links, WFP can purchase more grain)
- Internal capitalization

(c) MARKET DEVELOPMENT:

- Provide seed capital to develop market infrastructure, explore new markets for produce and provide agribusiness MSMEs capital.
- Links with buyers. Develop a preferred buyers' network in each of the counties for sorghum, maize, groundnuts and cassava; ensuring farmers are involved in market platforms in the counties; link buyers and farmers during the five years to build trust and transparency.
- Conduct market platforms where buyers and farmers can exchange market information and encourage transparent relationship based on trust.
- Develop radio shows that help disseminate market information in the three counties
- Develop agreements (MoUs) and contracts with buyers willing to offtake produce

(d) FINANCIAL PRODUCTS

- Mainstream VSLAs within the Payams and capacity build on record keeping and management. Provide grants to VSLAs and link them to MFIs to access affordable loans
- Capacity build MFIs in terms of new product development and offer them operating capital (loans or grants) to lend to agribusiness traders and farmers
- Monitor financing developed by the project closely to measure uptake and impact.

(e) CONFLICT ANALYSIS

- Use the Do No harm principle in all the activities of the project by ensuring genuine neutrality and compromise in conflict affected areas.
- Capacity building on community conflict management and resolution
- The project staff should avoid Payams held by rebels and should adhere to advise and recommendations from the security settings in the counties.

(f) DRR

- Establish CMDRR committees
- Capacity building the community and CMDRR committees on:
- Awareness of hazards and risks with emphasis on drought, floods and conflicts
- Disaster Preparedness, prevention, mitigation, response, rehabilitation and coping

(g) STAKEHOLDER ENGAGEMENT

- Potential partnership with WFP to purchase more produce, share modern warehouses/aggregation centers and use the aggregation centers for farmer training on storage technology. Partner with local NGOs to implement project activities.
- Partner with the ministry of agriculture in training of farmers on pesticides use in the control of fall armyworm and other pests

ANNEXES

Annex 1: Logframe populated with baseline figures

<table>
<tr><th>Level</th><th>Outcome</th><th>Indicator</th><th>Baseline Status</th></tr>
<tr><td>Goal</td><td>Improved food security, higher income and more employment for Farmer households in selected counties of South Sudan</td><td></td><td></td></tr>
<tr><td>LT Outcome</td><td>A. Farmers and Agri-businesses more resilient to shocks and hazards – both natural and conflict</td><td># of HHs better prepared and able to cope with shocks and hazards</td><td>Shock prevalence
<table>
<tr><th>Overall</th><th>Bor</th><th>Yambio</th><th>Torit</th></tr>
<tr><td>53%</td><td>59%</td><td>46%</td><td>52%</td></tr>
</table>
Main types of shocks faced
<table>
<tr><th></th><th>Overall</th></tr>
<tr><td>Droughts or floods</td><td>23%</td></tr>
<tr><td>Crop disease or crop pests</td><td>14%</td></tr>
<tr><td>Livestock died/stolen</td><td>12%</td></tr>
<tr><td>End of regular assistance, aid, or remittances from outside the household</td><td>1%</td></tr>
</table></td></tr>
</table>

Large fall in sale prices for crops	1%
Large rise in agricultural input prices	1%
Birth in the household	2%
Death of household member	17%
Fire	10%
Conflict	16%
Sickness in the family/Death of family members	3%

Coping mechanisms

Government support	6%
Did nothing	53%
used better agriculture practices i.e pesticides, irrigation, veterinary services, changed planting calendar	10%
Help from religion and faith based organizations	4%
By providing good security	1%
Contributions from well wishers	13%
Visited health centers	3%
Stopped uncontrolled burning of weeds and grass	3%
Kept the environment clean	2%
Migrated	5%

<table>
<tr><td>MT Outcome</td><td>A1. Enhanced DRR and trust in targeted communities</td><td># of Communities implementing CMDRR Plan</td><td>Awareness of community managed risk reduction (CMDRR) plans
<table><tr><th></th><th>Overall</th><th>Bor</th><th>Yambio</th><th>Torit</th></tr><tr><td>Aware</td><td>10%</td><td>17%</td><td>5%</td><td>7%</td></tr><tr><td>Not aware</td><td>90%</td><td>83%</td><td>95%</td><td>93%</td></tr></table></td></tr>
<tr><td>Outcome</td><td>A1.1 Community Managed Disaster Risk Reduction Plans & Peace Dialogues Operational</td><td># of "Peace & CMDRR Committees" Operational</td><td>In Yambio and Torit, Peace & CMDRR Committees were non-existent, while in Bor they had just been formed.</td></tr>
<tr><td>Output</td><td>A1.1.1</td><td># of joint risk assessment and analysis made include climate smart agriculture practices</td><td>0</td></tr>
<tr><td>Output</td><td>A1.1.2</td><td># of trainers (ToT) trained in facilitation of peace dialogue and CMDRR (disaggregated by sex)</td><td>0</td></tr>
<tr><td>Output</td><td>A1.1.3</td><td># of "Peace & CMDRR committees" trained in peace dialogue and CMDRR</td><td>0</td></tr>
<tr><td>Outcome</td><td>A1.2 Communities applying early warning system (EWS) in agriculture</td><td># of Communities applying early warning system (EWS)</td><td>%of HHs that Received early warning messages
<table><tr><th>Overall</th><th>Bor</th><th>Yambio</th><th>Torit</th></tr><tr><td>17%</td><td>21%</td><td>14%</td><td>16%</td></tr></table>
Type of information received</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><th></th><th>Overall</th><th>Bor</th><th>Yambio</th><th>Torit</th></tr>
<tr><td>Early and late rains</td><td>12%</td><td>19%</td><td>10%</td><td>7%</td></tr>
<tr><td>Vaccinations</td><td>8%</td><td>5%</td><td>10%</td><td>11%</td></tr>
<tr><td>Drought, flooding and famine</td><td>26%</td><td>21%</td><td>36%</td><td>22%</td></tr>
<tr><td>Disease and pests outbreaks</td><td>34%</td><td>32%</td><td>29%</td><td>41%</td></tr>
<tr><td>Insecurity warning</td><td>9%</td><td>5%</td><td>10%</td><td>11%</td></tr>
<tr><td>Prices</td><td>6%</td><td>6%</td><td>5%</td><td>4%</td></tr>
<tr><td>Fire outbreaks</td><td>3%</td><td>6%</td><td>0%</td><td>4%</td></tr>
<tr><td>Natural calamities and public resource management</td><td>2%</td><td>6%</td><td>0%</td><td>0%</td></tr>
</table>
</td></tr>
<tr><td>Output</td><td>A1.2.1</td><td># of communities with active dissemination of EWS messages</td><td>%of HHs that Received early warning messages
<table>
<tr><th>Overall</th><th>Bor</th><th>Yambio</th><th>Torit</th></tr>
<tr><td>17%</td><td>21%</td><td>14%</td><td>16%</td></tr>
</table>
</td></tr>
<tr><td>Output</td><td>A1.2.2</td><td># of communities with meetings in discussion the coping based on EWS messages</td><td>0</td></tr>
<tr><td>Outcome</td><td>A1.3 Communities have increased awareness on different hazards and smart agriculture, nutrition practices</td><td># of communities have increased awareness on different hazards and smart agriculture, nutrition practices</td><td>Only 10% of the households were able to use agricultural best practices to cope with hazards.
Hazard coping strategies
<table>
<tr><td>Government support</td><td>6%</td></tr>
<tr><td>Did nothing</td><td>53%</td></tr>
</table>
</td></tr>
</table>

			used better agriculture practices i.e. pesticides, irrigation, veterinary services, changed planting calendar **10%** Help from religion and faith based organizations 4% By providing good security 1% Contributions from well wishers 13% Visited health centers 3% **Stopped uncontrolled burning of weeds and grass** **3%** **Kept the environment clean** **2%** Migrated 5%
Output	A1.3.1	# of community action plan including early warning actions developed and disseminated	0
MT Outcome	A2. Continued Action Research Supporting Informed Decision Making	# of lessons learnt incorporated in Programme Implementation through evidence-based action research	0
Outcome	A2.1 Lessons learnt generated from action research	# of lessons learnt and recommendations documented	0
Output	A2.1.1	# of Action research conducted	0

<table>
<tr><td>Output</td><td>A2.1.2</td><td># of reflection and learning sessions facilitated</td><td>0</td></tr>
<tr><td>LT Outcome</td><td>B. Improved inclusive agri-business market functioning</td><td># of targeted HHs with improved access and availability to improved markets</td><td>The main markets available in the 3 counties were:
<table>
<tr><th>Bor</th><th>Yambio</th><th>Torit</th></tr>
<tr><td>Merol, Baidit payam market</td><td>Yambio town market, Nabiapai, Masia market</td><td>Torit, Melekia markets. others Kudo Payam market and Imadong</td></tr>
</table>
HHs income per month in SSP
<table>
<tr><th></th><th>Overall</th><th>Bor</th><th>Yambio</th><th>Torit</th></tr>
<tr><td>Average HH Income</td><td>SSP 18,263(USD 79.40)</td><td>SSP 24,656 (USD 107.2)</td><td>SSP 11,560(USD 50.26)</td><td>SSP 17,504 (USD 76.10)</td></tr>
</table>
*The average income for agricultural households was SSP. 19,591(USD 85.18)</td></tr>
<tr><td rowspan="2">MT Outcome</td><td rowspan="2">B1: Adequate and relevant Market Information Accessible and Available for Farmers and Agri-businesses</td><td>B1a - # of targeted HHs using market information as part of their decision making</td><td>Access to market information
Overall, 56% of the HHs has access to market information. Ata the county level, 62% of the households in Bor, 58% in Yambio and 48% in Torit accessed market information.</td></tr>
<tr><td>B1b - # of Agribusinesses using market information as part of their decision making</td><td>0</td></tr>
</table>

<table>
<tr><td>Outcome</td><td>B1.1 Market information is available for key stakeholders as part of their decision making</td><td># of market messages shared and broadcasted</td><td>The main sources of market information were:</td></tr>
<tr><td>Output</td><td>B1.1.1</td><td># of farmer groups using market information as part of their decision making (disaggregate by sex)</td><td></td></tr>
<tr><td>Output</td><td>B1.1.2</td><td># of VSLAs using market information as part of their decision making (disaggregate by sex)</td><td>Number of existing VSLAs and membership:
<table>
<tr><td rowspan="2">County</td><td rowspan="2">Number of VSLAs</td><td colspan="3">Membership</td></tr>
<tr><td>Male</td><td>Female</td><td>Total</td></tr>
<tr><td>Bor</td><td>10</td><td>48</td><td>142</td><td>190</td></tr>
<tr><td>Yambio</td><td>12</td><td>0</td><td>300</td><td>300</td></tr>
<tr><td>Torit</td><td>30</td><td>324</td><td>461</td><td>785</td></tr>
</table></td></tr>
<tr><td>Output</td><td>B1.1.3</td><td># of cooperatives using market information as part of their decision making (disaggregate by sex)</td><td>Number of existing cooperatives
<table>
<tr><td rowspan="2">County</td><td rowspan="2">Number of Cooperatives</td><td colspan="3">Average Membership per cooperative</td></tr>
<tr><td>Male</td><td>Female</td><td>Total</td></tr>
<tr><td>Bor</td><td>111</td><td>20</td><td>30</td><td>50</td></tr>
<tr><td>Yambio</td><td>170</td><td>22</td><td>10</td><td>32</td></tr>
<tr><td>Torit</td><td>63</td><td>27</td><td>26</td><td>53</td></tr>
</table></td></tr>
</table>

<table>
<tr><td>Output</td><td>B1.1.4</td><td># of Value Chain Actors sharing information (actors include Producers, market players and service providers) (disaggregated by sex)</td><td>Potential value chains
<table>
<tr><th>Bor</th><th>Yambio</th><th>Torit</th></tr>
<tr><td>Sorghum

Actors: Farmers, Min. of Agriculture, FAO, input suppliers, processors, traders and WFP</td><td>Maize

Actors: farmers, input suppliers, FAO, min. of agriculture, local processors and traders, WFP</td><td>Sorghum

Actors: Farmers, Min. of Agriculture, FAO, input suppliers, processors, traders and WFP</td></tr>
<tr><td>Maize

Actors: farmers, input suppliers, FAO, min. of agriculture, local processors and traders, WFP</td><td>Groundnuts

Actors: farmers, input suppliers, min. of agriculture, Local traders</td><td>Maize

Actors: farmers, input suppliers, FAO, min. of agriculture, local processors and traders, WFP</td></tr>
<tr><td>Groundnuts

Actors: farmers, input suppliers, min. of agriculture, Local traders</td><td>Cassava

Actors: Farmers, local, processors, local traders</td><td>Groundnuts

Actors: farmers, input suppliers, min. of agriculture, Local traders</td></tr>
</table></td></tr>
<tr><td>Output</td><td>B1.1.5</td><td># of market and cropping calendars finished and linked to app</td><td>0</td></tr>
<tr><td>MT Out</td><td>B2: Improved post-harvest handling physical market infrastructure</td><td># of HHs that make use of the available post-harvest facilities</td><td>Main storage facilities are traditional wooden and grass thatched granaries;

Yambio has 6 aggregation centers under WFP.</td></tr>
</table>

<table>
<tr><td>come</td><td></td><td></td><td>The main Storage bags used were the traditional jute bags.</td></tr>
<tr><td>Outcome</td><td>B2.1 Improved warehouse facilities at county/local level</td><td># of warehouses being functional (main and local)</td><td>In Yambio, the 6 warehouses/aggregation centers were functional

There were no functioning farmer used warehouses in Torit and Bor.</td></tr>
<tr><td>Output</td><td>B2.1.1</td><td># of market and physical locations identified and assessed</td><td>The main physical markets available in the 3 counties were:
<table>
<tr><th>Bor</th><th>Yambio</th><th>Torit</th></tr>
<tr><td>Merol, Baidit payam market</td><td>Yambio town market, Nabiapai, Masia market</td><td>Torit, Melekia markets. others Kudo Payam market and Imadong</td></tr>
</table></td></tr>
<tr><td>Output</td><td>B2.1.2</td><td># of main warehouses made available for adequate post-harvest storage</td><td>0</td></tr>
<tr><td>Output</td><td>B2.1.3</td><td># of local warehouses made available for adequate post-harvest storage</td><td>0</td></tr>
<tr><td>Outcome</td><td>B2.2 Post-harvest handling technologies adopted</td><td># of HHs that adopted at least one type of the new technologies</td><td>In the 3 counties, Traditional drying systems mainly used for maize, sorghum, groundnuts and Cassava. Traditional jute bags are also used to store maize and sorghum.

The process level is very low; using grinding stones, mortar and pestle.</td></tr>
<tr><td>Output</td><td>B2.2.1</td><td># of Hermetic Storage Tech HST (e.g. PICS-bags, green pro, zerfly) made available for farmers HHs (disaggregated by sex)</td><td>0</td></tr>
</table>

Output	B2.2.2	# of HST (incl. PICS-bags) made available for Farmer Groups (disaggregated by sex)	0
Output	B2.2.3	# of HST-bags made available for VSLAs (disaggregated by sex)	0
Output	B2.2.4	# of HST-bags made available for Cooperatives (disaggregated by sex)	0
Outcome	B2.3 Improved market access and availability	# of farmer groups with access and availability to improved markets(disaggregated by sex)	0
Output	B2.3.1	# of VSLAs with access and availability to improved markets (disaggregated by sex)	0
Output	B2.3.2	# of Cooperatives with access and availability to improved markets (disaggregated by sex)	0
Output	B2.3.3	# of farmer HHs access to and making use of services provided by ALOs/extension workers. (disaggregated by sex)	0
Output	B2.3.4	# of farmer groups with access to and making use of services provided by ALOs/extension workers. (disaggregated by sex)	0
Output	B2.3.5	# of VSLAs with access to and making use of services provided by	0

<table>
<tr><td></td><td></td><td>ALOs/extension workers (disaggregated by sex)</td><td></td></tr>
<tr><td>Output</td><td>B2.3.6</td><td># of cooperatives with access to and making use of services provided by ALOs/extension workers (disaggregated by sex)</td><td>0</td></tr>
<tr><td>MT Outcome</td><td>B3: Market Linkages Enhanced through Cooperatives/ Associations/ Farmer Organizations</td><td># of Productive Value Chains enhanced
# of farmers adding more value on their commodities</td><td>Value addition
85% of the traders/farmers did not add value to the products. The 15% who added value did it in the following ways:<table><tr><td>Cleaned the product</td><td>31%</td></tr><tr><td>Sorted farm harvests</td><td>23%</td></tr><tr><td>packaged</td><td>15%</td></tr><tr><td>Transported</td><td>15%</td></tr><tr><td>Ground to make flour</td><td>8%</td></tr><tr><td>Stored</td><td>8%</td></tr></table></td></tr>
<tr><td>Outcome</td><td>B3.1 Value Chains actors are linked</td><td># of Value Chains actors are linked with each other (disaggregated by sex).</td><td>0</td></tr>
<tr><td>Outcome</td><td>B3.2 Value chain linkages established</td><td># of value chain linkages established</td><td>0</td></tr>
</table>

<table>
<tr><td>LT Outcome</td><td>C. Enhanced sustainable production and productivity</td><td>% Increase in agriculture production per hectare cultivated by farmers (crops, vegetable & fruit)</td><td>Production rates and land cultivated
<table>
<tr><th></th><th>maize</th><th>Sorghum</th><th>Groundnuts</th><th>Cassava</th><th>Green vegetables</th><th>Rice</th></tr>
<tr><td>size of land (Ha)</td><td>0.5</td><td>0.6</td><td>0.6</td><td>0.5</td><td>0.4</td><td>0.6</td></tr>
<tr><td>Total Harvest season I (Kgs)</td><td>390</td><td>2035</td><td>1175</td><td>85</td><td>100</td><td>260</td></tr>
</table></td></tr>
<tr><td></td><td></td><td>% Increase in hectare cultivated by farmers (crops, vegetable & fruit)</td><td>Production rates and land cultivated
<table>
<tr><th></th><th>maize</th><th>Sorghum</th><th>Groundnuts</th><th>Cassava</th><th>Green vegetables</th><th>Rice</th></tr>
<tr><td>size of land (Ha)</td><td>0.5</td><td>0.6</td><td>0.6</td><td>0.5</td><td>0.4</td><td>0.6</td></tr>
<tr><td>Total Harvest season I (Kgs)</td><td>390</td><td>2035</td><td>1175</td><td>85</td><td>100</td><td>260</td></tr>
</table></td></tr>
<tr><td>MT Outcome</td><td>C1: Availability of and Access to agricultural Inputs (seeds, fertilizers, pesticides, tools) ensured</td><td>% of target farmers reported improvement in availability and access of agricultural input</td><td>0</td></tr>
</table>

<table>
<tr><td>Outcome</td><td>C1.1 Distribution channels for agricultural production operational for farmers up to the village level</td><td># of Distribution channels for agricultural production operational for farmers up to the village level</td><td>0</td></tr>
<tr><td>Outcome</td><td>C1.2 Improved seed production by targeted farmers</td><td># of farmers trained in improved seed production (disaggregated by Sex)</td><td>0</td></tr>
<tr><td>Outcome</td><td>C1.3 Local seed testing facilities established and operational</td><td># of local seed testing facilities established and operationalization supported</td><td>0</td></tr>
<tr><td>MT Outcome</td><td>C2: Good Agricultural Practices Enhanced and Extension Services Improved</td><td># of trained farmers apply good and climate smart agricultural practices including nutrition education, gender and resilience</td><td>0</td></tr>
<tr><td>Outcome</td><td>C2.1 Farmers apply good and climate smart agricultural practices</td><td># of trained farmers apply good and climate smart agricultural practices including nutrition education, gender and resilience</td><td>0</td></tr>
<tr><td>Output</td><td>C2.1.1</td><td># of FFS groups identified and established</td><td>Existing Farmer field schools<table><tr><th>Bor</th><th>Yambio</th><th>Torit</th></tr><tr><td>4</td><td>0</td><td>33</td></tr></table></td></tr>
<tr><td>Output</td><td>C2.1.1</td><td># of FFS successfully conducted</td><td>0</td></tr>
</table>

<table>
<tr><td>Output</td><td>C2.1.2</td><td># of ToT training organized for extension workers in good and climate smart agricultural practices including nutrition education, gender and resilience.</td><td>0</td></tr>
<tr><td>Output</td><td>C2.1.3</td><td># of FFS lead farmers trained in good and climate smart agricultural practices including nutrition education, gender and resilience. (disaggregated by sex)</td><td>0</td></tr>
<tr><td>Output</td><td>C2.1.4</td><td># of demonstration fields established</td><td>0</td></tr>
<tr><td>Output</td><td>C2.1.5</td><td># of FFS group participants trained by FFS lead farmers in good and climate smart agricultural practices including nutrition education, gender and resilience.</td><td>0</td></tr>
<tr><td>Outcome</td><td>C2.2 Farmers have expanded their income base</td><td># of farmers who have expanded their income base and buying power through diversification and adding value to their produce (disaggregated by sex)</td><td>
<table>
<tr><th></th><th>Overall</th><th>Bor</th><th>Yambio</th><th>Torit</th></tr>
<tr><td>Average HH Income per month (SSP)</td><td>SSP 18,263(USD 79.40)</td><td>SSP 24,656(USD 107.4)</td><td>SSP 11,560 (USD(50.26)</td><td>SSP 17,504 (USD 76.10)</td></tr>
</table>
*Average HH income for HHs whose main source of income was agriculture was SSP 19,591 (USD 85.18).
</td></tr>
</table>

<table>
<tr><td>Output</td><td>C2.2.1</td><td># of Extension services to farmers provided by agri-business extension workers (disaggregated by sex)</td><td>0</td></tr>
<tr><td>Output</td><td>C2.2.2</td><td># of farmers reached by services provided by SSAPU to the farmers (disaggregated by sex)</td><td>0</td></tr>
<tr><td>Output</td><td>C2.2.3</td><td># of training and coaching provided to SSAPU to provide Institutional strengthening (disaggregated by sex)</td><td>0</td></tr>
<tr><td>Outcome</td><td>C2.3 Female farmers have expanded their income base</td><td>% Increase in income of female smallholder vegetable and fruit growers</td><td>Income levels of female headed household<table><tr><td></td><td>overall</td><td>Bor</td><td>Yambio</td><td>Torit</td></tr><tr><td>Income (SSP) Per month</td><td>8,143</td><td>6,507</td><td>9,780</td><td>6,656</td></tr></table></td></tr>
<tr><td>Outcome</td><td>C2.4 Enhanced nutritional status through increase in fruit and vegetable and other crop production & consumption</td><td>% Increase in fruit and vegetable production</td><td>Vegetable production levels<table><tr><td></td><td>Cassava</td><td>Okra</td><td>Banana</td><td>Pineapple</td><td>Dodo</td><td>Eggplant</td></tr><tr><td>Size of land (Feddans)</td><td>0.9</td><td>0.7</td><td>1.1</td><td>0.6</td><td>0.6</td><td>0.8</td></tr><tr><td>Quantity produced(Shawal, 50kg bag)</td><td>6.3</td><td>2.4</td><td>16.5</td><td>26.2</td><td>15</td><td>16.5</td></tr></table></td></tr>
</table>

<table>
<tr><td></td><td></td><td>% Increase in Household Dietary Diversity Score (HDDS)</td><td><table><tr><td></td><td>HDDS score</td></tr><tr><td>Overall</td><td>5.30</td></tr><tr><td>Bor</td><td>4.94</td></tr><tr><td>Yambio</td><td>5.61</td></tr><tr><td>Torit</td><td>5.50</td></tr></table></td></tr>
<tr><td>Output</td><td>C2.4.1</td><td>% increase of farmers with improved access to markets to sell vegetables, legumes, fruits and other crops (disaggregated by sex) compared to baseline.</td><td>Farmers sold their produce to:<table><tr><td></td><td>Overall</td><td>Bor</td><td>Yambio</td><td>Torit</td></tr><tr><td>Processor/Miller</td><td>3%</td><td>2%</td><td>5%</td><td>4%</td></tr><tr><td>Cooperative</td><td>2%</td><td>2%</td><td>2%</td><td>3%</td></tr><tr><td>Traders</td><td>6%</td><td>5%</td><td>6%</td><td>7%</td></tr><tr><td>Consumer</td><td>35%</td><td>41%</td><td>32%</td><td>34%</td></tr><tr><td>WFP and Local market</td><td>41%</td><td>43%</td><td>39%</td><td>40%</td></tr><tr><td>Other</td><td>12%</td><td>7%</td><td>16%</td><td>12%</td></tr></table></td></tr>
<tr><td>LT Outcome</td><td>D. Improved performance of cooperatives and Agri-MSMEs and new jobs are created</td><td># of Cooperative and Agri-MSMEs having improved income performance</td><td>0</td></tr>
<tr><td>MT Outcome</td><td>D1: Cooperatives have adequate organizational and financial management capacity</td><td># of cooperatives which have improved performance in the assessments on organisational and financial management (disaggregated by sex)</td><td>0</td></tr>
</table>

Outcome	D1.1 Cooperatives are capable for developing bankable business plans	# of bankable business plans 'created by Cooperatives' (disaggregated by sex)	0
Outcome	D1.2 Cooperatives have positive FHC scores	# of cooperatives which have improved FHC scores	0
Outcome	D1.3 Cooperatives have attained positive cost-benefit analysis	# of cooperatives with positive cost-benefit analysis (disaggregated by sex)	0
Output	D1.3.1	# of action plans developed with Cooperatives	0
Output	D1.3.2	# of extension workers trained through the Training of Trainers approach on being able to train on Mycoop. (disaggregated by sex)	0
Output	D1.3.3	# of training sessions provided to Cooperatives board members and staff	0
Output	D1.3.4	# of training session provided by the Cooperative Extension workers to Cooperative members	0
MT Outcome	D2: Women, youth, MSMEs are capable and equipped with skills to start and grow their business	# of Businesses started and growing after one year through RBDS Services (disaggregated by sex)	0

Outcome	D2.1 Functional Business Support Ecosystem in the Programme Locations for VSLAs, Co-ops and MSMEs	# of Functional Business Support Ecosystem established in the three Programme Locations	0
Output	D2.1.1	# of Entrepreneurship & Business Skills Training Materials Developed for the VSLAs, Co-ops & MSMEs for Illiterates	0
Output	D2.1.2	# of Entrepreneurship & Business Skills Training Materials Developed for the VSLAs, Co-ops & MSMEs for literates	0
Output	D2.1.3	Strategy for coaching Businesses for (il) literates	0
output	D2.1.4	# Of RBDS Developed (services are being continuously developed for VSLAs and contextualized per value chain per programme location for illiterates and literates.	0
Output	D2.1.5	# of RBDS developed for MSMEs for (il) literatures.	0
Output	D2.1.6	# of people trained as ToTs in Entrepreneurship & Business Skills for illiterates and literates (disaggregated by sex)	0

<table>
<tr><td>Output</td><td>D2.1.7</td><td># of people trained as ToTs in coaching methodology for Business Skills and BDS for illiterates and literates (disaggregated by sex)</td><td>0</td></tr>
<tr><td>Outcome</td><td>D2.2 Entrepreneurial and Business Knowledge of VSLAs, Co-ops and MSMEs enhanced</td><td># of VSLAs, Co-ops and MSMEs Entrepreneurial and Business Knowledge increased through skills Training (disaggregated by sex)</td><td>Business skill self-assessment out of 5.
<table>
<tr><th>Business Skills and Knowledge</th><th>MSMEs</th><th>Cooperative members</th><th>VSLA members</th></tr>
<tr><td>Business experience</td><td>2.6</td><td>2.8</td><td>2.9</td></tr>
<tr><td>Business Plan development</td><td>2.7</td><td>2.7</td><td>2.1</td></tr>
<tr><td>Obtaining business finance</td><td>2.1</td><td>3.0</td><td>2.3</td></tr>
<tr><td>Ability to access business support</td><td>2.5</td><td>2.7</td><td>2.6</td></tr>
<tr><td>Marketing skills</td><td>2.9</td><td>3.1</td><td>2.5</td></tr>
<tr><td>Management skills</td><td>2.8</td><td>3</td><td>2.9</td></tr>
<tr><td>New product development</td><td>2.5</td><td>2.6</td><td>2.2</td></tr>
<tr><td>Information technology</td><td>2.3</td><td>2.5</td><td>1.8</td></tr>
<tr><td>Business registration</td><td>2.2</td><td>2.7</td><td>2.0</td></tr>
<tr><td>Financial Management</td><td>2.8</td><td>3.4</td><td>3.0</td></tr>
<tr><td>Quality management skills</td><td>2.8</td><td>3.2</td><td>2.6</td></tr>
<tr><td>Business opportunity requirement</td><td>2.5</td><td>3.1</td><td>2.6</td></tr>
<tr><td>Overall rating</td><td>2.6</td><td>2.9</td><td>2.5</td></tr>
</table></td></tr>
<tr><td>Output</td><td>D2.2.1</td><td># of Coops trained in E & Biz Skills (disaggregated by sex)</td><td>0</td></tr>
</table>

Output	D2.2.2	# of VSLA members trained in E & Biz Skills (disaggregated by sex)	0
Output	D2.2.3	# of MSME's trained in E & Biz Skills (disaggregated by sex)	0
Output	D2.2.4	# of Coops provided with RBDS Services (disaggregated by sex)	0
Output	D2.2.5	# of individuals who are part of a VSLA being provided with RBDS Services (disaggregated by sex)	0
Output	D2.2.6	# of MSMEs provided with RBDS Services (disaggregated by sex)	0
Outcome	D2.3.VSLAs, Co-ops & MSMEs have Bankable BP & access finance access	# of VSLAs, Coops and MSME's that are Bankable and receive investment (disaggregated by sex)	0
Output	D2.3.1	# of trained VSLAs which increase their group savings and therefore receive matching seeds capital as a group. (disaggregated by sex)	0
Output	D2.3.2	# of existing MSME's which have bankable business plans (investment proposal). (disaggregated by sex)	0

Output	D2.3.3	# of cooperatives with demonstrable sustainable performance (disaggregated by sex)	0
Output	D2.3.4	# of VSLA members with demonstrable sustainable performance (disaggregated by sex)	0
Output	D2.3.5	# of MSME's with demonstratable sustainable performance (disaggregated by sex)	0
Outcome	D2.4 Youth and women have improved capacity in start-up/ growing businesses	# of Youth and women have started businesses (disaggregated by sex)	0
Output	D2.4.1	# of illiterate youth and women trained in entrepreneurship (innovation sessions). (disaggregated by sex)	0
Output	D2.4.2	# of literate youth and women trained in entrepreneurship (innovation sessions) (disaggregated by sex)	0
Output	D2.4.3	# of illiterate youth and women participate in business skills trainings (disaggregated by sex)	0
Output	D2.4.4	# of literate youth and women participate in business skills trainings. (disaggregated by sex)	0

Output	D2.4.5	# of illiterate youth and women participate in Business Plan competitions (disaggregated by sex)	0
Output	D2.4.6	# of literate youth and women participate in Business Plan competitions. (disaggregated by sex)	0
Output	D2.4.7	# of illiterate youth and women develop bankable business plans (disaggregated by sex)	0
Output	D2.4.8	# of literate youth and women develop bankable business plans (disaggregated by sex)	0
Output	D2.4.9	# of illiterate youth and women receive finance (disaggregated by sex)	0
Output	D2.4.10	# of literate youth and women receive finance (disaggregated by sex)	0
Output	D2.4.11	# of illiterate youth and women startups demonstrate sustainable performance (disaggregated by sex)	0
Output	D2.4.12	# of literate youth and women demonstrate sustainable performance (disaggregated by sex)	0

<table>
<tr><td>MT Outcome</td><td>D3: Availability of- and Access to Appropriate Financial Products and Services Ensured</td><td># of Appropriate Financial Products and Services adopted by the targeted users</td><td>0</td></tr>
<tr><td>Outcome</td><td>D3.1 Farmers and agri-businesses have access to appropriate financial products/services</td><td># of farmers and agri-businesses with need for finance that have access to appropriate financial products (disaggregated by sex)</td><td>Access to finance
<table><tr><th></th><th>Applied for loan</th><th>Received loan applied for (out of those who applied)</th></tr><tr><td>Overall</td><td>9%</td><td>77%</td></tr><tr><td>Bor</td><td>9%</td><td>88%</td></tr><tr><td>Yambio</td><td>11%</td><td>59%</td></tr><tr><td>Torit</td><td>8%</td><td>86%</td></tr></table></td></tr>
<tr><td>Output</td><td>D3.1.1</td><td># of MFI's/VSLAs and SACCO's supported in serving the target groups in effective and efficient ways (disaggregated by sex)</td><td>0</td></tr>
<tr><td>Output</td><td>D3.1.2</td><td># of appropriate financial products developed for different type of crops and agri-businesses</td><td>0</td></tr>
<tr><td>Outcome</td><td>D3.2 Target farmers and agri-businesses have improved financial literacy</td><td># of target farmers and agri-businesses trained in financial literacy (disaggregated by sex)</td><td>Financial knowledge
Awareness of financial products and services
<table><tr><td></td><td>Savings account</td><td>Current account</td><td>Money transfer</td><td>ATM services</td><td>Loans</td><td>Not aware</td><td>Cash deposits</td></tr></table></td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>Overall</td><td>20%</td><td>7%</td><td>2%</td><td>3%</td><td>9%</td><td>59%</td><td>1%</td></tr>
<tr><td>Bor</td><td>21%</td><td>6%</td><td>2%</td><td>5%</td><td>11%</td><td>55%</td><td>0%</td></tr>
<tr><td>Yambio</td><td>22%</td><td>11%</td><td>1%</td><td>1%</td><td>8%</td><td>56%</td><td>1%</td></tr>
<tr><td>Torit</td><td>13%</td><td>4%</td><td>2%</td><td>2%</td><td>9%</td><td>69%</td><td>2%</td></tr>
</table>
Bank Account Holding Levels
<table>
<tr><td></td><td>% of account holding</td></tr>
<tr><td>Overall</td><td>4%</td></tr>
<tr><td>Bor</td><td>3%</td></tr>
<tr><td>Yambio</td><td>5%</td></tr>
<tr><td>Torit</td><td>2%</td></tr>
</table>
</td></tr>
<tr><td>Output</td><td>D3.2.1</td><td># of female target farmers and agri-businesses trained in financial literacy</td><td>0</td></tr>
<tr><td>Outcome</td><td>D3.3 Farmers and agri-businesses have received required financial product</td><td># of farmers and agri-businesses that have received a financial product (disaggregated by sex)</td><td>0</td></tr>
<tr><td>Output</td><td>D3.3.1</td><td># of farmers that have received a loan (disaggregated by sex)</td><td>0</td></tr>
<tr><td>Output</td><td>D3.3.1</td><td># of MSMEs/Agribusinesses financed (disaggregated by sex)</td><td>0</td></tr>
<tr><td>Output</td><td>D3.3.1</td><td># of SACCO's/MFIs/VSLA that received a loan (disaggregated by sex)</td><td>0</td></tr>
</table>

Annex 2: Data on VSLAs, Cooperatives and agro dealers


Torit Field data.xlsx


Yambio Field data.xlsx


Bor field data.xlsx

Annex 3: Terms of Reference


ToR - Inception Study in AGROBUSII

Annex 4: Raw Data


SSADP II Raw Data.sav


SSADP II Raw Data.xlsx